



**REPUBLIC OF KENYA**

**COMPETENCY BASED CURRICULUM**

**FOR**

**AGRICULTURE EXTENSION**

**LEVEL 4**



**TVET CDACC**  
**P.O. BOX 15745-00100**  
**NAIROBI**

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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. 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, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this Curriculum has been developed.

It is my conviction that this curriculum will play a great role towards development of competent human resource for the Agriculture sector's growth and sustainable development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING**

**MINISTRY OF EDUCATION**

## **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 emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

TVET Curriculum Development, Assessment and Certification Council (TVET CDACC), in conjunction with the Agriculture Advisory Committee and Sector Skills Advisory Committee (SSAC) have developed this curriculum.

This curriculum has been developed following the CBET framework policy; the CBETA Standards and guidelines provided by the TVET Authority and the Kenya National Qualification framework designed by the Kenya National Qualification Authority.

This curriculum is designed and organized with an outline of learning outcomes, suggested delivery methods, training/learning resources and methods of assessing the trainee’s achievement. The curriculum is competency-based and allows multiple entry and exit to the course.

I am grateful to the Council Members, Council Secretariat, Agriculture SSAC, expert workers and all those who participated in the development of this curriculum.

**CHAIRPERSON,**

**TVET CDACC**

## **ACKNOWLEDGEMENT**

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

I appreciate the funding of the Government of Canada and its implementing partner Colleges and Institutes Canada (CICan) which enabled the development of this curriculum through the Kenya Education for Employment Program (KEFEP).

I also appreciate the Meru National Polytechnic and its Canadian technical partners from Cégep Saint-Jean-sur-Richelieu, Collège Communautaire du Nouveau-Brunswick and Champlain Regional College who collaborated to identify industry skills gaps and develop this curriculum.

I recognize with appreciation the role of industry partners including the National Polytechnic's Industry Advisory Committee and the national Agriculture Sector Skills Advisory Committee (SSAC) in ensuring that competencies required by the industry are addressed in the curriculum. I also thank all stakeholders in the sector for their valuable input and all those who participated in the process of developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that workers in this sector acquire competencies that will enable them to perform their work more efficiently.

**COUNCIL SECRETARY/CEO,**

**TVET CDACC**

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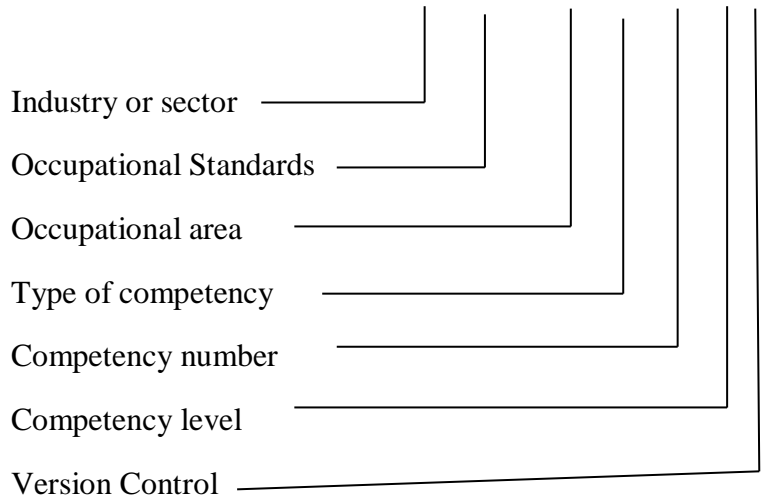
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## ACRONYMS AND ABBREVIATIONS

<b>CBET</b>	Competency Based Education and Training
<b>CC</b>	Collège Champlain
<b>CCNB</b>	Collège Communautaire du Nouveau-Brunswick
<b>CDACC</b>	Curriculum Development Assessment and Certification Council
<b>CSTJ</b>	Cégep Saint-Jean-sur-Richelieu
<b>DACUM</b>	Develop a Curriculum
<b>GAP</b>	Good Agricultural Practices
<b>MOE</b>	Ministry of Education Science and Technology
<b>NOS</b>	National Occupation Standard
<b>OS</b>	Occupational Standard
<b>SOP</b>	Standard Operating Procedure
<b>SSAC</b>	Sector Skills Advisory Committee
<b>TVETA</b>	Technical and Vocational Education and Training Authority

**KEY UNIT CODE**

**AGR/OS/PM/BC/01/4/A**



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## COURSE OVERVIEW

Agriculture extension technician level 4 qualification consists of competencies that an individual must achieve to enable him/her to establish agricultural crops, perform crop protection, harvest the crops, maintain livestock health, feed livestock, breed livestock and keeping farm records

The units of competency leading to Agriculture Extension level 4 certificate qualifications include the following:

### Basic Units of Learning

Unit Code	Unit Title	Duration In Hours	Credit Factors
AGR/CU/EXT/BC/01/4/A	Communication Skills	20	2
AGR/CU/EXT/BC/02/4/A	Numeracy Skills	30	3
AGR/CU/EXT/BC/03/4/A	Digital Literacy	30	3
AGR/CU/EXT/BC/04/4/A	Entrepreneurial Skills	60	6
AGR/CU/EXT/BC/05/4/A	Employability Skills	30	3
AGR/CU/EXT/BC/06/4/A	Environmental Literacy	20	2
AGR/CU/EXT/BC/07/4/A	Occupational Safety and Health Practices	20	2
<b>Total</b>		<b>210</b>	<b>21</b>

### Core Units of Learning

Unit Code	Unit Title	Duration In Hours	Credit Factors
AGR/CU/EXT/CR/01/4/A	Establishing Agricultural Crop	120	12
AGR/CU/EXT/CR/02/4/A	Crop Protection	80	8
AGR/CU/EXT/CR/03/4/A	Crops Harvesting	50	5
AGR/CU/EXT/CR/04/4/A	Livestock Health Maintenance	200	20
AGR/CU/EXT/CR/05/4/A	Livestock Feeding	80	8
AGR/CU/EXT/CR/06/4/A	Livestock Breeding	60	6
AGR/CU/EXT/CR/07/4/A	Farm Records Keeping	40	4
<b>Industrial attachment</b>		<b>300</b>	<b>30</b>
<b>Total</b>		<b>930</b>	<b>93</b>
<b>GRAND TOTAL HOURS</b>		<b>1140</b>	<b>114</b>

## **Entry Requirements**

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

- a) Certificate Level 3 in Agriculture or Agriculture extension

**Or**

- b) Kenya Certificate of Secondary Education (KCSE) – Mean grade E

**Or**

- c) Equivalent qualifications as determined by Kenya National Qualifications Authority (KNQA)

## **Trainer qualification**

A trainer for this course should have a higher qualification than the level of this course

## **Assessment**

The course will be assessed at two levels: internally and externally. Internal assessment is continuous and is conducted by the trainer who is monitored by an accredited internal verifier while external assessment is the responsibility of TVET CDACC.

## **Certification**

A candidate will be issued with a Record of Achievement for each unit of competency. To attain the qualification National Certificate Level 4 in Agriculture extension, the candidate must demonstrate competence in all the units of competency as given in qualification pack. These certificates will be issued by TVET CDACC in conjunction with training provider.

