



**REPUBLIC OF KENYA**

**COMPETENCY-BASED MODULAR CURRICULUM**

**FOR**

**AGRICULTURE AND EXTENSION LEVEL 6  
(CYCLE 3)**

**ISCED PROGRAMME CODE: 0811 554 A**



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

## FARM MACHINERY OPERATIONS

**UNIT CODE:** 0811 551 01A

**TVET CDACC UNIT CODE:** AGR/CU/EXT/CR/01/4/MA

**UNIT DURATION:** 120 HOURS

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: **Operate farm Machinery**

### Unit Description

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

### Summary of Learning Outcomes

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

S/No	Learning Outcomes	Duration (Hours)
1.	Operate hand tools and equipment.	20
2.	Operate tillage machinery	20
3.	Operate planting machinery	20
4.	Operate crop protection machinery	20
5.	Operate harvesting machinery	20
6.	Operate agro-processing machinery	20
<b>Total</b>		<b>120</b>

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcomes	Content	Suggested Assessment Methods
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<p>1. Operate hand tools and equipment</p>	<p><b>Theory</b></p> <p>1.1 Personal protective equipment</p> <p>1.1.1 PPE requirements</p> <p>1.1.2 Importance of PPE</p> <p>1.1.3 Uses and care</p> <p>1.2 Hand tools and equipment</p> <p>1.2.1 Definition of terms</p> <p>1.2.2 Types of hand tools and equipment's</p> <p>1.2.2.1 Garden tools and equipment</p> <p>1.2.2.2 Workshop tools and equipment</p> <p>1.2.2.3 Carpentry tools and equipment</p> <p>1.2.2.4 Masonry tools and equipment</p> <p>1.3 Uses and operation of hand tools and equipment's</p> <p>1.4 Maintenance of hand tools and equipment's</p> <p>1.4.1 Servicing</p> <p>1.4.2 Repair</p> <p>1.4.3 storage</p> <p><b>Practice</b></p> <p>1.5 Operate farm hand tools and equipment's as per the checklist.</p> <p>1.5.1 Garden tools and equipment</p> <p>1.5.2 Workshop tools and equipment</p> <p>1.5.3 Carpentry tools and equipment</p> <p>1.5.4 Masonry tools and equipment</p> <p>1.6 Maintain farm hand tools and equipment's in 1.5.</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Third party report</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Case Studies</li> <li>• Practicals</li> </ul>
<p>2. Operate tillage</p>	<p><b>Theory</b></p> <p>2.1 Tillage machinery</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Projects</li> </ul>

machinery	<p>2.2 Types of tillage machinery</p> <p>2.2.1 Ploughs</p> <p>2.2.2 Harrows</p> <p>2.2.3 Tillers</p> <p>2.2.4 Rotavators</p> <p>2.2.5 Subsoilers</p> <p>2.3 Uses and operation of tillage machinery</p> <p>2.4 Maintenance of tillage machinery</p> <p>2.4.1 Servicing</p> <p>2.4.2 Repair</p> <p>2.4.3 storage</p> <p><b>Practice</b></p> <p>2.5 Operate tillage machinery used in the farm</p> <p>2.5.1 Ploughs</p> <p>2.5.2 Harrows</p> <p>2.5.3 Tillers</p> <p>2.5.4 Rotavators</p> <p>2.5.5 Subsoilers</p> <p>2.6 Maintain farm tillage machinery in 2.5</p>	<ul style="list-style-type: none"> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Practicals</li> </ul>
3. Operate planting machinery	<p><b>Theory</b></p> <p>3.1 Planting machinery</p> <p>3.2 Types of planting machinery</p> <p>3.2.1 Seed drills</p> <p>3.2.2 Planters</p> <p>3.2.3 Ridges</p> <p>3.2.4 Fertilizer distributors</p> <p>3.2.5 Manure spreaders</p> <p>3.3 Uses and operation of planting machinery</p> <p>3.4 Maintenance of planting machinery</p> <p>3.4.1 Servicing</p> <p>3.4.2 Repair</p> <p>3.4.3 storage</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Third party report</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Case Studies</li> <li>• Practicals</li> </ul>

