

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**AGRICULTURAL FARM ATTENDANT**

**LEVEL 4**

**PROGRAMME CODE: 0811 354 A**

**Copyright © 2025**

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 sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. 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 curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this Occupational Standard were developed for developing a Competency-Based Education and Training (CBET) curriculum for Agricultural Farm Attendant Level 4. 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 Technical and Vocational Education and Training Act No. 29 of 2013 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 labour force.

The National Polytechnics, in conjunction with the industry experts through the Industry Advisory Board (IAB), sector regulator boards, TVETA authority, and qualification awarding institution has developed this Occupational Standard for Agricultural Farm Attendant level 4. The occupational standards will be the basis for the development of a competency-based education and training curriculum for Agriculture level 4.

I am grateful to the Governing Council Members, TVETA, sector regulators, the industry experts, and subject experts who participated in the development of these standards.

**ACKNOWLEDGMENT**

This Occupational Standard were 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.

I also thank all the individuals and organizations who participated in the validation of these Occupational Standards.

Table of Contents

[FOREWORD iii](#_Toc197037281)

[ACKNOWLEDGMENT v](#_Toc197037282)

[ACRONYMS vii](#_Toc197037283)

[KEY TO ISCED UNIT CODE viii](#_Toc197037284)

[OVERVIEW ix](#_Toc197037285)

[SUMMARY OF UNITS OF COMPETENCY ix](#_Toc197037286)

[OPERATE FARM MACHINERY 1](#_Toc197037287)

[PRODUCE ANNUAL CROPS 7](#_Toc197037288)

[PRODUCE HORTICULTURAL CROPS 14](#_Toc197037289)

[CONSERVE WATER IN FARM 25](#_Toc197037290)

[REAR RUMINANT ANIMALS 31](#_Toc197037291)

[REAR NON-RUMINANT ANIMALS 37](#_Toc197037292)

**ACRONYMS**

|  |  |
| --- | --- |
| PPEs | Personal Protective Equipment |
| ISCED | International Standard Classification of Education |
| OSHA | Occupational Safety and Health Act |
| FAO | Food and Agriculture organization |
| TVET CDACC | TVET Curriculum development, Assessment and certification council |
| TVET | Technical and vocational education and training |
| TVETA | Technical and Vocational Education Training Authority |
|  |  |
|  |  |

**KEY TO ISCED UNIT CODE**

Sector / Industry

Sub Sector

Occupational Area

Version Control

Unit of Competence Number

ISCED level, Programme Orientation and Level of Completion

xx

x

xxx

x

x

x

# OVERVIEW

General Agriculture Level 4 qualification consists of competencies required by a person to enable him/her perform duties of an Agricultural farm attendant Level 4**.** These competencies include producing ruminant animals, producing non- ruminant animals, producing annual crops, producing horticulture crops, utilization of farm water and operating farm machinery.

Thus, the units of competency comprising Agriculture Level 4 qualification include the following core competencies:

**SUMMARY OF UNITS OF COMPETENCY**

|  |  |
| --- | --- |
| **CORE UNITS OF COMPETENCY** | |
| 0716 451 01A | Operate farm machinery |
| 0811 451 02A | Produce annual crops |
| 0812 451 03 A | Produce horticulture crops |
| 0811 451 04 A | Conserve water in farm |
| 0811 451 05 A | Rear Ruminants animals |
| 0811 451 06 A | Rear non-ruminant animals |

# OPERATE FARM MACHINERY

**UNIT CODE:** 0716 351 01 A

**UNIT DESCRIPTION**

This unit specifies the competencies required by farm attendant to operate farm machinery. It involves operate hand tools and equipment, operate tillage machinery, operate planting machinery, operate crop protection machinery, operate harvesting machinery and operate agro-processing machinery.