## **BASIC UNITS OF LEARNING**

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## COMMUNICATION SKILLS

**UNIT CODE:** AGR/CU/EXT/BC/01/4/A

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Communication Skills

**Duration of Unit:** 20 Hours

### Unit Description

This unit covers the competencies required demonstrate communication skills. It involves obtaining and conveying workplace information, completing relevant work-related documents, communicating information about workplace processes, leading workplace discussion and communicating workplace issues.

### Summary of Learning Outcomes

1. Obtain and convey workplace information
2. Complete relevant work-related documents
3. Communicate information about workplace processes
4. Lead workplace discussions
5. Identify and communicate issues arising in the workplace

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Obtain and convey workplace information	<ul style="list-style-type: none"><li>• Communication process</li><li>• Modes of communication</li><li>• Medium of communication</li><li>• Effective communication</li><li>• Barriers to communication</li><li>• Flow of communication</li><li>• Sources of information</li><li>• Types of questions</li><li>• Organizational policies</li><li>• Workplace etiquette</li><li>• Ethical work practices in handling communication</li></ul>	<ul style="list-style-type: none"><li>• Interview</li><li>• Third party reports</li></ul>

2. Complete relevant work-related documents	<ul style="list-style-type: none"> <li>• Types and purposes of workplace documents and forms</li> <li>• Methods used in filling forms and documents</li> <li>• Recording workplace data</li> <li>• Process of distributing workplace forms and documents</li> <li>• Report writing</li> <li>• Types of workplace reports</li> </ul>	<ul style="list-style-type: none"> <li>• Interview</li> <li>• Third party reports</li> </ul>
3. Communicate information about workplace processes	<ul style="list-style-type: none"> <li>• Communication process</li> <li>• Modes of communication</li> <li>• Medium of communication</li> <li>• Effective communication</li> <li>• Barriers to communication</li> <li>• Flow of communication</li> <li>• Sources of information</li> <li>• Organizational policies</li> <li>• Organization requirements for written and electronic communication methods</li> <li>• Report writing</li> <li>• Effective questioning techniques (clarifying and probing)</li> <li>• Workplace etiquette</li> <li>• Ethical work practices in handling communication</li> </ul>	<ul style="list-style-type: none"> <li>• Interview</li> <li>• Portfolio</li> </ul>
4. Lead workplace discussion	<ul style="list-style-type: none"> <li>• Methods of discussion e.g. <ul style="list-style-type: none"> <li>• Coordination meetings</li> <li>• Toolbox discussion</li> <li>• Peer-to-peer discussion</li> </ul> </li> <li>• Solicitation of response</li> </ul>	<ul style="list-style-type: none"> <li>• Interview</li> <li>• Third party reports</li> </ul>
5. Identify and communicate issues arising in the workplace	<ul style="list-style-type: none"> <li>• Identification of problems and issues</li> <li>• Organizing information on problems and issues</li> <li>• Relating problems and issues</li> </ul>	<ul style="list-style-type: none"> <li>• Interview</li> <li>• Portfolio</li> </ul>

	<ul style="list-style-type: none"><li>• Communication barriers affecting workplace discussions</li></ul>	
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### **Suggested Methods of Instruction**

- Direct instruction
- Demonstration
- Practice assignment
- Discussion
- Role play
- Brainstorming

### **Recommended Resources**

- Desktop computers/laptops
- Internet connection
- Projectors
- Telephone
- Report writing templates

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## NUMERACY SKILLS

**UNIT CODE:** AGR/CU/EXT/BC/02/4/A

### **Relationship to Occupational Standards:**

This unit addresses the Unit of Competency: Demonstrate Numeracy Skills

**Duration of Unit:** 25 hours

### **Unit Description**

This unit covers the competencies required to demonstrate numeracy skills. It involves identifying and using whole numbers and simple fractions, decimals and percentages for work, identifying, measuring and estimating familiar quantities for work, reading and using familiar maps, plans and diagrams for work, identifying and describing common 2D and some 3D shapes for work, constructing simple tables and graphs for work using familiar data and identifying and interpreting information in familiar tables, graphs and charts for work.

### **Summary of Learning Outcomes**

1. Identify and use whole numbers and simple fractions, decimals and percentages for work
2. Identify, measure and estimate familiar quantities for work
3. Read and use familiar maps, plans and diagrams for work
4. Identify and describe common 2D and some 3D shapes for work
5. Construct simple tables and graphs for work using familiar data
6. Identify and interpret information in familiar tables, graphs and charts for work

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

<b>Learning Outcome</b>	<b>Content</b>	<b>Suggested Assessment Methods</b>
1. Identify and use whole numbers and simple fractions, decimals and percentages for work	<ul style="list-style-type: none"><li>• Whole numbers</li><li>• Simple fractions</li><li>• Decimals</li><li>• Percentages</li><li>• Sizes</li><li>• Problem solving methods</li><li>• Calculations using the 4 operations</li></ul>	<ul style="list-style-type: none"><li>• Written</li><li>• Practice assignments</li></ul>

	<ul style="list-style-type: none"> <li>Recording and communicating numerical information</li> </ul>	
2. Identify, measure and estimate familiar quantities for work	<ul style="list-style-type: none"> <li>Measurement information</li> <li>Units of measurement</li> <li>Estimate familiar and simple amounts</li> <li>Selection of appropriate measuring equipment</li> <li>Calculate using familiar units of measurement</li> <li>Check measurements and results against estimates</li> <li>Using informal and some formal mathematical and general language</li> <li>Record or report results</li> </ul>	<ul style="list-style-type: none"> <li>Written</li> <li>Practice assignments</li> </ul>
3. Read and use familiar maps, plans and diagrams for work	<ul style="list-style-type: none"> <li>Maps, plans and diagrams</li> <li>Locate items and places in familiar maps, plans and diagrams</li> <li>Recognize common symbols and keys in familiar maps, plans and diagrams</li> <li>Direction and location of objects, or route or places</li> <li>Use of informal and some formal oral mathematical language and symbols</li> </ul>	<ul style="list-style-type: none"> <li>Practical test</li> <li>Written</li> </ul>
4. Identify and describe common 2D and some 3D shapes for work	<ul style="list-style-type: none"> <li>Common 2D shapes and 3D shapes</li> <li>Classification of common 2D shapes and designs</li> <li>Description of Use informal and some formal language to describe common two-dimensional shapes and some common three-dimensional shapes</li> <li>Construction of common 2D</li> </ul>	<ul style="list-style-type: none"> <li>Written</li> <li>Practical test</li> </ul>



	<p>shapes</p> <ul style="list-style-type: none"> <li>• Match common 3D shapes to their 2D sketches or nets</li> </ul>	
5. Construct simple tables and graphs for work using familiar data	<ul style="list-style-type: none"> <li>• Types of graphs</li> <li>• Determination of data to be collected</li> <li>• Selection of data collection method</li> <li>• Collection of data</li> <li>• Determination of variables from the data collected</li> <li>• Order and collate data</li> <li>• Construct a table and enter data</li> <li>• Construct a graph using data from table</li> <li>• Check results</li> <li>• Report or discuss graph information related to work using informal and some formal mathematical and general language</li> </ul>	<ul style="list-style-type: none"> <li>• Written</li> <li>• Practical test</li> </ul>
6. Identify and interpret information in familiar tables, graphs and charts for work	<ul style="list-style-type: none"> <li>• Tables construction and labeling</li> <li>• i.e. title, headings, rows and columns</li> <li>• Interpreting information and data in simple tables</li> <li>• Relaying information of relevant workplace tasks on/in a table</li> <li>• Identify familiar graphs and charts in familiar texts and contexts</li> <li>• Locate title, labels, axes, scale and key from familiar graphs and charts</li> <li>• Identify and interpret information and data in familiar graphs and charts</li> <li>• Relate information to</li> </ul>	<ul style="list-style-type: none"> <li>• Written</li> <li>• Practical test</li> </ul>

	relevant workplace tasks	
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### **Suggested Methods of Instruction**

- Instructor led facilitation of theory
- Practical demonstration of tasks by trainer
- Practice by trainees/ role play
- Discussion
- Observations and comments and corrections by trainers

### **Recommended Resources**

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- LCD projectors
- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Projectors
- Writing boards
- Mathematical tables

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## DIGITAL LITERACY

**UNIT CODE:**AGR/CU/EXT/BC/03/4/A

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Digital Literacy

**Duration of Unit:** 35 hours

### Unit Description

This unit covers the competencies required to demonstrate digital literacy in a working environment. It entails identifying computer software and hardware, applying security measures to data, hardware, software, applying computer software in solving task sand applying internet and email in communication at workplace.

