

## HORTICULTURE CROP PRODUCTION

**UNIT CODE:** 0812 551 03 A

**TVET CDACC UNIT CODE:** AGR/CU/EXT/CR/03/4/MA

**UNIT DURATION:** 100 HOURS

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Produce Horticulture Crops

### Unit Description

This unit specifies the competencies required to produce horticultural crops. It involves reparation of planting materials, preparation of crop seedbed, planting horticultural crops, managing horticultural crops, harvesting horticulture crop and processing horticulture crops products.

**NOTE:** The trainer to choose at least one horticultural crop from in each category in the range for propagation. The choice should be based on ecological zone, interest of trainees and market demands.

### Summary of Learning Outcomes

SNO	Learning Outcome	Duration (Hours)
1.	Prepare planting materials	15
2.	Prepare crop seedbed	20
3.	Plant horticulture crops	15
4.	Manage horticulture crops	20
5.	Harvest horticulture crops	15
6.	Process horticulture crops products.	20

### Learning Outcomes, Content and Suggested Assessment Methods

<p>1. Prepare planting materials</p>	<p><b>Theory</b></p> <p>1.1 planting materials preparation</p> <p>1.1.1 Definition of terms</p> <p>1.1.2 land preparation tools and equipment</p> <p>1.1.2.1 Axes</p> <p>1.1.2.2 Panga</p> <p>1.1.2.3 Rake</p> <p>1.1.2.4 Slasher</p> <p>1.1.2.5 Tillage</p> <p>tools/equipment/machinery</p> <p>1.1.2.6 Fork jembe</p> <p>1.1.2.7 Harrows</p> <p>1.1.2.8 Hoe</p> <p>1.1.2.9 Tractor</p> <p>1.1.2.10 Equipment</p> <p>1.1.2.11 Mower</p> <p>1.1.2.12 Rotavator</p> <p>1.1.2.13 Wheelbarrow</p> <p>1.1.2.14 Ridgers</p> <p>1.1.2.15 Mouldboard</p> <p>plough</p> <p>1.1.2.16 Disc plough</p> <p>1.1.2.17 Disc harrow</p> <p>1.2 land preparation tools and equipment use</p> <p>1.3 land preparation tools and equipment maintenance</p> <p>1.4 planting materials</p> <p>1.4.1 Types of planting materials</p> <p>1.4.1.1 Seeds and seedlings</p> <p>1.4.1.2 Splits</p> <p>1.4.1.3 Crowns</p> <p>1.4.1.4 Slips</p> <p>1.4.1.5 Cuttings</p> <p>1.4.1.6 Suckers</p> <p>1.4.1.7 Vines</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Reflection papers</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Workshop reports</li> <li>• Individual/group assignments</li> <li>• Practicals</li> </ul>
<p>2 Prepare crop seedbed</p>	<p><b>Theory</b></p> <p>2.1 Land clearing</p> <p>2.2 Importance of land clearing</p> <p>2.3 Methods of land clearing</p> <p>2.3.1 manual clearing</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Reflection papers</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> </ul>

	<p>2.3.2 mechanical clearing</p> <p>2.3.3 controlled burning</p> <p>2.3.4 chemical clearing</p> <p>2.3.5 grubbing</p> <p>2.3.6 grazing</p> <p><b>2.4 . Tillage operations</b></p> <p>2.4.1 definition of terms</p> <p><b>2.4.2</b> importance of tillage</p> <p><b>2.4.3</b> Types of tillage</p> <p>2.4.3.1 Primary tillage</p> <p><b>2.4.3.2</b> Secondary tillage</p> <p><b>2.4.3.3</b> Tertiary tillage</p> <p><b>2.4.3.4</b> Zero/minimum tillage</p> <p><b>Practice</b></p> <p>2.5 carry out soil conservation measures</p> <p>2.5.1 Contour planting</p> <p>2.5.2 Terraces</p> <p>2.5.3 Gabions</p> <p>2.5.4 Mulching</p> <p>2.5.5 Cover cropping</p> <p>2.5.6 Minimum tillage</p> <p>2.5.7 Crop rotation</p> <p>2.5.8 Intercropping</p> <p>2.6 carry out tillage operations</p>	<ul style="list-style-type: none"> <li>• Workshop reports</li> <li>• Individual/group assignments</li> <li>• practical</li> </ul>
3 Plant horticulture crops	<p><b>Theory</b></p> <p>3.1 horticulture crops establishment</p> <p>3.1.1 types of farm inputs</p> <p>3.1.1.1 inorganic fertilizer</p> <p>3.1.1.2 Vegetative propagation materials</p> <p>3.1.1.3 Manures</p> <p>3.1.2 methods of planting horticulture crops</p> <p>3.1.2.1 Direct seeding</p> <p>3.1.2.2 Transplanting</p> <p>3.1.2.3 Drilling</p> <p>3.1.2.4 Broadcasting</p> <p>3.1.2.5 Row planting</p> <p>3.1.3 advantages and disadvantages of various planting methods</p> <p>3.2 horticulture crops planting records</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Reflection papers</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Workshop reports</li> <li>• Individual/group assignments</li> <li>• practical</li> </ul>