**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. Operate hand tools and equipment | * 1. ***Hand tools*** and ***equipment*** are assembled as per work requirement   2. Hand tools and equipment are utilized as per work procedure   3. Hand tools and equipment are serviced as per work procedure   4. Hand tools and equipment are stored as per work procedure   5. Maintain tools and equipment records as per workplace policy |
| 1. Operate tillage machinery | * 1. ***Personal protective equipment*** is worn as per safety procedures   2. ***Tillage machinery*** is operated as per work procedures   3. Tillage machinery is maintained as per work procedure   4. Tillage machinery is stored as per work procedure |
| 1. Operate planting machinery | * 1. Personal protective equipment is worn as per safety procedure   2. ***Planting machinery*** is calibrated as per work requirement   3. Planting machinery is operated as per work procedure   4. Planting machinery is maintained as per work procedure   5. Planting machinery is stored as per work procedure |
| 1. Operate crop protection machinery | * 1. ***Crop protection machinery*** calibrated as per work requirement   2. Crop protection machinery is operated as per work requirement   3. Crop protection machinery is maintained as per work procedure   4. Crop protection machinery is stored as per work requirement |
| 1. Operate harvesting machinery | * 1. ***Harvesting machinery*** is operated as per work procedures   2. Harvesting machinery is maintained as per work requirement   3. Harvesting machinery is stored as per work requirement |
| 1. Operate agro-processing machinery | * 1. ***Agro-processing machinery*** is operated as per work requirement   2. Agro-processing machinery is maintained and repaired as per work requirement   3. Agro-processing machinery is stored as per work requirement |

**RANGE**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| * + - 1. PPEs include but not limited to: | * Eye protection equipment * Hearing protection equipment * Feet protection equipment * Respiratory protection equipment * Gloves * Full body suits |
| * + - 1. Hand tools and equipment include but not limited to: | * Garden tools and equipment * Workshop tools and equipment * Carpentry tools and equipment * Masonry tools and equipment * Livestock handling tools and equipment |
| * + - 1. Tillage machineryinclude but not limited to: | * Ploughs * Harrows * Tillers * Rotavators * Subsoilers |
| * + - 1. Planting machineryinclude but not limited to: | * Seed drills * Planters * Ridgers * Fertilizer distributors * Manure spreaders |
| * + - 1. Crop protection machineryinclude but not limited to: | * Sprayers * Dusters |
| * + - 1. Harvesting machineryinclude but not limited to: | * Balers * Mowers * Combined harvesters * Potato harvester * Threshers |
| * + - 1. Processing machineryinclude but not limited to: | * Mills * Grinders * Shellers * Dryers * Elevators conveyors |

**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:

* Identification
* Drawing
* Communication
* Demonstration
* Interpersonal
* Calculation
* Analytical
* Observation
* Problem solving
* First aid
* Innovation
  + - Creativity

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* + - Types and sources of farm power
    - Tractor engine
    - Tractor systems and their principles of operation
    - Power transmission in a tractor
    - Tractor components, controls and features and operational functions
    - Tractor steering systems and features
    - Attached equipment, features and operational functions and procedures
    - Operating principles and operating of farm machinery
    - Maintenance of tractors
    - Maintenance of farm tools, equipment and machinery

**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. Utilized hand tools and equipment as per manufacturer’s manual 2. Serviced Hand tools and equipment as per manufacturer’s manual 3. Maintained Tillage machinery manufacturer’s manual 4. Calibrated Planting machinery calibrated as per manufacturer’s manual 5. Maintained planting machinery as per manufacturer’s manual 6. Calibrated Crop protection machinery as per manufacturer’s manual 7. Maintained Harvesting machinery as per manufacturer’s manual 8. Donned Personal protective equipment per safety procedures 9. Maintained Agro-processing machinery is as per manufacturer’s manual |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant workplace assessment environment   3. Resources relevant to the proposed assessment activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical assessment   2. Project   3. Portfolio of evidence   4. Third party report   5. Written assessment   6. Oral assessment |
| 1. Context of Assessment | This competency may be assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed operation of farm power and machinery. |

# PRODUCE ANNUAL CROPS

**UNIT CODE: 0811 351 02 A**

**UNIT DESCRIPTION**

This unit specifies competencies required to produce annual crops. It involves preparing land, establishing and managing selected annual crops. It also involves harvesting and storage as well as processing and marketing of the selected annual crops

