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**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**PIG PRODUCTION OPERATOR**

**LEVEL 3**

**ISCED CODE:** **08110354A**

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# FOREWORD

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

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned in the Constitution and this resulted to the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No. 4 of 2016). A key feature of this policy is the radical change in the design and delivery of the ------- training. The policy document requires that training in -------- shall be competency based, curriculum development shall be industry led, certification shall be based on demonstration of competence and mode of delivery shall allow for multiple entry and exit in ------------- programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that these Occupational Standards were developed for the purpose of developing a competency based curriculum for Pig producer Certificate level 3. These Occupational Standards will also be the base for assessment of an individual for competence certification.

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

# 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 the Sessional Paper No. 4 of 2016 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for shift to CBET to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

The TVET Curriculum Development, Assessment and Certification Council (TVET CDACC), in conjunction with Barak Agricultural College and Agriculture Skills Advisory Committee (SSAC) have developed these Occupational Standards for pig producer. These occupational standards will be the bases for development of competency based curriculum for pig producer level 3. These Standards will also be the basis for assessment of an individual for competence certification.

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

I am grateful to Council Secretariat, Council Technical Committee, Pig SSAC and expert workers and all those who participated in the development of these occupational standards.

# ACKNOWLEDGMENTS

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

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

My gratitude also goes to Baraka Agricultural College, Molo who took the lead role and cooperated with TVET CDACC.

Appreciations also goes to Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) for their support in financing the development of these Standards.

I acknowledge any other institution which in one way or another contributed to the success of development of these Standards but has not been mentioned.

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# ABBREVIATIONS AND ACRONYMS

BC Basic Competency

CDACC Curriculum Development, Assessment and Certification Council

CPU Central Processing Unit

CR Core Competency

ICT Information Communication Technology

KCSE Kenya Certificate of secondary Education

KNQA Kenya National Qualifications Authority

NEMA National Environmental Management Authority

OS Occupational Standards

OSHA Occupation Safety and Health Act

OSHS Occupation Safety and Health Standards

PPE Personal Protective Equipment

SOPs Standard Operating Procedures

SSAC Sector Skills Advisory Committee

TVET Technical and Vocational Education and Training

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# KEY TO ISCED UNIT CODE

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**OVERVIEW**

Pig Production Level 3 Qualification consists of competencies that an individual must have to provide services under instructions in an integrated commercial pig farm. It involves participating in: the construction and maintenance of a pig sty, production of pig stock and pig feeds.

The Units of Competency comprising Pig Production Level 3 Qualification includes the following core units:

**CORE COMPETENCY**

|  |  |
| --- | --- |
| **ISCED Unit Code** | **Unit Title** |
| 0811251 01 A | Construct pig unit |
| 0811251 02 A | Produce pig stock |
| 0811251 03 A | Produce pig feeds |

**CONSTRUCT PIG UNIT**

**ISCED UNIT CODE: 0811 251 01 A**

**UNIT DESCRIPTION**

This unit covers the competencies required to perform pig unit construction. It involves identifying and marking pig unit construction sites, gathering materials for pig unit construction, and performing pig unit construction activities. It also entails identifying areas of the pig unit requiring repair and maintenance from time to time.

This standard applies in the pig production industry.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes that make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements that specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range.*** |
| 1. Identify and mark pig unit construction site | 1. Site for pig unit construction is identified and marked based on pig unit design, constructors’ instructions, and ***physical environment*** 2. ***Clearing tools and equipment*** are identified and selected based on the nature of the site. 3. ***. Personal protective equipment*** is worn based on the job requirement. 4. . The construction site is cleared based on the nature of the site. |
| 1. Gather pig unit construction materials | 1. Materials required for pig unit construction are located based on workplace instructions. 2. Materials required for pig unit construction are collected based on ***pig unit design, objective of the farmer*** and source of funding of the project. 3. Construction materials’ inventory is developed based on workplace instructions. 4. Construction materials are stored based type and nature of the materials. |
| 1. Perform pig unit construction activities | 1. Construction materials are issued based on pig unit construction activities and workplace instructions. 2. Record of materials issued is prepared based items issued. 3. Utilization of pig unit construction materials is monitored as per workplace policy. 4. Pig unit is prepared for occupation based on recommendations of the completion report and workplace instructions. |
| 1. Identify areas of pig unit requiring repair and maintenance | 1. ***Resources for pig unit maintenance*** are identified and gathered based on the nature and extent of damage. 2. Labour for pig unit repair and maintenance is supervised as per workplace. 3. ***Areas of pig unit upgrading*** are identified and reported based on shorting comings of the original design and current market trends. 4. Pig unit repair and maintenance is carried out based on nature of damage. 5. Repair and maintenance record is prepared based on workplace policy. |