### Summary of Learning Outcomes

1. Identify computer software and hardware
2. Apply security measures to data, hardware and software
3. Apply computer software in solving tasks
4. Apply internet and email in communication at workplace

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify computer hardware and software	<ul style="list-style-type: none"><li>• Meaning of a computer</li><li>• Functions of a computer</li><li>• Components of a computer</li><li>• Classification of computers</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Oral</li><li>• Observation</li></ul>
2. Apply security measures to data, hardware and software	<ul style="list-style-type: none"><li>• Data security and control</li><li>• Security threats and control measures</li><li>• Types of computer crimes</li><li>• Detection and protection against computer crimes</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Oral presentation</li><li>• Observation</li><li>• Projects</li></ul>
3. Apply computer software in solving tasks	<ul style="list-style-type: none"><li>• Operating system</li><li>• Word processing</li><li>• Spread sheets</li><li>• Data base</li></ul>	<ul style="list-style-type: none"><li>• Oral questioning</li><li>• Observation</li><li>• Project</li></ul>

4. Apply internet and email in communication at workplace	<ul style="list-style-type: none"> <li>• Computer networks</li> <li>• Uses of internet</li> <li>• Electronic mail (e-mail) concept</li> </ul>	<ul style="list-style-type: none"> <li>• Oral questioning</li> <li>• Observation</li> <li>• Oral presentation</li> <li>• Written report</li> </ul>
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**Suggested Methods of Instruction**

- Instructor led facilitation of theory
- Demonstration by trainer
- Practical assignment
- Viewing of related videos
- Project
- Group discussions

**Recommended Resources**

- Desktop computers
- Laptop computers
- Other digital devices
- Printers
- Storage devices
- Internet access
- Computer software

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## ENTREPRENEURIAL SKILLS

**UNIT CODE:**AGR/CU/EXT/BC/04/4/A

### **Relationship to occupational standards**

This unit addresses the Unit of Competency: Demonstrate Entrepreneurial Skills

**Duration of unit:** 60 hours

### **Unit description**

This unit covers the competencies required for creating and maintaining small scale business, establishing small business customer base, managing and growing a micro/small-scale business.

### **Summary of Learning Outcomes**

1. Create and maintain small scale business
2. Establish small scale business customer base
3. Manage small scale business
4. Grow/expand small scale business

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

<b>Learning Outcome</b>	<b>Content</b>	<b>Suggested Assessment Methods</b>
1. Create and maintain small scale business	<ul style="list-style-type: none"><li>• Starting a small business</li><li>• Legal regulatory requirements in starting a small business</li><li>• SWOT/ PESTEL analysis</li><li>• Conducting market/industry survey</li><li>• Generation and evaluation of business ideas</li><li>• Matching competencies with business opportunities</li><li>• Forms of business ownership</li></ul>	<ul style="list-style-type: none"><li>• Individual/group assignments</li><li>• projects</li><li>• Written</li><li>• Oral</li></ul>

	<ul style="list-style-type: none"> <li>• Location of a small business</li> <li>• Legal and regulatory requirement</li> <li>• Resources required to start a small business</li> <li>• Common terminologies in entrepreneurship</li> <li>• Entrepreneurship in national development</li> <li>• Self-employment</li> <li>• Formal and informal employment</li> <li>• Entrepreneurial culture</li> <li>• Myths associated with entrepreneurship</li> <li>• Types, characteristics, qualities &amp; role of entrepreneurs</li> <li>• History, development and importance of entrepreneurship</li> <li>• Theories of entrepreneurship</li> <li>• Quality assurance for small businesses</li> <li>• Policies and procedures on occupational safety and health and environmental concerns</li> </ul>	
<p>2. Establish small scale business customer base</p>	<ul style="list-style-type: none"> <li>• Good staff/workers and customer relations</li> <li>• Marketing strategy</li> <li>• Identifying and maintain new customers and markets</li> <li>• Product/ service promotions</li> <li>• Products / services diversification</li> </ul>	<ul style="list-style-type: none"> <li>• Individual/group assignments</li> <li>• projects</li> <li>• Written</li> <li>• Oral</li> </ul>

	<ul style="list-style-type: none"> <li>• SWOT / PESTEL analysis</li> <li>• Conducting a business survey</li> <li>• Generating Business ideas</li> <li>• Business opportunities</li> </ul>	
3. Manage small scale business	<ul style="list-style-type: none"> <li>• Organization of a small business</li> <li>• Small business' business plan</li> <li>• Marketing for small businesses</li> <li>• Managing finances for small business</li> <li>• Production/ operation process for goods/services</li> <li>• Small business records management</li> <li>• Book keeping and auditing for small businesses</li> <li>• Business support services</li> <li>• Small business resources mobilization and utilization</li> <li>• Basic business social responsibility</li> <li>• Management of small business</li> <li>• Word processing concepts in small business management</li> <li>• Computer application software</li> <li>• Monitoring and controlling business operations</li> </ul>	<ul style="list-style-type: none"> <li>• Oral</li> <li>• Individual/group assignments</li> <li>• projects</li> <li>• Written</li> </ul>

<p>4. Grow/expand small scale business</p>	<ul style="list-style-type: none"> <li>• Methods of growing small business</li> <li>• Resources for growing small business</li> <li>• Small business growth plan</li> <li>• Computer software in business development</li> <li>• ICT and business growth</li> </ul>	<ul style="list-style-type: none"> <li>• Individual/group assignments</li> <li>• projects</li> <li>• Written</li> </ul>
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**Suggested Methods of Instruction**

- Instructor led facilitation of theory
- Demonstration by trainer
- Practice by trainee
- Role play
- Case study

**Recommended Resources**

- Case studies for small businesses
- Business plan templates
- Lap top/ desk top computer
- Internet
- Telephone
- Writing materials

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## EMPLOYABILITY SKILLS

**UNIT CODE:** AGR/CU/EXT/BC/05/4/A

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Employability Skills

**Duration of Unit:** 30 hours

### Unit Description

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating critical safe work habits, demonstrating workplace learning and workplace ethics.