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which makeup **work place function**. | **PERFORMANCECRITERIA**  These are **assessable s**tatements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Prepare planting materials | * 1. ***Personal protective equipment*** is donned as per work requirement   2. Tools and equipment are assembled as per work requirement   3. ***Planting materials*** are obtained as per crop requirement |
| 1. Prepare crop seedbed | * 1. Personal protective equipmentis donned as per work requirement   2. ***Land preparation tools*** and ***equipmen***t are assembled as per work requirement   3. Land is cleared as per agronomic requirements   4. ***Tillage operations*** are carried out as per agronomic requirements   5. ***Soil conservation measures*** are applied as per work procedure   6. Seedbed preparation recordsare prepared as per work procedure |
| 1. Plant Annual crops | * 1. Personal protective equipment is donned as per work requirement   2. ***Farm inputs*** are assembled as per work requirement   3. Annual crop is established as per crop requirements   4. Planting recordsare prepared as per work procedure |
| 1. Manage Annual crops | * 1. Personal protective equipmentis donned as per work requirement   2. Farm inputsare assembled as per work requirement   3. ***Field management practice*** is carried out as per crop agronomic requirements   4. Management recordsare prepared as per work procedure |
| 1. Harvest Annual crops | * 1. Personal protectiveequipmentis donned as per work requirement   2. ***Harvesting tools*** and ***equipmen***t are assembled as per work requirement   3. Maturity indices are applied in determining crop maturity as per market demand   4. ***Harvesting method*** is applied as per crop requirement   5. Harvest recordsare prepared as per work procedure |
| 1. Process annual crop products | * 1. Personal protective equipmentis donned as per work requirement   2. ***Processing tools, equipment*** and ***machines*** are assembled as per work requirement   3. Processing of annual crop is carried out as per work procedure   4. Products are marketed as per workplace procedure   5. Processing Recordsare prepared as per work procedure |

**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.

|  |  |
| --- | --- |
| 1. Personal protective equipment includes but not limited to: | * Overall or over coat * Gumboots * Gloves * Head gear * Face mask |
| 1. Landpreparationtools and equipmentincludes but not limited to: | * + **Tools** * Land clearing tools/equipment/machinery * Axes * Panga * Rake * Slasher * Tillage tools/equipment/machinery * Fork jembe * Harrows * Hoe * Tractor   + **Equipment** * Mower * Rotavator * Wheelbarrow * Ridgers * Moulboard plough * Disc plough * Disc harrow |
| 1. Planting materialsincludes but not limited to: | * Seeds and seedlings * Splits * Crowns * Slips, cuttings and sucker |
| 1. Tillage operations include but not limited to; | * Primary cultivation * Secondary cultivation * Tertiary operations |
| 1. Soil conservation measuresinclude but not limited to***;*** | * Contour planting * Terraces * Gabbions * Mulching * Cover cropping * Minimum tillage * Crop rotation * Intercropping |
| 1. Farm inputs includes but not limited to; | * Fertilizers * Seeds * Vegetative propagation materials * Manures |
| 1. Field management practicesinclude but are not limited to: | * Watering * Mulching * Gapping * Thinning * Crop protection from weeds, pests and diseases * Training * Fertilizer application * Pruning |
| 1. Harvesting tools and equipment include but not limited to; | * Sickle * Axe * Harrow * Chopper |
| 1. Harvesting methodsinclude but not limited to; | * Hand picking * Use of tools * Use of machinery |
| 1. Annual crops include but not limited to: | * wheat * Rice * Maize * Millet * Sorghum * Beans * Soya * Beans * Pigeon peas * Sunflower * Cotton * Tobacco * Sweet potatoes * Cassava |
| 1. Recordsinclude but not limited to; | * Inventory records * Financial records * Yield and production records * Payroll and labour records * Farm input utilization record |
| 1. Processing tools and equipmentinclude but not limited to; | * Blender * Motar and pestle * Weighing scale * Knives/cutting materials * Weighing cup * Bowl choppers * bandsaws * slicers * Marinating vacuum tumblers * Peelers |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required skills**

The individual needs to demonstrate the following skills:

* + - * Tilling
      * Tools and equipment classification
      * Measuring
      * Leveling
      * Gaping
      * Pruning
      * Spraying
      * Pests , diseases and nutrients deficiency scouting
      * Equipment calibration
      * Technical Report writing
      * Produce handling
      * Soil conservation
      * Observation
      * Negotiation
      * Digital literacy

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Sources of quality water
* Agro- Ecological Zonation
* Farm establishment and management
* Types of annual crops and physiology of different annual crops
* Types of tools and equipment used in production of annual crops
* Soil fertility and soil conservation
* Phyto-sanitary requirements
* Good Agricultural Practices
* Sources of quality planting materials for annual crops
* Husbandry practices in annual crops production
* Maturity indices in annual crops
* Harvesting and Post Harvesting Handling of annual crops
* Accounting principles, farm records and reports
* Waste Management
* Occupational Safety and Health Procedures

# 

# PRODUCE HORTICULTURAL CROPS

**UNIT CODE:**  **0812 351 03 A**

**UNIT DESCRIPTION**

This unit specifies competencies required to produce horticultural crops. It involves preparing land, establishing and managing selected horticultural crops. It also involves harvesting and storage as well as processing and marketing of the selected horticultural crops

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which makeup **work place function**. | **PERFORMANCECRITERIA**  These are **assessable s**tatements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Prepare planting materials | * 1. ***Personal protective equipment*** is donned as per work requirement   2. Tools and equipment are assembled as per work requirement   3. ***Planting materials*** are obtained as per crop requirement |
| 1. Prepare horticulture crop seedbed | * 1. Personal protective equipmentis donned as per work requirement   2. ***Land preparation tools*** and ***equipmen***t are assembled as per work requirement   3. Land is cleared as per agronomic requirements   4. ***Tillage operations*** are carried out as per agronomic requirements   5. ***Soil conservation measures*** are applied as per work procedure   6. Recordsare prepared as per work procedure |
| 1. Plant Horticultural crops | * 1. Personal protective equipment is donned as per work requirement   2. ***Farm inputs*** are assembled as per work requirement   3. Horticultural crop is established as per crop requirements   4. Recordsare prepared as per work procedure |
| 1. Manage Horticultural crops | * 1. Personal protective equipmentis donned as per work requirement   2. Farm inputsare assembled as per work requirement   3. ***Field management practice*** is carried out as per crop agronomic requirements   4. Recordsare prepared as per work procedure |
| 1. Harvest Horticultural crops | * 1. Personal protectiveequipmentis donned as per work requirement   2. ***Harvesting tools*** and ***equipment*** are assembled as per work requirement   3. Maturity indices are applied in determining crop maturity as per market demand   4. ***Harvesting method*** is applied as per horticultural crop requirement   5. Recordsare prepared as per work procedure |
| 1. Process Horticultural crop products | * 1. Personal protective equipmentis donned as per work requirement   2. ***Processing tools, equipment*** and ***machines*** are assembled as per work requirement   3. Processing of Horticultural crop is carried out as per work procedure   4. Products are marketed as per workplace procedure   5. ***Records*** are prepared as per work procedure |

**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.

|  |  |
| --- | --- |
| 1. Personalprotectiveequipment includes but not limited to: | * Overall or over coat * Gumboots * Gloves * Head gear * Face mask |
| 1. Landpreparationtoolsand equipmentincludes but not limited to: | **Tools**   * Land clearing tools/equipment/machinery * Axes * Panga * Rake * Slasher * Tillage tools/equipment/machinery * Fork jembe * Harrows * Hoe * Tractor   **Equipment**   * Mower * Rotavator * Wheelbarrow * Ridgers * Moulboard plough * Disc plough * Disc harrow |
| 1. Plantingmaterialsincludes but not limited to: | * + Seeds   + Vegetative materials   + Cuttings   + Vines   + Suckers   + Splits   + Setts |
| 1. Tillageoperations include but not limited to; | * Primary cultivation * Secondary cultivation * Tertiary operations |
| 1. Soilconservationmeasuresinclude but not limited to***;*** | * Contour planting * Terraces * Gabbions * Mulching * Cover cropping * Minimum tillage * Crop rotation * Intercropping |
| 1. Farm inputs includes but not limited to; | * Fertilizers * Seeds * Vegetative propagation materials * Manures |
| 1. Field management practicesinclude but are not limited to*:* | * Watering * Mulching * Gapping * Thinning * Crop protection from weeds, pests and diseases * Training * Fertilizer application * Pruning |
| 1. Harvesting tools and equipment include but not limited to; | * Sickle * Axe * Harrow * Chopper |
| 1. Harvesting methodsinclude but not limited to; | * Hand picking * Use of tools * Use of machinery |
| 1. Horticulturalcrops include but not limited to: | * Vegetables: * Brassicas – cabbage, kales, cauliflower, Brussel sprouts etc. * Solanaceae – tomato, pepper, brinjals etc. * Root and bulb crops – carrots, onions, raddish, beetroot etc. * Cucurbits – cucumber, pumpkin, melon etc. * Salad crops – celery, lettuce, parsley etc. * Legumes – French beans, green peas etc. * Herbs and spices – coriander, chives, dill, ginger etc. * Pomology (fruits) * Citrus * Avocado * Mango * Banana * Passion fruits * Pawpaw * Guavas * Floriculture * Carnations * Roses * Chrysanthemums * Hibiscus * Landscaping * Bedding plants and flowers * Shrubs and trees * Turfs |
| 1. Recordsinclude but not limited to; | * Inventory records * Financial records * Yield and production records * Payroll and labour records * Farm input utilization record |
| 1. Processingtoolsand equipmentinclude but not limited to; | * Blender * Motar and pestle * Weighing scale * Knives/cutting materials * Weighing cup * Bowl choppers * bandsaws * slicers * Marinating vacuum tumblers * Peelers * Picklers |
| 1. Processingmachinesinclude but not limited to; | * Grinding machine * Dryers * Blenders * Blanchers * Freezers * Dryers * Pasteurizing machine * Fermenters |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required skills**

The individual needs to demonstrate the following skills:

* Tilling
* Tools and equipment classification
* Measuring
* Leveling
* Gaping
* Pruning
* Spraying
* Pests , diseases and nutrients deficiency scouting
* Equipment calibration
* Technical Report writing
* Produce handling
* Soil conservation
* Observation
* Negotiation
* Digital literacy

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Sources of quality water
* Agro- Ecological Zonation
* Farm establishment and management
* Types of annual crops and physiology of different annual crops
* Types of tools and equipment used in production of annual crops
* Soil fertility and soil conservation
* Phyto-sanitary requirements
* Good Agricultural Practices
* Sources of quality planting materials for annual crops
* Husbandry practices in annual crops production
* Maturity indices in annual crops
* Harvesting and Post Harvesting Handling of annual crops
* Accounting principles, farm records and reports
* Waste Management
* Occupational Safety and Health Procedures

**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. Donned Personal Protective Equipment (PPE ) as per work requirement   2. Planting materials was obtained as per crop requirement   3. Carried outtillage operations as per agronomic requirements   4. Soil conservation measureswere applied as per work procedure   5. Annual crop was established as per crop requirements   6. Field management practice was carried out as per crop agronomic requirements   7. Harvesting tools and equipment was assembled as per work requirement   8. Maturity index was applied in determining crop maturity as per market demand   9. Harvesting method was applied as per crop requirement   10. Processing tools, equipmentand machines was assembled as per work requirement   11. Processing of horticultural crop was carried out as per work procedure   12. Product was marketed as per workplace procedure   13. Recordwas prepared as per work procedure |
| 1. Resource Implications (required for assessment) | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant workplace assessment environment   3. Resources relevant to the proposed assessment activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical assessment   2. Project   3. Portfolio of evidence   4. Third party report   5. Written assessment   6. Oral assessment |
| 1. Context of Assessment | This competency may be assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**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. Donned Personal Protective Equipment (PPE) as per work requirement   2. ***Planting materials*** was obtained as per crop requirement   3. Carried out ***tillage operations*** as per agronomic requirements   4. ***Soil conservation measures*** were applied as per work procedure   5. Annual crop was established as per crop requirements   6. ***Field management practice*** was carried out as per crop agronomic requirements   7. ***Harvesting tools*** and ***equipmen***t was assembled as per work requirement   8. Maturity index was applied in determining crop maturity as per market demand   9. ***Harvesting method*** was applied as per crop requirement   10. ***Processing tools, equipment*** and ***machines*** was assembled as per work requirement   11. 6.3 Processing of annual crop was carried out as per work procedure   12. 6.4 Product was marketed as per workplace procedure   13. ***Record*** was prepared as per work procedure |
| 1. Resource Implications (required for assessment) | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant workplace assessment environment   3. Resources relevant to the proposed assessment activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical assessment   2. Project   3. Portfolio of evidence   4. Third party report   5. Written assessment   6. Oral assessment |
| 1. Context of Assessment | This competency may be assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CONSERVE WATER IN FARM

**UNIT CODE : 0811 351 04 A**

**UNIT DESCRIPTION**

This unit specifies the competencies required by Agriculture and Extension practitioner to utilize water in the farm. It involves select sustainable water supply, Harvest water in the farm, irrigate crop farm and maintaining irrigation system.

**ELEMENTSANDPERFORMANCECRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which makeup **work place function**. | **PERFORMANCECRITERIA**  These are **assessable s**tatements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Select sustainable water supply | * 1. ***Water sources*** are identified as per work requirement.   2. ***Water testing*** is carried out as per work procedures   3. Water treatment is as carried out as per work procedure. |
| 1. Harvest water in the farm | * 1. ***Water harvesting structure*** identification is carried out as per work requirement   2. water harvesting structure design is selected as per work instructions   3. ***Personal Protective* *Equipment*** is worn as per work requirement   4. Water harvesting structure is constructed as per design and work instructions   5. Water harvesting structure functionality is tested as per work requirement   6. Water harvesting structure faults are corrected as per work requirement   7. Water harvesting structure is utilized as per work requirement |
| 1. Irrigate crop farm | * 1. crop water requirement grown is established as per work requirement   2. ***Irrigation system*** is selected as per work requirement   3. ***Tools and equipment*** are assembled and are used as per work.   4. Irrigation system is installed as per work requirement   5. Irrigation system is maintained as per work requirement |
| 1. Maintain irrigation system | * 1. Repairs of faults are carried out as per work requirement   2. ***Erosion and pollution control measures*** are put in place as per work requirement.   3. Regulations governing water use and managementare complied with as per work requirement.   4. Improved technologies that use less water are adopted in the farm as per work requirement |

**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. Water sources include but not limited to: | * Wells * Rainfall * Rivers * Boreholes |
| * + - 1. Water testing includes but not limited to: | * Mineral tests * PH test * Basic water test |
| * + - 1. Water harvesting structures include but not limited to: | * Farm ponds * Percolation tanks * Roof water harvesting tank * Wells * Sub surface dams * Field bunds |
| * + - 1. Personal protective equipment includes but not limited to: | * Overall * Gum boots * Gloves goggles * Hard hats |
| * + - 1. Tools and equipment include but not limited to: | * Tools for designing * Tools and equipment for construction * Tools and equipment for repair and maintenance |
| * + - 1. Components of irrigation system include but not limited to: | * Pipes * Emitters * Pump * Tanks * Nozzles * Valves * Control unit * Electricity |
| * + - 1. Erosion and pollution control measures Include but not limited to: | * Walk-over techniques * Minimal disturbance techniques * Crown and cross fall drainage * Cross bank drainage * Relief culverts on roads * Mitre and table drain on roads * Armouring/gravelling of roads * Crossing and draining surfaces * Batter stabilisation * Contour banks and channels * Gabions * Sediment basins * Riparian buffer zones * Outlet protection structures * Re-vegetation |

**REQUIRED KNOWLEDGE AND SKILLS**

**Required skills**

The individual needs to demonstrate the following skills:

* **Literacy skills to**: Locate, read, interpret and convey information in written, diagrammatic and/or verbal form
* **Numeracy skills to** measure calculate and estimate material quantities and time required to complete a task
* **Problem-solving skills to:** Identify problems and equipment faults and demonstrate appropriate response procedures.

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Environmental protection requirements, including the safe disposal of products and waste material
* Organizational and site standards, requirements, policies and procedures relevant to environmental care
* Environmental policies and practices, risks and hazard identification relevant to water protection
* Established communication channels and protocols
* Problem identification and common faults-finding techniques
* Types of tools and equipment and procedures for their safe use and maintenance
* Mathematical procedures for measuring and estimating, including calculating quantities and time to complete tasks

**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 sustainable water supply technologies for the farm as per work instructions.   2. Selected appropriate water harvesting and storage structures as per work instructions.   3. Selected appropriate an irrigation system based on work instructions.   4. Maintained farm irrigation system based on work instructions.   5. Controlled erosion in the farm as per work instructions. |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant workplace assessment environment   3. Resources relevant to the proposed assessment activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical assessment   2. Project   3. Portfolio of evidence   4. Third party report   5. Written assessment   6. Oral assessment |
| 1. Context of Assessment | This competency may be assessed in a workplace or in a simulated workplace |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed alongside application of water smart technologies. |

# REAR RUMINANT ANIMALS

**UNIT CODE: 0811 351 05 A**

**UNIT DESCRIPTION**

This unit specifies competencies required to produce ruminant animals. It entails breeding ruminant animals, feeding ruminant animals, managing ruminant animal parasites and diseases, carrying out ruminant animals routine management practices and managing ruminant products.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which makeup **work place function**. | **PERFORMANCECRITERIA**  These are **assessable s**tatements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Breed Ruminant animal | * 1. ***Breeding tools*** and ***equipment*** are assembled as per work requirement   2. Breeding stock is selectedas per work procedure   3. Service of breeding Stock is carried outas per work procedure   4. Breeding record is prepared as per work procedure |
| 1. Feed Ruminant animals | * 1. Ruminant ***animal feeds*** are identified as per animal nutritional requirement   2. Ruminantfeed ration is formulated as per animal feeding standard manual   3. Feed quantity is determined as per animal nutritional requirement   4. Feeding record is prepared as per work procedure |
| 1. Manage Ruminant parasites | * 1. Parasite prevention and control schedule is developed as per work requirement   2. ***PPEs*** are worn as per work requirement   3. Materials and equipment for parasite control are assembled as per work requirement   4. ***Parasites control method*** is applied based on type of parasite being controlled   5. Parasite control record is prepared as per work procedure   6. Parasite control wastes are managed as per work procedure |
| 1. Manage ruminant diseases | * 1. Disease prevention and control schedule is developed as per work requirement   2. PPEs are worn as per work requirement   3. Materials and equipment for disease control are assembled as per work requirement   4. **Disease** ***control method*** is applied as per work requirement   5. Health record is prepared as per work procedure   6. Disease control wastes are managed as per work procedure |
| 1. Carry out ruminant routine management practices | * 1. ***Routine management practice*** schedule is prepared as per work requirement   2. PPE***s*** are worn as per work requirement   3. Materials and equipment are assembled as per work requirement   4. Ruminantroutine management procedure is performed as per work requirement   5. ***Routine management practice record*** are prepared as per work requirement |
| 1. Market ruminant products | * 1. ***Ruminant products*** areprocessed as per product requirement   2. Ruminant products are preserved as per product requirement   3. Ruminants products are distributed as per product requirement   4. Records are prepared as per work 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. Breeding tools and equipment include but not limited to | * Animal pregnancy testing kit * Hormone testing kit * Semen collection kit * Ovulation prediction monitors |
| 1. Animal feeds include but not limited to | * Concentrates * Forage * Pastures |
| 1. PPEs include but not limited to | * Gloves * Overalls * Gumboots * Head gear * Face mask |
| 1. Parasites control method | * Deworming * Spraying * Dipping |
| 1. Disease control method | * Vaccination * Quarantine * Vector control * Adequate production |
| 1. Routine management practice | * Identification * Milking * Dehorning * Disbudding * Hoof trimming * Docking * Removal of extra teats * Shearing * Castration |
| 1. Routine management practice record | * Breeding records * Production records * Feeding records * Health records |
| 1. Ruminant products include but not limited to: | * Milk * Meat * Mutton * Wool * Skins * Hides |

**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:

* Handling tools and equipment
* Animal handling
* Communication skills
* Digital skills
* Occupational health and safety

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Genetics
* Anatomy and physiology
* Basic patholog**y**

**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 breeding stock as per workplace policy 2. Identified ruminant animal feeds as per work instructions 3. Formulated ruminant feed ration as per animal feeding standard manual 4. Applied feed quantity as per animal nutritional requirement 5. Applied parasites control method based on work instructions 6. Applied disease control method as per work instructions 7. Performed ruminant routine management procedure as per work instructions 8. Preserved ruminant products as per product requirement 9. Developed and shared ruminant rearing records as per work procedures |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant workplace assessment environment   3. Resources relevant to the proposed assessment activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical assessment   2. Project   3. Portfolio of evidence   4. Third party report   5. Written assessment   6. Oral assessment |
| 1. Context of Assessment | This competency may be assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# REAR NON-RUMINANT ANIMALS

