



**COMPETENCY-BASED MODULAR CURRICULUM**

**FOR AGRICULTURE AND EXTENSION  
LEVEL 5  
(CYCLE 3)**

**PROGRAMME CODE: 0811 454A**



TVET CDACC  
P.O. BOX 15745-00100  
NAIROBI

## **HORTICULTURE CROP PRODUCTION**

**UNIT CODE:** 0811 451 12A

**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: it involves Preparation of planting materials, preparation of crop seedbed, planting horticultural crops, harvesting horticulture crop and processing horticulture crops products.

### **Unit Description**

This unit specifies competencies required to produce horticulture crops.

### **Summary of Learning Outcomes**

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

<b>S/No</b>	<b>Learning Outcomes</b>	<b>Duration (Hours)</b>
1.	Prepare planting materials	15
2.	Prepare crop seedbed	15
3.	Plant horticulture crops	20
4.	Manage horticulture crops	20
5.	Harvest horticulture crops	10
6.	Process horticulture crops products.	20
<b>Total</b>		<b>100</b>

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

<p>1. Prepare planting materials</p>	<p><b>Theory</b></p> <p>1.1 Personal protective Equipment</p> <p>1.1.1 Gloves</p> <p>1.1.2 Facemask</p> <p>1.1.3 Gumboots</p> <p>1.1.4 Overall.</p> <p>1.2 planting materials preparation</p> <p>1.2.1 Definition of terms</p> <p>1.2.2 land preparation tools and equipment</p> <p>1.2.2.1 Axes</p> <p>1.2.2.2 Panga</p> <p>1.2.2.3 Rake</p> <p>1.2.2.4 Slasher</p> <p>1.2.2.5 Tillage tools/equipment/machinery</p> <p>1.2.2.6 Fork jembe</p> <p>1.2.2.7 Harrows</p> <p>1.2.2.8 Hoe</p> <p>1.2.2.9 Tractor</p> <p>1.2.2.10 Equipment</p> <p>1.2.2.11 Mower</p> <p>1.2.2.12 Rotavator</p> <p>1.2.2.13 Wheelbarrow</p> <p>1.2.2.14 Ridgers</p> <p>1.2.2.15 Mouldboard plough</p> <p>1.2.2.16 Disc plough</p> <p>1.2.2.17 Disc harrow</p> <p>1.3 land preparation tools and equipment use</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>1.4 land preparation tools and equipment maintenance</p> <p>1.5 planting materials</p> <p>1.5.1 Types of planting materials</p> <p>1.5.1.1 Seeds and seedlings</p> <p>1.5.1.2 Splits</p> <p>1.5.1.3 Crowns</p> <p>1.5.1.4 Slips</p> <p>1.5.1.5 Cuttings</p> <p>1.5.1.6 Suckers</p> <p>1.5.1.7 Vines</p>	
2 Prepare crop seedbed	<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> <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>2.4. Tillage operations</p> <p>2.4.1 definition of terms</p> <p>2.4.2 importance of tillage</p> <p>2.4.3 Types of tillage</p> <p>2.4.3.1 Primary tillage</p> <p>2.4.3.2 Secondary tillage</p> <p>2.4.3.3 Tertiary tillage</p> <p>2.4.3.4 Zero/minimum tillage</p> <p>2.5 Land preparation records</p> <p><b>Practice</b></p> <p>2.6 carry out soil conservation</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>

	measures 2.6.1 Contour planting 2.6.2 Terraces 2.6.3 Gabions 2.6.4 Mulching 2.6.5 Cover cropping 2.6.6 Minimum tillage 2.6.7 Crop rotation 2.6.8 Intercropping 2.6 carry out tillage operations	
3 Plant horticulture crops	<b>Theory</b> 3.1 Horticulture crops establishment 3.1.1 types of farm inputs 3.1.1.1 inorganic fertilizer 3.1.1.2 Vegetative propagation materials 3.1.1.3 Manures 3.1.2 methods of planting horticulture crops 3.1.2.1 Direct seeding 3.1.2.2 Transplanting 3.1.2.3 Drilling 3.1.2.4 Broadcasting 3.1.2.5 Row planting 3.1.3 advantages and disadvantages of various planting methods 3.2 horticulture crops planting records <b>Practice</b> 3.3 carry out the establishment of different horticulture crops.	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• practical</li> </ul>
4 Manage	<b>Theory</b>	<ul style="list-style-type: none"> <li>• Written tests</li> </ul>

horticulture crops	<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>• 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 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>	<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>5.2.5 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> <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>	<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</li> </ul>

	<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> <p>1.5.1.3 Canning</p> <p>1.5.1.4 Juicing and pulping</p> <p>1.5.1.5 pickling</p> <p>1.6 Distribution of horticulture crops products</p> <p>1.7 Preparation of horticulture crops product records</p> <p><b>Practice</b></p> <p>1.8 Carry out processing of horticulture crops products using various methods</p>	<p>assignments</p> <ul style="list-style-type: none"> <li>• Practicals</li> </ul>
--	--	---

### 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