### Summary of Learning Outcomes

1. Conduct self-management
2. Demonstrate critical safe work habits
3. Demonstrate workplace learning
4. Demonstrate workplace ethics

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct self-management	<ul style="list-style-type: none"><li>• Self-awareness</li><li>• Formulating personal vision, mission and goals</li><li>• Strategies for overcoming life challenges</li><li>• Emotional intelligence</li><li>• Assertiveness</li><li>• Expressing personal thoughts, feelings and beliefs</li><li>• Developing and maintaining high self-esteem</li><li>• Developing and maintaining positive self-image</li><li>• Articulating ideas and aspirations</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Oral questioning</li><li>• Portfolio of evidence</li><li>• Third party report</li></ul>

	<ul style="list-style-type: none"> <li>• Accountability and responsibility</li> <li>• Good work habits</li> <li>• Self-awareness</li> <li>• Self-development</li> <li>• Financial literacy</li> <li>• Healthy lifestyle practices</li> </ul>	
2. Demonstrate critical safe work habits	<ul style="list-style-type: none"> <li>• Stress and stress management</li> <li>• Punctuality and time consciousness</li> <li>• Interpersonal communication</li> <li>• Sharing information</li> <li>• Leisure</li> <li>• Integrating personal objectives into organizational objectives</li> <li>• Resources utilization</li> <li>• Setting work priorities</li> <li>• HIV and AIDS</li> <li>• Drug and substance abuse</li> <li>• Handling emerging issues</li> </ul>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Portfolio of evidence</li> <li>• Third party report</li> </ul>
3. Demonstrate workplace learning	<ul style="list-style-type: none"> <li>• Personal training needs identification and assessment</li> <li>• Managing own learning</li> <li>• Contributing to the learning community at the workplace</li> <li>• Cultural aspects of work</li> <li>• Variety of learning context</li> <li>• Application of learning</li> <li>• Safe use of technology</li> <li>• Identifying opportunities</li> <li>• Workplace innovation</li> <li>• Performance improvement</li> <li>• Handling emerging issues</li> <li>• Future trends and concerns in learning</li> </ul>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Portfolio of evidence</li> <li>• Third party report</li> </ul>
4. Demonstrate workplace ethics	<ul style="list-style-type: none"> <li>• Meaning of ethics</li> <li>• Ethical perspectives</li> <li>• Principles of ethics</li> <li>• Values and beliefs</li> <li>• Ethical standards</li> <li>• Organization code of ethics</li> </ul>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Portfolio of evidence</li> <li>• Third party report</li> </ul>

	<ul style="list-style-type: none"> <li>• Common ethical dilemmas</li> <li>• Organization culture</li> <li>• Corruption, bribery and conflict of interest</li> <li>• Privacy and data protection</li> <li>• Diversity, harassment and mutual respect</li> <li>• Financial responsibility/accountability</li> <li>• Etiquette</li> <li>• Personal and professional integrity</li> <li>• Commitment to jurisdictional laws</li> <li>• Emerging issues in ethics</li> </ul>	
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**Suggested Methods of Instruction**

- Simulation/Role play
- Group Discussion
- Presentations
- Q&A
- Case studies
- Assignments

**Recommended Resources**

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors

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## ENVIRONMENTAL LITERACY

**UNIT CODE:**AGR/CU/EXT/BC/06/4/A

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Environmental Literacy

**Duration of Unit:** 20 hours

### Unit Description

This unit specifies the competencies required to demonstrate environmental literacy. It involves controlling environmental hazard, controlling environmental pollution, demonstrating sustainable resource use and evaluating current practices in relation to resource usage.

### Summary of Learning Outcomes

1. Control environmental hazard
2. Control environmental pollution
3. Demonstrate sustainable use of resources
4. Evaluate current practices in relation to resource usage

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Control environmental hazard	<ul style="list-style-type: none"><li>• Purposes and content of Environmental Management and Coordination Act 1999</li><li>• Purposes and content of Solid Waste Act</li><li>• Storage methods for environmentally hazardous materials</li><li>• Disposal methods of hazardous wastes</li><li>• Types and uses of PPE in line with</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Oral questions</li><li>• Observation of work procedures</li></ul>

	<p>environmental regulations</p> <ul style="list-style-type: none"> <li>• Occupational Safety and Health Standards (OSHS)</li> </ul>	
2. Control environmental Pollution	<ul style="list-style-type: none"> <li>• Types of pollution</li> <li>• Environmental pollution control measures</li> <li>• Types of solid wastes</li> <li>• Procedures for solid waste management</li> <li>• Different types of noise pollution</li> <li>• Methods for minimizing noise pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral questions</li> <li>• Observation of work procedures</li> <li>• Role play</li> </ul>
3. Demonstrate sustainable resource use	<ul style="list-style-type: none"> <li>• Types of resources</li> <li>• Techniques in measuring current usage of resources</li> <li>• Calculating current usage of resources</li> <li>• Methods for minimizing wastage</li> <li>• Waste management procedures</li> <li>• Principles of 3Rs (Reduce, Reuse, Recycle)</li> <li>• Methods for economizing or reducing resource consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral questions</li> <li>• Observation of work procedures</li> </ul>
4. Evaluate current practices in relation to resource usage	<ul style="list-style-type: none"> <li>• Collection of information on environmental and resource efficiency systems and procedures,</li> <li>• Measurement and recording of current resource usage</li> <li>• Analysis and recording of current purchasing strategies.</li> <li>• Analysis of current work processes to access information and data</li> <li>• Identification of areas for improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral questions</li> <li>• Observation of work procedures</li> </ul>
5. Identify Environmental legislations/conventions for environmental	<ul style="list-style-type: none"> <li>• Environmental issues/concerns</li> <li>• Environmental legislations /conventions and local ordinances</li> <li>• Industrial standard /environmental</li> </ul>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral questions</li> <li>• Observation of work</li> </ul>

concerns	practices <ul style="list-style-type: none"> <li>• International Environmental Protocols (Montreal, Kyoto)</li> <li>• Features of an environmental strategy</li> </ul>	procedures
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### **Suggested Methods of Instruction**

- Instructor led facilitation of theory
- Practical demonstration of tasks by trainer
- Practice by trainees/ role play
- Discussion
- Observations and comments and corrections by trainers

### **Recommended Resources**

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors
- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE)

## OCCUPATIONAL SAFETY AND HEALTH PRACTICES

**UNIT CODE:** AGR/CU/EXT/BC/07/4/A

### Relationship to Occupational Standards

This unit addresses the unit of competency: Demonstrate Occupational Safety and Health Practices

**Duration of Unit:** 20 hours

### Unit Description

This unit specifies the competencies required to practice safety and health and comply with OSH requirements relevant to work. It involves adhering to workplace procedures for hazards and risk prevention and participating in arrangements for workplace safety and health maintenance.

### Summary of Learning Outcomes

1. Adhere to workplace procedures for hazards and risk prevention
2. Participate in arrangements for workplace safety and health maintenance

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Adhere to workplace procedures for hazards and risk prevention	<ul style="list-style-type: none"><li>• Arrangement of work area and items in accordance with Company housekeeping procedures</li><li>• Adherence to work standards and procedures</li><li>• Application of preventive and control measures, including use of safety gears/PPE</li><li>• Study and apply standards and procedures for incidents and emergencies.</li></ul>	<ul style="list-style-type: none"><li>• Oral questions</li><li>• Written tests</li><li>• Portfolio of evidence</li><li>• Third party report</li></ul>
2. Participate in arrangements for workplace safety and health maintenance	<ul style="list-style-type: none"><li>• Participating in orientations on OSH requirements/regulations of tasks</li><li>• Providing feedback on health,</li></ul>	<ul style="list-style-type: none"><li>• Oral questions</li><li>• Written tests</li><li>• Portfolio of evidence</li></ul>

	<p>safety, and security concerns to appropriate personnel as required in a sufficiently detailed manner</p> <ul style="list-style-type: none"> <li>• Practice workplace procedures for reporting hazards, incidents, injuries and sickness</li> <li>• OSH requirements/ regulations and workplace safety and hazard control procedures are reviewed, and compliance reported to appropriate personnel</li> <li>• Identification of needed OSH-related trainings are proposed to appropriate personnel</li> </ul>	<ul style="list-style-type: none"> <li>• Third party report</li> </ul>
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### **Suggested Methods of Instruction**

- Assignments
- Discussion
- Q&A
- Role play
- Viewing of related videos

### **Recommended Resources**

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors
- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE) e.g.
  - Mask
  - Face mask/shield
  - Safety boots
  - Safety harness
  - Arm/Hand guard, gloves



- Eye protection (goggles, shield)
- Hearing protection (ear muffs, ear plugs)
- Hair Net/cap/bonnet
- Hard hat
- Face protection (mask, shield)
- Apron/Gown/coverall/jump suit
- Anti-static suits
- High-visibility reflective vest

**CORE UNITS OF LEARNING**

## ESTABLISHING AGRICULTURAL CROPS

**UNIT CODE:** AGR/CU/EXT/CR/01/4/A

### **RELATIONSHIP TO OCCUPATIONAL STANDARDS:**

This unit addresses the unit of competency: establish agricultural crop

**DURATION OF UNIT:** 120 hours

### **UNIT DESCRIPTION**

This unit specifies the competencies required to establish agricultural crop. It involves This unit describes the competencies required by a trainee in order to competently establish agricultural crop.it involves, preparing the land, establishing the crop, managing the crop and completing crop establishment

### **SUMMARY OF LEARNING OUTCOMES**

1. Prepare the land
2. Establish the crop
3. Manage the crop
4. Complete crop establishment

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

<b>Learning Outcome</b>	<b>Content</b>	<b>Methods of assessment</b>
1. Prepare the land	<ul style="list-style-type: none"><li>• Introduction to land preparation:</li><li>• Characteristics of crops</li><li>• Farm plan (choice of crop)</li><li>• Condition of the land (virgin, under fallow, under previous crop).</li><li>• Stages of land preparation (clearing, primary, secondary and tertiary)</li><li>• Land preparation tools. Equipment and materials</li><li>• Farm power</li></ul>	<ul style="list-style-type: none"><li>• Oral questions</li><li>• Demonstration</li><li>• Third party report</li><li>• Observation</li><li>• Written tests</li></ul>

	<ul style="list-style-type: none"> <li>• Soil analysis</li> <li>• Soil conservation</li> <li>• Farm tools and equipment (types, use, repair and maintenance)</li> <li>• forms of agriculture</li> <li>• Soil sampling (definition, methods and procedure)</li> </ul>	
2. Establish the crop	<ul style="list-style-type: none"> <li>• Timing for planting (factors to consider e.g. ecological zone)</li> <li>• Certified planting materials (seeds and vegetative propagation materials)</li> <li>• Soil fertility (definition, nutrients, role in plant growth, deficiency symptoms and correction of deficiency)</li> <li>• Planting methods</li> <li>• Planting tools, equipment and machinery (types, use, repair and maintenance)</li> <li>• Spacing, depth and seed rate requirement</li> <li>• Phyto-sanitary requirements</li> <li>• Good Agricultural Practices</li> <li>• Emerging farming technologies.</li> <li>• Gapping and thinning</li> <li>• Soil and water conservation methods</li> <li>• Irrigation methods</li> </ul>	<ul style="list-style-type: none"> <li>• Oral questions</li> <li>• Demonstration</li> <li>• Third party report</li> <li>• Observation</li> <li>• Written tests</li> </ul>
3. Manage the crop	<ul style="list-style-type: none"> <li>• weeds and pest control methods: <ul style="list-style-type: none"> <li>• Definition</li> <li>• Types</li> <li>• Economic importance</li> <li>• Weed control methods</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Oral questions</li> <li>• Demonstration</li> <li>• Third party report</li> <li>• Observation</li> <li>• Written tests</li> </ul>

	<ul style="list-style-type: none"> <li>• Crop management tools, equipment and machines (type, use, repair and maintenance)</li> <li>• Gapping and thinning</li> <li>• Soil and water conservation methods</li> <li>• Irrigation methods</li> </ul>	
4. Complete crop establishment	<ul style="list-style-type: none"> <li>• Farm records (types, uses and qualities)</li> <li>• Environmental management</li> <li>• Planting tools, equipment and machines (cleaning, servicing and storage.)</li> </ul>	<ul style="list-style-type: none"> <li>• Oral questions</li> <li>• Demonstration</li> <li>• Third party report</li> <li>• Observation</li> <li>• Written tests</li> </ul>

#### **Suggested methods of instructions**

- Practical demonstration of tasks by trainer.
- Practice by trainees.
- Discussions
- Questions & answers
- Observations, comments and corrections by trainers.
- Instructor led facilitation of theory.

#### **Recommended Resources**

- Workplace policy manual
- Planting manuals.
- National Environmental Management Authority (NEMA) regulations
- Soil analysis reports
- Farm power
- Machine/equipment manufacturer's specifications and instructions.
- Environmental Management and Coordination Act (EMCA) 2015
- A piece of arable land depending on the number of trainees
- Tools and equipment:
  - Fertilizer applicators
  - Fork jembe
  - Harrows
  - Jembe
  - Mattock

- Ox-drawn plough
- Panga
- Planters
- Ploughs
- PPEs
- Rake
- Shallow weeder
- Slasher
- Soil auger
- Spade
- Tape measure
- Tractor and trailer
- Weighing scale
- Wheelbarrow
- Materials:
  - Chemicals

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## CROP PROTECTION

**UNIT CODE:** AGR/CU/EXT/CR/02/4/A

### **RELATIONSHIP TO OCCUPATIONAL STANDARDS:**

This unit addresses the unit of competency: Perform crop protection

**DURATION OF UNIT:** 80 hours

### **UNIT DESCRIPTION**

This unit specifies the competencies required to perform crop protection. It involves preparing for disease and pest control, controlling diseases and pest and Completing pest and disease control.

### **SUMMARY OF LEARNING OUTCOMES**

1. Prepare for pest and disease control.
2. Control pest and disease
3. Complete pest and disease control

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

<b>Learning Outcome</b>	<b>Content</b>	<b>Methods of assessment</b>
Prepare for pest and disease control	<ul style="list-style-type: none"><li>• Plant Diseases</li><li>• Pests</li><li>• Tools, equipment, materials and machinery for disease and pest control (types, use, repair and maintenance)</li><li>• Scouting, identification and mapping</li><li>• Personal protective equipment (identification and use)</li><li>• Occupational safety and health</li></ul>	<ul style="list-style-type: none"><li>• Oral questions</li><li>• Demonstration</li><li>• Observation</li><li>• Written tests</li></ul>
Control disease and pest	<ul style="list-style-type: none"><li>• Good agricultural practices</li><li>• pest and disease control methods</li><li>• Indigenous technical knowledge on pest and disease control.</li><li>• Emerging technologies in pest and disease</li></ul>	<ul style="list-style-type: none"><li>• Oral questions</li><li>• Demonstration</li><li>• Observation</li><li>• Written tests</li></ul>

	management. <ul style="list-style-type: none"> <li>• Environmental management</li> </ul>	
Complete disease and pest control	<ul style="list-style-type: none"> <li>• Tools, equipment and machinery maintenance (cleaning and storage)</li> <li>• Record keeping</li> <li>• Waste management</li> <li>• Occupational Safety and health</li> </ul>	<ul style="list-style-type: none"> <li>• Oral questions</li> <li>• Demonstration</li> <li>• Observation</li> <li>• Written tests</li> </ul>

### **Suggested Methods of instructions**

- Practical demonstration of tasks by trainer
- Practice by trainees
- Observations and comments and corrections by trainers
- Instructor led facilitation of theory
- Discussions
- Questions & answers

### **Recommended Resources**

- Occupational Safety and Health Act of 2007
- Environmental, Health and Safety manual
- National Environmental Management Authority regulations
- Environmental Management and Coordination Act (EMCA) 2015
- Machine/equipment manufacturer's specifications and instructions
- Chemical manufacturers' manuals
- Tools, materials and equipment:
  - Biological agents
  - Chemicals
  - Flags
  - Mixing tanks
  - Pegs
  - Personal protective equipment (PPE)
  - Sprayers
  - Water

## CROP HARVESTING

**UNIT CODE:** AGR/CU/EXT/CR/03/4/A

**RELATIONSHIP TO OCCUPATIONAL STANDARDS:**

This unit addresses the unit of competency: Harvest the crop

**DURATION OF UNIT:** 50 hours

**UNIT DESCRIPTION**

This unit specifies the competencies required to harvest a crop. It includes preparing to harvest, harvesting, carrying out post-harvesting operations, evaluation of crop produce, forage conservation, and complete crop harvesting

**SUMMARY OF LEARNING OUTCOMES**

1. Prepare to harvest the crop
2. Harvest the crop
3. Carry out post-harvest operations
4. Evaluate the produce
5. Conserve forage
6. Complete crop harvesting

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

Learning Outcome	Content	Methods of Assessment
1. Prepare to harvest the crop	<ul style="list-style-type: none"><li>• Tools, equipment, materials and machinery used in harvesting (types, use, repair and maintenance)</li><li>• Crop maturity (definition and determination)</li><li>• Occupational Safety and health</li><li>• Produce storage</li><li>• food safety practices</li><li>• Post-harvest pests and diseases management</li><li>• Produce handling</li></ul>	<ul style="list-style-type: none"><li>• Short Q &amp; A</li><li>• Practical Demonstration</li><li>• Oral demonstration</li><li>• Observation</li><li>• Written tests</li><li>• Field visits reports</li></ul>



2. Harvest the crop	<ul style="list-style-type: none"> <li>• Various crop Harvesting (timing and methods)</li> <li>• Good agricultural practices</li> <li>• tools, equipment and machines</li> <li>• Safety precautions</li> <li>• Produce quality management</li> <li>• Market demand</li> </ul>	<ul style="list-style-type: none"> <li>• Practical Demonstration</li> <li>• Field visit report</li> <li>• Oral demonstration</li> <li>• Observation</li> <li>• Third party report</li> <li>• Written tests</li> </ul>
3. Carry out post-harvest operations	<ul style="list-style-type: none"> <li>• Post-harvest management practices (drying, cleaning, sorting, grading, treating, weighing, packaging and storage)</li> <li>• Food safety and hygiene</li> <li>• Stores management</li> <li>• Produce handling</li> </ul>	<ul style="list-style-type: none"> <li>• Short Q &amp; A</li> <li>• Practical Demonstration</li> <li>• Oral demonstration</li> <li>• Third party report</li> <li>• Observation</li> <li>• Field visit report</li> </ul>
4. Evaluate the produce	<ul style="list-style-type: none"> <li>• Produce quality parameters (colour, taste, size, texture, shape and moisture content)</li> <li>• Crop yield parameters (weight, volume and numbers/pieces) per unit area.</li> </ul>	<ul style="list-style-type: none"> <li>• Short Q &amp; A</li> <li>• Practical Demonstration</li> <li>• Oral demonstration</li> <li>• Third party report</li> <li>• Observation</li> <li>• Field visit report</li> </ul>
5. Conserve forage	<ul style="list-style-type: none"> <li>• Forage preparation and conservation</li> <li>• Tools, equipment and machines (identification and use) used in forage conservation</li> <li>• Safety precautions (animal and human health, and soil effects)</li> </ul>	<ul style="list-style-type: none"> <li>• Short Q &amp; A</li> <li>• Practical Demonstration</li> <li>• Oral demonstration</li> <li>• Observation</li> <li>• Field visits report</li> <li>• Third party report</li> </ul>
6. Complete crop harvesting	<ul style="list-style-type: none"> <li>• Tools, equipment and machines (cleaning, serving, repair, maintenance and storage)</li> <li>• Workplace policy (sorting and</li> </ul>	<ul style="list-style-type: none"> <li>• Practical Demonstration</li> <li>• Observation</li> <li>• Oral</li> </ul>

	collecting recyclable waste, and recording) <ul style="list-style-type: none"> <li>• Surplus materials storage (e.g. sacks crates, nets, cartons, twines etc.)</li> <li>• Record keeping</li> <li>• Stores management</li> </ul>	demonstration <ul style="list-style-type: none"> <li>• Field visits report</li> <li>• Third party report</li> <li>• Written tests</li> </ul>
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### **Suggested Methods of instructions**

- Practical demonstration of tasks by trainer.
- Practice by trainees.
- Observations, comments and corrections by trainers.
- Instructor led facilitation of theory.
- Field visits
- Attachment
- Projects

### **Recommended Resources**

- Workplace policy
- Occupational health and safety regulations manual
- Equipment manufacturer’s specifications and instructions.
- Tools, equipment, materials and machines
  - Tools:
    - Fork-jembe
    - Hoe
    - Knives
    - Panga
    - Sickle
  - Equipment:
    - Balances
    - Wheelbarrow
  - Materials:
    - Baskets
    - Crates/cartons
    - Sacks/bags
    - Twines
  - Machinery:
    - Balers

- Combine harvester
- Forage harvester
- Mowers
- Potato harvesters

**Recommended Resources**

- Occupational Safety and Health Act of 2007
- Standard operating and/or other workplace procedure manuals
- Tools, equipment and materials manufacturer's manuals
- Livestock production manual (LPM)

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## LIVESTOCK HEALTH MAINTENANCE

**UNIT CODE:** AGR/CU/EXT/CR/04/4/A

### **RELATIONSHIP TO OCCUPATIONAL STANDARDS:**

This unit addresses the unit title: maintain livestock health

**DURATION OF UNIT:** 200 hours

### **UNIT DESCRIPTION**

This unit specifies the competencies required to maintain livestock health. It involves prepare to maintain livestock health, maintain livestock house structures, housing the livestock, carrying out routine management practices, controlling livestock disease and parasites, managing health condition and maintaining of livestock health

### **SUMMARY OF LEARNING OUTCOMES**

- 1 Prepare to maintain livestock health Maintain livestock house structures
- 2 Maintain livestock house structures
- 3 House the livestock
- 4 Carry out routine management practices
- 5 Control livestock diseases
- 6 Control livestock parasites
- 7 Manage health condition in livestock
- 8 Complete the maintenance of livestock health