	<p>preparation</p> <p><b>Practice</b></p> <p>3.3 carry out the establishment of different horticulture crops .</p>	
4 Manage horticulture crops	<p><b>Theory</b></p> <p>4.1 Horticulture crop management.</p> <p>4.1.1 Definition of terms</p> <p>4.1.2 management practices in horticulture crops</p> <p>4.1.3 importance of management practices.</p> <p>4.2 Types of horticulture crops management practices.</p> <p>4.2.1 Mulching</p> <p>4.2.2 Gapping</p> <p>4.2.3 Thinning</p> <p>4.2.4 Training</p> <p>4.2.5 Fertilizer application</p> <p>4.2.6 Pruning</p> <p>4.2.7 Trellising</p> <p>4.4 prepare horticulture crops management records</p> <p><b>Practice</b></p> <p>4.3 Carry out management practices in horticulture crops.</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Reflection papers</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Workshop reports</li> <li>• Individual/group assignments</li> <li>• Practicals</li> </ul>
5 5. Harvest horticulture crops	<p><b>Theory</b></p> <p>5.1 Harvesting horticulture crops</p> <p>5.1.1 Definition of terms</p> <p>5.1.2 Importance of timely harvesting of perennial crops</p> <p>5.2 Harvesting tools and equipment</p> <p>5.2.1 Sickle</p> <p>5.2.2 Hoes and shovels</p> <p>5.2.3 Harvesting knife</p> <p>5.2.4 Buckets and baskets</p> <p>5.2.5 Pruning shears</p> <p>5.3 uses of harvesting tools and equipment in horticulture crops</p> <p>5.4 maintenance of harvesting tools and equipment in horticulture crops</p> <p>5.5 maturity indices in horticulture crops</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Reflection papers</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Workshop reports</li> <li>• Individual/group assignments</li> <li>• Practical</li> </ul>

	<p>5.5.1 indices</p> <p>5.5.1.1 colour</p> <p>5.5.1.2 texture</p> <p>5.5.1.3 size and shape</p> <p>5.5.1.4 firmness</p> <p>5.5.2 importance of maturity indices in horticulture crops</p> <p>5.6 Methods of harvesting horticulture crops</p> <p>5.6.1 Hand picking</p> <p>5.6.2 Use of tools</p> <p>5.6.3 Use of machinery</p> <p>5.7 prepare harvesting records</p> <p><b>Practice</b></p> <p>5.8 carry out establishment of horticulture crops</p> <p>5.9 Carry out harvesting of horticulture crops</p>	
6. Process horticulture crops products	<p><b>Theory</b></p> <p>1.1 Process horticulture crops products</p> <p>1.1.1 Definition of terms</p> <p>1.1.2 Importance of processing horticulture crops products</p> <p>1.2 processing tools and equipment and machines</p> <p>1.2.1 Blender</p> <p>1.2.2 Mortar and pestle</p> <p>1.2.3 Weighing scale</p> <p>1.2.4 Knives/cutting materials</p> <p>1.2.5 Weighing cup</p> <p>1.2.6 Bowl choppers</p> <p>1.2.7 Bandsaws</p> <p>1.2.8 Slicers</p> <p>1.2.9 Marinating</p> <p>1.2.10 vacuum tumblers</p> <p>1.2.11 Peelers</p> <p>1.3 Uses of processing tools and equipment</p> <p>1.4 Maintenance of processing tools and equipment</p> <p>1.5 Methods of processing horticulture crops products</p> <p>1.5.1.1 Cleaning and grading</p> <p>1.5.1.2 Cooling and storage</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Reflection papers</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Workshop reports</li> <li>• Individual/group assignments</li> <li>• Practicals</li> </ul>

	1.5.1.3 Canning 1.5.1.4 Juicing and pulping 1.5.1.5 pickling 1.6 Distribution of horticulture crops products 1.7 Preparation of horticulture crops product records  <b>Practice</b> 1.8 Carry out processing of horticulture crops products using various methods	
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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.	Journals		5 pcs	1:5
2.	writing materials		50	2:1
3.	Charts		1	1:25
4.	PowerPoint presentations	For trainer's use		
5.	Whiteboard		1	1:25
6.	Assorted color of whiteboard markers	For trainer's use		
7.	Printers		1	1:25
8.	Projector		1	1:25
<b>B</b>	<b>Learning Facilities &amp; infrastructure</b>			
1.	Lecture/theory room		1	1:25

2.	Agriculture lab		1	1:25
	<b>Consumable materials</b>			
2.	Fertilizers	1-50kg bag	1:25	Fertilizers
3.	Seeds	1	1: 25	
4.	Stem cuttings	0.25	1:25	
<b>C</b>	<b>Tools and Equipment</b>			
1.	Hoe		1	1:25
2.	Machete		1	1:25
3.	Rake		5	5:1
4.	Harvesting knives		5	5:1
5.	Nursery trays		1	1:25

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