**RANGE OF VARIABLES**

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

| **VARIABLE** | **RANGE** |
| --- | --- |
| 1. Physical environment May include but not limited to: | * Topography * Accessibility * Water availability * Climate |
| 1. Clearing tools and equipment May include but not limited to: | * Pangas * Slashers * Jembe * Hoes * Axe * Mower * Spade * Wheelbarrow * Rake |
| 1. Personal protective equipment May include but not limited to: | * Safety boots * Overall * Dust coat * Hard hat * Reflector jacket * Protective glass * Gloves * Nose musk |
| 1. Pig unit design May include but not limited to: | * Deep litter * Concrete * Slatted floor * Open paddocks |
| 1. Objective of the farmer May include but not limited to: | * Profit making * Non-profit making |
| 1. Resources required for pig unit maintenance May include but not limited to: | * Labor * Raw materials |
| 1. Areas of pig unit upgrading May include but not limited to: | * Watering systems * Heating systems * Feeding systems |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication
* Analytical
* Basic management skills
* Problem solving
* Decision making
* Critical thinking
* Site selection
* Site preparation

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Considerations in siting a pig unit
* Setting out
* Foundation laying
* Tools, equipment, materials and supplies for pig unit construction
* Types and designs of pig housing
* Types of pig production systems
* Pig housing care, repair and maintenance
* Safety precautions
* Monitoring work progress
* Record keeping

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   1. Marked pig unit construction site appropriately. 2. Cleared pig unit construction site appropriately. 3. Selected and used clearing tools correctly. 4. Recorded and stored construction materials appropriately. 5. Developed a comprehensive store inventory 6. Monitored the utilization of construction resources. 7. Maintained clear pig unit repair and maintenance records. 8. Demonstrated understanding of materials and supplies for pig unit construction. 9. Demonstrated understanding of types and designs of pig units. 10. Demonstrated understanding of types of pig production systems |
| 1. Resource Implications for Competence Certification | The following resources **MUST** be provided:   1. Access to the relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   1. Observation 2. Written test 3. Interview 4. Oral questions 5. Third party report |
| 1. Context for Assessment | Assessment may be conducted in:   1. On-the-job 2. Off-the-job 3. Workplace attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# PRODUCE PIG STOCK

**ISCED UNIT CODE:** 0811 251 02 A

**UNIT DESCRIPTION**

This unit covers the competencies required to produce pig stock. It involves implementing a pig breeding program, carrying out routine pig stock management practices as well as herd health management and biosecurity practices.

This standard applies in the pig production industry.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes that makeup workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements that specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range.*** |
| --- | --- |
| 1. Implement the pig breeding program | 1. Breeding requirements are identified as per workplace production goals 2. Resources to support breeding requirements are identified and gathered based on the enterprise objectives as per workplace instructions 3. Breeding options are selected to optimize results and consistency as per the pig breeding program 4. Breeding program is executed to meet workplace objectives |
| 1. Carry out routine pig stock management practices | 1. ***Routine pig stock management practices*** are carried outbased on good animal husbandry management guidelines and workplace instructions as per standard operating procedures. 2. Pigs are handled in due regard of their welfare as per ***animal welfare regulations***, good animal husbandry management guidelines and workplace instructions. 3. Routine management practices records are kept and maintained as per good animal husbandry management guidelines and workplace instructions. |
| 1. Carry out health management and bio-security practices | 1. ***Pig stock health management practices*** are carried out based on animal health management and good animal health management guidelines, animal welfare practices, workplace instructions, and ***legal requirements*** as per standard operating procedures. 2. ***Pig farm bio-security practices*** are carried out based on good animal husbandry management guidelines, animal welfare practices, workplace instructions and legal requirements as per standard operating procedures. 3. Pig herd health management records are kept and maintained as per good animal health management guidelines, workplace instructions and organization policy. |