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

<b>Learning Outcome</b>	<b>Content</b>	<b>Methods of Assessment</b>
1. Prepare to maintain livestock health	<ul style="list-style-type: none"><li>• Basic livestock health conditions</li><li>• Livestock welfare</li><li>• Signs of good and ill health in livestock</li><li>• Livestock health conditions</li><li>• Parasites (types, categories, symptoms, control methods and economic importance)</li><li>• Parasite control programme</li></ul>	<ul style="list-style-type: none"><li>• Practical demonstration</li><li>• Short q &amp; a</li><li>• Oral demonstration</li><li>• Observation</li><li>• Written tests</li><li>• Field visits report</li></ul>

	<ul style="list-style-type: none"> <li>preparation</li> <li>• Vaccination programme preparation</li> <li>• Occupational safety and health</li> <li>• Livestock health conditions and their management</li> <li>• Livestock housing</li> <li>• Livestock housing structure repair materials</li> <li>• Materials, tools and equipment (types, use, repair and maintenance)</li> </ul>	
2. Maintain livestock house structures	<ul style="list-style-type: none"> <li>• Livestock housing</li> <li>• Basic carpentry</li> <li>• Repairs and maintenance</li> <li>• Livestock housing structure repair materials</li> <li>• Materials, tools and equipment (types, use, repair and maintenance)</li> </ul>	<ul style="list-style-type: none"> <li>• Short q &amp; a</li> <li>• Practical demonstration</li> <li>• Oral demonstration</li> <li>• Observation</li> <li>• Written tests</li> <li>• Field visits report</li> </ul>
3. House the livestock	<ul style="list-style-type: none"> <li>• Livestock housing requirements</li> <li>• Materials, tools and equipment (types, use, repair and maintenance)</li> <li>• Occupational safety and health</li> <li>• Sanitation and hygiene</li> </ul>	<ul style="list-style-type: none"> <li>• Short q &amp; a</li> <li>• Practical demonstration</li> <li>• Oral demonstration</li> <li>• Observation</li> <li>• Written tests</li> <li>• Field visits report</li> </ul>
4. Carry out routine management practices	<ul style="list-style-type: none"> <li>• Livestock health management</li> <li>• Livestock welfare</li> <li>• Environmental management practices</li> <li>• Livestock handling</li> <li>• Livestock management practices</li> </ul>	<ul style="list-style-type: none"> <li>• Short q &amp; a</li> <li>• Practical demonstration</li> <li>• Oral demonstration</li> <li>• Observation</li> <li>• Written tests</li> <li>• Field visits report</li> </ul>

5. Control livestock diseases	<ul style="list-style-type: none"> <li>• Reporting protocol</li> <li>• Management of livestock under treatment</li> <li>• Documentation of livestock health conditions</li> <li>• Occupational safety and health</li> <li>• Environmental protection</li> <li>• Waste management</li> <li>• Types of diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Short q &amp; a</li> <li>• Practical demonstration</li> <li>• Oral demonstration</li> <li>• Observation</li> <li>• Written tests</li> <li>• Field visits report</li> </ul>
6. Control parasites	<ul style="list-style-type: none"> <li>• Parasite types and their control</li> <li>• Parasite control methods</li> <li>• Occupational safety and health</li> </ul>	<ul style="list-style-type: none"> <li>• Short q &amp; a</li> <li>• Oral demonstration</li> <li>• Practical demonstration</li> <li>• Observation</li> <li>• Written tests</li> <li>• Third party report</li> <li>• Field visits report</li> </ul>
7. Manage health condition	<ul style="list-style-type: none"> <li>• Livestock health</li> <li>• Reporting procedures</li> <li>• Workplace policy</li> <li>• Livestock welfare</li> <li>• Causes of adverse health conditions.</li> <li>• Animal behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• Short q &amp; a</li> <li>• Oral demonstration</li> <li>• Practical demonstration</li> <li>• Observation</li> <li>• Written tests</li> <li>• Third party report</li> <li>• Field visits report</li> </ul>
8. Complete the maintenance of livestock health	<ul style="list-style-type: none"> <li>• Waste handling</li> <li>• Record keeping</li> <li>• Alternative uses of livestock manure</li> <li>• Environmental management</li> </ul>	<ul style="list-style-type: none"> <li>• Oral demonstration</li> <li>• Short q &amp; a</li> <li>• Observation</li> <li>• Written tests</li> <li>• Third party report</li> <li>• Practical demonstration</li> <li>• Field visits report</li> </ul>

### Suggested Methods of instructions

- Practical demonstration of tasks by trainer.
- Practice by trainees.
- Observations, comments and corrections by trainers.
- Instructor led facilitation of theory.
- Field visits
- Attachment
- Projects

### **Recommended Resources**

- Occupational Safety and Health Act of 2007
- Standard operating and/or other workplace procedures manuals.
- Specific job procedures manuals.
- Livestock Production Manual (LPM)
- Tools and equipment manufacturer's operational specifications and instructions.
- Tools and Equipment:
  - Bolus gun
  - Drenching gun
  - Sprayer
- Materials and consumables
  - Water
  - Appropriate pesticides
- Livestock structures maintenance Equipment, tools and machines:
  - Construction tools and equipment:
    - Hummer
    - Pliers
    - Plumb-bob
    - Saws
    - Spirit level
    - Straight edge
    - Tape measure
    - Tri-square
  - Routine management tools and equipment:
    - Bardizzo
    - Calf pens
    - Elastrator

- Hoof trimmer
- Manure forks
- Rubber ring
- Thermometer
- Weigh crush
- Wheelbarrows
- Routine management machines:
- Chaff cutter
- Milking machines
- Structure maintenance materials:
  - Blocks
  - Bricks
  - Cement
  - Nails
  - Roofing materials
  - Sand
  - Timber
  - Wires

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## LIVESTOCK FEEDING

**UNIT CODE:** AGR/CU/EXT/CR/05/4

### RELATIONSHIP TO OCCUPATIONAL STANDARDS:

This unit addresses the unit title: feed the livestock

**DURATION OF UNIT:** 80 hours

### UNIT DESCRIPTION

This unit specifies the competencies required to feed the livestock. It involves preparing to feed the livestock, feeding the livestock and Completing provision of livestock feeds

### SUMMARY OF LEARNING OUTCOMES

1. Prepare to feed livestock
2. Feed the livestock
3. Complete provision of livestock feeds

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Methods of Assessment
1. Prepare to feed livestock	<ul style="list-style-type: none"><li>• Livestock physiology and production level (definition and determination)</li><li>• Livestock health indicators</li><li>• Livestock nutritional requirements</li><li>• Feeds and fodder production</li><li>• Livestock welfare</li><li>• Sources of feed nutrients for various livestock types and categories</li><li>• Types of fodder and their nutritive values.</li><li>• Quality of feeds and fodder.</li><li>• Feed safety and hygiene.</li><li>• Feedstuff choosing and sampling</li><li>• Feed rationing (definition, methods, determination and mixing)</li><li>• Occupational safety and health</li></ul>	<ul style="list-style-type: none"><li>• Oral demonstration</li><li>• Short q &amp; a</li><li>• Observation</li><li>• Written tests</li><li>• Practical demonstration</li><li>• Field visits reports</li></ul>