**UNIT CODE: 0811 351 06 A**

**UNIT DESCRIPTION**

This unit specifies competencies required to rear non-ruminant animals. It comprises of breeding and feeding Non ruminant animals, managing parasites and diseases, carrying out routine management practices in Non ruminant animals and marketing Non ruminant animal products.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which makeup **work place function**. | **PERFORMANCECRITERIA**  These are **assessable s**tatements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Breed Non ruminant animal | * 1. ***Breeding tools*** and ***equipment*** are assembled as per work requirement   2. Breeding stock is selectedas per work procedure   3. Service of breeding Stock is carried outas per work procedure   4. Breeding record is prepared as per work procedure |
| 1. Feed Non ruminant animals | * 1. Non ruminant ***animal feeds*** are identified as per animal nutritional requirement   2. Non ruminantfeed ration is formulated as per animal feeding standard manual   3. Feed quantity is determined as per animal nutritional requirement   4. Feeding record is prepared as per work procedure |
| 1. Manage Non ruminant parasites | * 1. Parasite prevention and control schedule is developed as per work requirement   2. ***PPEs*** are worn as per work requirement   3. Materials and equipment for parasite control are assembled as per work requirement   4. ***Parasites control method*** is applied based on type of parasite being controlled   5. Parasite control record is prepared as per work procedure   6. Parasite control wastes are managed as per work procedure |
| 1. Manage Non ruminant diseases | * 1. Disease prevention and control schedule is developed as per work requirement   2. PPEs are worn as per work requirement   3. Materials and equipment for disease control are assembled as per work requirement   4. **Disease** ***control method*** is applied as per work requirement   5. Health record is prepared as per work procedure   6. Disease control wastes are managed as per work procedure |
| 1. Carry out Non ruminant routine management practices | * 1. ***Routine management practice*** schedule is prepared as per work requirement   2. PPE***s*** are worn as per work requirement   3. Materials and equipment are assembled as per work requirement   4. Non ruminantroutine management procedure is performed as per work requirement   5. ***Routine management practice record*** are prepared as per work requirement |
| 1. Market Non ruminant products | * 1. Non-ruminant products areprocessed as per product requirement   2. Non-ruminant products are preserved as per product requirement   3. Non-ruminant products are distributed as per product requirement   4. Records are prepared as per work procedures |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Breeding tools and equipment include but not limited to | * Animal pregnancy testing kit * Hormone testing kit * Semen collect * ion kit * Ovulation prediction monitors |
| 1. Animal feeds include but not limited to | * Concentrates * Forage * Pastures |
| 1. PPEs include but not limited to | * Gloves * Overalls * Gumboots * Head gear * Face mask |
| 1. Parasites control method | * Deworming * Spraying * Fumigation |
| 1. Disease control method | * Vaccination * Quarantine * Vector control |
| 1. Routine management practice | * Identification * Castration * Teeth clipping * Debeaking * Tail clipping * Sexing * Iron injection |
| 1. Routine management practice record | * Breeding records * Production records * Feeding records * Health records |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required skills**

The individual needs to demonstrate the following skills:

* Handling tools and equipment
* Animal handling
* Communication skills
* Digital skills
* Occupational health and safety
* Problem solving
* Marketing skills
* Financial management skills

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Genetics
* Anatomy and physiology
* Basic patholog**y**

**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 breeding stock as per workplace policy and work instructions 2. Identified non-ruminant animal feeds as per animal nutritional requirement 3. Formulated non-ruminant feed ration as per animal feeding standard manual 4. Applied feed quantity as per animal feeding standard manual 5. Applied parasites control method based on work instructions 6. Applied disease control method as per work instructions 7. Performed non-ruminant routine management procedure as per work instructions 8. Preserved Non-ruminant products are as per product requirement 9. Prepared and shared non ruminant rearing records as per work procedures |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant workplace assessment environment   3. Resources relevant to the proposed assessment activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical assessment   2. Project   3. Portfolio of evidence   4. Third party report   5. Written assessment   6. Oral assessment |
| 1. Context of Assessment | This competency may be assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# 