**RANGE OF VARIABLES**

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

| **VARIABLE** | **RANGE** |
| --- | --- |
| 1. Routine pig stock management practices May include but are not limited to: | * Teeth clipping * Docking * Iron injection * Weaning * Weighing * Feeding * Deworming * Watering * Identification * Castration * Fattening * Flushing * Steaming up * Serving/mating * Farrowing |
| 1. Animal welfare regulations May include but not limited to: | * KVB * KSPCA * OIE |
| 1. Pig stock health management practices May include but not limited to: | * Endo-parasite control (deworming) * Ecto-parasite control (acaricide spray) * Disease control (preventive and curative) * Feeding * housing |
| 1. Legal requirements May include but not limited to: | * Bio-safety Act No. 2 of 2009 * Animal welfare Act Cap 360 * Animal disease Act Cap 364 * Animal movement permit |
| 1. Pig farm bio-security practices May include but not limited to: | * Foot bath * Quarantine * Pen disinfection * Equipment sterilization * Fencing * PPEs * Agripreneuraship |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication
* Analytical
* Problem-solving
* Decision making
* Critical thinking
* Equipment operation
* Routine management skills
* Health management skills
* Pig handling skills
* Record keeping
* Computing skills

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Data collection methods
* Common pig diseases, their prevention and control measures
* Bio-security measures in a pig farm
* Pig management tools and equipment
* Legal aspects related to livestock production
* Agro ecological zones
* Production systems
* Housing
* Pig breeds
* Sources of pig breeds
* Feeds and feeding requirements
* Costing
* Routine pig management practices
* Marketing

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   1. Identified Breeding requirements as per workplace production goals 2. Identified and gathered resources to support breeding requirements based on the enterprise objectives as per workplace instructions 3. Selected breeding options as per the pig breeding program 4. Breeding program is executed to meet workplace objectives 5. Carried out routine pig stock management practices timely, correctly, and appropriately. 6. Handled pig stock appropriately. 7. Kept and maintained appropriate routine management records. 8. Carried out pig stock health management practices timely, correctly and appropriately. 9. Carried out bio-security practices timely, correctly and appropriately. 10. Kept and maintained appropriate herd health management records. 11. Demonstrated understanding of legal requirements related to livestock production. 12. Demonstrated understanding of herd health management practices. 13. Demonstrated understanding of routine management practices. 14. Demonstrated understanding of bio-security practices. 15. Demonstrated understanding of common pig diseases and their management. |
| 1. Resource Implications for competence certification | The following resources **MUST** be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   1. Observation 2. Written test 3. Interview 4. Oral questions 5. Third party report |
| 1. Context for Assessment | Assessment may be conducted in:   1. On-the-job 2. Off-the-job 3. Workplace attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# PRODUCE PIG FEEDS

**ISCED UNIT CODE: 0811 251 03 A**

**UNIT DESCRIPTION**

This unit covers the competencies required to participate in the production of pig feeds. It involves receiving and storing feed formulation raw materials; and compounding and storing feed rations. It also entails marketing and selling pig feeds.