	<ul style="list-style-type: none"> <li>• Tool and equipment (types, use, repair and maintenance) used in livestock feeding and watering</li> </ul>	
2. Feed the livestock	<ul style="list-style-type: none"> <li>• Feed rations (calculating, measuring distribution and watering)</li> <li>• Livestock feeding frequency</li> <li>• Livestock feed conversion</li> <li>• Feeding equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Oral demonstration</li> <li>• Short q &amp; a</li> <li>• Observation</li> <li>• Written tests</li> <li>• Practical demonstration</li> <li>• Field visits report</li> </ul>
3. Complete provision of livestock feeds	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Livestock production monitoring</li> <li>• Record keeping</li> <li>• Stores management</li> <li>• Tools, machines and equipment care and maintenance feeding evaluation (check wastage)</li> </ul>	<ul style="list-style-type: none"> <li>• Oral demonstration</li> <li>• Short q &amp; a</li> <li>• Observation</li> <li>• Written tests</li> <li>• Practical demonstration</li> <li>• Field visits report</li> </ul>

### Suggested Methods of instructions

- Practical demonstration of tasks by trainer.
- Practice by trainees.
- Observations, comments and corrections by trainers.
- Instructor led facilitation of theory.
- Field visits
- Attachment
- Projects

### Recommended Resources

- Occupational safety and Health Act of 2007
- Machine/equipment manufacturer's specifications and instructions.
- Environmental Management and Coordination Act – EMCA 2015
- National environmental management authority regulations
- Livestock production manuals (LPM)

- Tools and equipment
  - Watering equipment:
    - Automatic waterers
    - Bucket
    - Water trough
  - Feeding equipment
    - Feed mixers
    - Feed trough
    - Hammer mills
    - Weigh scales
    - Wheel barrow
  - Tools:
    - Panga
    - Scale
    - Weigh bridge
    - Weight band

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## LIVESTOCK BREEDING

**UNIT CODE:** AGR/CU/EXT/CR/06/4/A

### RELATIONSHIP TO OCCUPATIONAL STANDARDS:

This unit addresses the unit title: breed livestock

**DURATION OF UNIT:** 60 hours

### UNIT DESCRIPTION

This unit specifies the competencies required to breed livestock. It involves preparing to breed livestock, breeding the livestock and Complete animal breeding

### SUMMARY OF LEARNING OUTCOMES

1. Prepare to breed livestock
2. Breed the livestock
3. Complete livestock breeding

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Methods of Assessment
1. Prepare to breed livestock	<ul style="list-style-type: none"><li>• Tools, materials and equipment (type, use, repair and maintenance) used in livestock breeding</li><li>• Breeding stock selection (methods, types, advantages and disadvantages)</li><li>• Breeding stock management</li><li>• Breeding methods for various livestock species</li><li>• Livestock production systems</li><li>•</li></ul>	<ul style="list-style-type: none"><li>• Oral demonstration</li><li>• Short q &amp; a</li><li>• Observation</li><li>• Written tests</li><li>• Practical demonstration</li><li>• Field visits reports</li></ul>
2. Breed the livestock	<ul style="list-style-type: none"><li>• Heat detection (heat signs and oestrous cycle)</li><li>• Breeding methods overview</li></ul>	<ul style="list-style-type: none"><li>• Oral demonstration</li><li>• Short q &amp; a</li><li>• Observation</li><li>• Written tests</li><li>• Practical</li></ul>

Learning Outcome	Content	Methods of Assessment
		demonstration • Field visits report
3. Complete breeding the livestock	• Livestock breeding documentation • Breeding stock feeding, housing and health management	• Oral demonstration • Short q & a • Observation • Written tests • Practical demonstration • Field visits report

### Suggested Methods of instructions

- Practical demonstration of tasks by trainer.
- Practice by trainees.
- Observations, comments and corrections by trainers.
- Instructor led facilitation of theory.
- Field visits
- Attachment
- Projects

### Recommended Resources

- Occupational safety and Health Act of 2007
- Machine/equipment manufacturer's specifications and instructions
- Livestock Production Manual (LPM)
- Breeders manual
- Environmental Management and Coordination Act (EMCA)
- National environmental management authority regulations
- Tools and equipment:
  - Payettes
  - Personal Protective Equipment

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## FARM RECORDS KEEPING

**UNIT CODE:** AGR/CU/EXT/CR/07/4/A

### **RELATIONSHIP TO OCCUPATIONAL STANDARDS:**

This unit addresses the unit title: keep farm records

**DURATION OF UNIT:** 40 hours

### **UNIT DESCRIPTION**

This unit specifies the competencies required to keep farm record. It involves preparing to keep farm records, keeping farm records, filling, recording and complete keeping of farm record keeping

### **SUMMARY OF LEARNING OUTCOMES**

1. Prepare to keep farm records.
2. Keep farm record
3. Complete keeping of record

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

<b>Learning Outcome</b>	<b>Content</b>	<b>Methods of Assessment</b>
1. Prepare to keep farm records	<ul style="list-style-type: none"><li>• Office equipment (types and uses)</li><li>• Farm records (types, importance and qualities)</li><li>• Ledger</li><li>• Cash book</li><li>• Journal</li><li>• Daily diary</li><li>• Financial documents (receipts, invoice, purchase order, delivery note, payment voucher, bank statement, petty cash and cheque books)</li><li>• Stationery</li></ul>	<ul style="list-style-type: none"><li>• Oral demonstration</li><li>• Short Q &amp; A</li><li>• Observation</li><li>• Written tests</li><li>• Practical Demonstration</li><li>• Field visits reports</li></ul>

2. keep farm records	<input type="checkbox"/> farm record books and stationery (data entry and use): <ul style="list-style-type: none"> <li>• Ledger</li> <li>• Cash book</li> <li>• Journal</li> <li>• Daily diary</li> <li>• Financial documents (receipts, invoice, purchase order, delivery note, payment voucher, bank statement, petty cash and cheque books)</li> <li>• Filing and storage procedures</li> <li>• Receipting procedures</li> <li>• Procurement procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Oral demonstration</li> <li>• Short Q &amp; A</li> <li>• Observation</li> <li>• Written tests</li> <li>• Practical Demonstration</li> <li>• Field visits report</li> </ul>
3. Complete keeping farm records	<ul style="list-style-type: none"> <li>• Waste and recyclables (collecting, sorting, shredding and disposing)</li> <li>• Unused materials and stationery (storage)</li> <li>• Document storage</li> </ul>	<ul style="list-style-type: none"> <li>• Oral demonstration</li> <li>• Short Q &amp; A</li> <li>• Observation</li> <li>• Written tests</li> <li>• Practical Demonstration</li> <li>• Field visits report</li> </ul>

### Suggested Methods of instructions

- Practical demonstration of tasks by trainer.
- Practice by trainees.
- Observations, comments and corrections by trainers.
- Instructor led facilitation of theory.
- Field visits
- Attachment
- Projects

### Recommended Resources

- Occupational safety and Health Act of 2007
- Machine/equipment manufacturer's specifications and instructions
- Public Procurement and Disposal Act of 2015
- Public Finance Management Act of 2015



- Workplace policy
- Farm records:
  - Cash book
  - Daily diary
  - Journal
  - Ledger
  
- Farm office equipment:
  - Blower
  - Calculator
  - Chair
  - Desk
  - ETR machine
  - Filing cabinets
  - Networked computer
  - Printer
  - Scanner
- Stationery:
  - Cartilage
  - Envelops
  - Eraser
  - Files
  - Paper
  - Paper punch
  - Pens
  - Rubber stamp
  - Ruler
  - Stapler

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