	<b>Practice</b> 3.5 Operate planting machinery used in the farm 3.5.1 Seed drills 3.5.2 Planters 3.5.3 Ridgers 3.5.4 Fertilizer distributors 3.5.5 Manure spreaders 3.6 Maintain planting machinery in 3.5	
4. Operate crop protection machinery	<b>Theory</b> 4.1 Crop protection machinery 4.2 Types of Crop protection machinery 4.2.1 Sprayers 4.2.2 Dusters 4.3 Uses and operation of Crop protection machinery 4.4 Maintenance of Crop protection machinery 4.4.1 Servicing 4.4.2 Repair 4.4.3 storage <b>Practice</b> 4.5 Operate Crop protection machinery used in the farm 4.5.1 Sprayers 4.5.2 Dusters 4.6 Maintain crop protection machinery in 4.5	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Third party report</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Case Studies</li> <li>• Practicals</li> </ul>
5. Operate harvesting machinery	<b>Theory</b> 5.1 Harvesting machinery 5.2 Types of harvesting machinery 5.2.1 Balers	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Third party report</li> <li>• Projects</li> <li>• Interviews/ Oral</li> </ul>

	<p>5.2.2 Mowers</p> <p>5.2.3 Combined harvesters</p> <p>5.2.4 Potato harvester</p> <p>5.2.5 Threshers</p> <p>5.3 Uses and operation of harvesting machinery</p> <p>5.4 Maintenance of harvesting machinery</p> <p>5.4.1 Servicing</p> <p>5.4.2 Repair</p> <p>5.4.3 storage</p> <p><b>Practice</b></p> <p>5.5 Operate harvesting machinery used in the farm</p> <p>5.5.1 Balers</p> <p>5.5.2 Mowers</p> <p>5.5.3 Combined harvesters</p> <p>5.5.4 Potato harvester</p> <p>5.5.5 Threshers</p> <p>5.6 Maintain harvesting machinery in 5.5</p>	<p>questions</p> <ul style="list-style-type: none"> <li>• Individual/group assignments</li> <li>• Case Studies</li> <li>• Practicals</li> </ul>
6. Operate agro-processing machinery	<p><b>Theory</b></p> <p>6.1 Agro-processing machinery</p> <p>6.2 Types of Agro-processing machinery</p> <p>6.2.1 Mills</p> <p>6.2.2 Grinders</p> <p>6.2.3 Shellers</p> <p>6.2.4 Dryers</p> <p>6.2.5 Elevator's conveyors</p> <p>6.3 Uses and operation of Agro-processing machinery</p> <p>6.4 Maintenance of Agro-processing machinery</p> <p>6.4.1 Servicing</p> <p>6.4.2 Repair</p> <p>6.4.3 storage</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Third party report</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Case Studies</li> <li>• Practicals</li> </ul>

	<b>Practice</b> 6.5 Operate Agro-processing machinery used in the farm 6.5.1 Mills 6.5.2 Grinders 6.5.3 Shellers 6.5.4 Dryers 6.5.5 Elevator's conveyors 6.6 Maintain Agro-processing machinery in 6.5	
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### Suggested Methods of Instruction

- Role playing
- Group discussion
- Direct instruction

### Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/Specifications	Quantity	Recommended Ratio (Item: Trainee)
<b>A</b>	<b>Learning Materials</b>			
1.	Business Journals		5 pcs	1:5
2.	writing materials		50	
3.	Charts		25	1:1
4.	PowerPoint presentations	For trainer's use		
5.	Whiteboard		1	1:25
6.	Assorted color of whiteboard markers	For trainers use		
7.	Projector		1	1:25
8.	Handouts		5	1:5
<b>B</b>	<b>Learning Facilities &amp; infrastructure</b>			

1.	Lecture/theory room		1	1:25
2.	Assorted Flash Cards		25	1:1
3.	Site		1	1:25
<b>C</b>	<b>Consumable materials</b>			
	Printing Papers	Ream	1	1:25
	Assorted color of whiteboard marker	For trainers use		
<b>D</b>	<b>Tools and Equipment</b>			
4.	Combine harvesters		1	1:25
5.	Balers		1	1:25
6.	mowers		1	1:25
7.	Dusters		1	1:25
8.	Threshers		1	1:25