This standard applies in the pig production industry.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes that makeup workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements that specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range.*** |
| --- | --- |
| 1. Receive and store feed compounding raw materials | 1. Goods delivery note is counter-checked and signed based on organizations’ procurement policy and workplace instructions. 2. ***Feed compounding raw materials*** are received as per organizations’ procurement policy and workplace instructions. 3. Stores inventory is developed based on organizations’ procurement policy and workplace instructions. 4. ***Feed compounding resources*** are issued based on feed processing activities and workplace instructions. 5. Goods issue notes are prepared based on types of items issued and workplace instructions. 6. Feed formulation raw materials are stored based on type and their ***storage requirements.*** |
| 1. Compound feed ration | 1. Pig feed formula is acquired based on the ***pig feed type*** to produce 2. Feed ingredients are quantified and weighed based on acquired formula and workplace instructions. 3. Feed ingredients are ***pre-prepared*** based on type, form and workplace instructions. 4. Ingredients are mixed, weighed and packaged and labeled based on workplace instructions. 5. Pig feeds are stored based ontype and products’ storage requirements. 6. Conditions of Pig feeds and raw materials are periodically monitored for quality 7. Wastes are managed and disposed based on ***environmental protection regulations*** and workplace instructions. 8. ***Feed compounding tools and equipment*** are identified and used based on user and workplace instructions. 9. Personal protective equipment ***(PPEs)*** are identified and used based on ***legal requirements*** and workplace instructions. 10. Feed processing records are kept and maintained based on workplace instructions. |
| 1. Market and sell pig feeds | 1. Pig feeds are marketed based on workplace instructions. 2. Clients’ are identified and pig feeds delivered based on workplace instructions. 3. Pig feeds are sold based on workplace instructions. 4. Pig feed inventory records are kept as per workplace instruction 5. Pig feeds delivery records are kept and maintained as per workplace instructions. |

**RANGE OF VARIABLES**

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

| **VARIABLE** | **RANGE** |
| --- | --- |
| 1. Feed formulation raw materials May include but not limited to: | * Grains * Oil seeds products * Root crop products * Legumes * Grain products * Animal products * Vitamins * Minerals * Ashes * Premixes (mineral and vitamin) * Amino acids * Additives (microbial, enzymes, buffers, toxin binders, sweeteners) |
| 1. Feed formulation resources May include but not limited to: | * Finances * Human resource * Infrastructure |
| 1. Storage requirements May include but not limited to: | * Dry place * Dark place * Cool dry place |
| 1. Pig feed types May include but not limited to: | * Starter/creep * Growers * Sow and weaner * Pig finisher/fattener |
| 1. Environmental protection regulations May include but not limited to: | Guidelines by authorities like;   * NEMA * Public Health departments |
| 1. Pre-prepared May include but not limited to: | * Roasting * Drying * Milling * Grinding * Extrusions * Boiling * Soaking * Fermentation |
| 1. Feed compounding tools, equipment and supplies May include but not limited to: | * Feed mixers * Hammer mill * Weighing machines * Shovel * Bagging and sealing machine * Sacks * Buckets * Labels * Feed trolleys * Hard brushes * Hard blooms * Labels and logos |
| 1. PPEs May include but not limited to: | * Nose masks * Ear muffs * Overall * Helmet * Safety boots * Dust coat * Gloves |
| 1. Legal requirements May include but not limited to: | * Occupational safety and health Act 2007 * International Labour organization regulations * Factories Act Cap 514 * Public health Cap 242 * KEBS |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication
* Analytical
* Problem solving
* Decision making
* Critical thinking
* Basic research
* Mixing
* Weighing
* Batching
* Machine operation and maintenance

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Technology of livestock feed production
* Classification feed ingredients
* Waste management and disposal
* Feed manufacturing tools and machinery
* Handling and storage of raw materials and finished products
* Statutory regulations regarding livestock feed production

**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 evidences that the candidate:   1. Recorded and stored feed compounding raw materials appropriately. 2. Developed a comprehensive stores inventory. 3. Monitored utilization of feed formulation raw materials. 4. Stored feed formulation raw materials appropriately. 5. Carried out feed compounding raw materials pre-preparation correctly and appropriately. 6. Carried out feed compounding activities correctly. 7. Managed and disposed wastes appropriately. 8. Stored processed pig feeds appropriately. 9. Kept and maintained pig feeds processing records. 10. Marketed and sold pig feeds and maintained sales records. 11. Demonstrated understanding of livestock nutritional requirements. 12. Demonstrated understanding of technology of livestock feed production. 13. Demonstrated understanding of composition of feed ingredients 14. Demonstrated understanding of storage of raw materials and finished products 15. Demonstrated understanding of statutory regulations regarding livestock feed production |
| 1. Resource Implications for competence certification | The following resources **MUST** be provided:   1. Access to a relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   1. Observation 2. Written test 3. Interview 4. Oral questions 5. Third party report |
| 1. Context for Assessment | Assessment may be conducted in:   1. On-the-job 2. Off-the-job 3. Workplace attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |