

SUB-TROPICAL FRUITS PRODUCTION

ISCED UNIT CODE: 0812 451 14A

TVET CDACC UNIT CODE: HO/CU/HP/CR/05/5/MA

Relationship to Occupational Standards

This unit addresses the unit of competency: **produce subtropical fruits**

UNIT DURATION: 120 HOURS

UNIT DESCRIPTION

This unit specifies the competencies required to produce quality and clean sub-tropical fruits. It involves preparing sub-tropical fruits planting materials, establishing tropical fruits, managing sub-tropical and performing sub-tropical fruits post-harvest practices.

Summary of Learning Outcomes

SNO	Learning Outcome	Duration (Hours)
1.	Establish sub-tropical fruits nursery	20
2.	Establish sub-tropical fruits orchard	30
3.	Manage sub-tropical fruits orchard	40
4.	Perform sub-tropical fruits post-harvest practices	30
	TOTAL	120

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Establish sub-tropical fruits nursery	1.1 Personal protective equipment Definition of terms <ul style="list-style-type: none">Subtropical fruits	<ul style="list-style-type: none">PracticalProjectThird party report

	<p>sub-tropical fruits</p> <ul style="list-style-type: none"> ▪ Tree tomatoes ▪ Straw berry ▪ Guava ▪ Loquat ▪ Lime <p>1.2 Nursery site selection</p> <ul style="list-style-type: none"> • Water source • Security • Topography • Soil fertility <p>1.3 Nursery site soil analysis</p> <ul style="list-style-type: none"> • Physical analysis • Chemical analysis • Biological analysis <p>1.4 Nursery tools,</p> <ul style="list-style-type: none"> • Hoes • Machetes • Secateurs • Shovels • Soil augur • Panga • Hammer • Saw • Bucket • Shears • Dibbler • Pegs 	<ul style="list-style-type: none"> • Portfolio of evidence • Written tests • Oral questioning
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	<p>1.5 Nursery preparation</p> <p>1.6 Raising planting materials in the nursery</p> <p>1.7 Nursery routine agronomic practices</p> <ul style="list-style-type: none"> • Mulching • Gapping • Thinning • Pruning • Training • Watering • Fertilizer application • Pest and diseases control 	
2. Establish sub-tropical fruits orchard	<p>2.1 Personal protective equipment</p> <ul style="list-style-type: none"> • Gumboots • Gloves • Overalls • Dust coats • Masks <p>2.2 Nursery site selection</p> <ul style="list-style-type: none"> - Water source - Security - Topography <p>2.3 Land preparation tools,</p> <ul style="list-style-type: none"> • Hoes • Machetes • Secateurs • Shovels • Soil augur <p>Land preparation equipment</p>	<ul style="list-style-type: none"> • Practical • Project • Third party report • Portfolio of evidence • Written tests • Oral questioning

	<ul style="list-style-type: none"> • Spray pumps • Watering cans • Hose pipes • Plough • Harrows <p>2.4 Land clearing methods</p> <p>2.5 Land tillage practices</p> <ul style="list-style-type: none"> • Primary Tillage • Secondary • Tertiary <p>2.6 Establishment of soil and water conservation measures</p> <ul style="list-style-type: none"> • Terrace • Windbreaks • Contour farming • Strip cropping <p>2.7 Soil amendments</p> <ul style="list-style-type: none"> • Organic and inorganic fertilizers • Agricultural lime • Agricultural gypsum <p>2.8 Sub-tropical fruits Seedling Transplanting</p> <ul style="list-style-type: none"> - Spacing - Fertilizer application - Seedling routine practices 	
3. Manage sub-tropical fruits orchard	<p>3.1 Sub-tropical fruit routine management Tools and equipment</p> <p>3.2 Sub-tropical fruit routine</p>	<ul style="list-style-type: none"> • Practical • Project • Third party report

	<p>management practices</p> <ul style="list-style-type: none"> • Gapping <p>3.3 Training and pruning</p> <p>3.4 Crop protection practices</p> <ul style="list-style-type: none"> • Pest control • Disease control • Weed control <p>3.5 Physiological disorder management</p> <p>3.6 Fertilizer application</p> <p>3.7 Mulching</p> <p>3.8 Watering</p> <p>3.9 Fruit and flower induction.</p> <p>3.10 Sub-tropical fruits harvesting</p> <ul style="list-style-type: none"> • Harvesting indicators • Harvesting tools and equipment <p>3.11 Sub-tropical fruits waste management</p> <ul style="list-style-type: none"> • Environmental waste regulations • Segregation • Disposal 	<ul style="list-style-type: none"> • Portfolio of evidence • Written tests • Oral questioning
4. Perform sub-tropical fruits post-harvest practices	<p>4.1 Tools and equipment for post-harvest practices</p> <p>Introduction</p> <ul style="list-style-type: none"> • Definition of terms- post-harvest handling • Characteristics of sub-tropical 	<ul style="list-style-type: none"> • Practical • Project • Third party report • Portfolio of evidence

	<p>fruits</p> <ul style="list-style-type: none"> • Advantages of post-harvest sub-tropical fruits handling <p>4.2 Sub-tropical fruits quality and quantity analysis</p> <ul style="list-style-type: none"> • Color • Size • Shape • cleanliness <p>4.3 post-harvest practices</p> <ul style="list-style-type: none"> • Transportation • Cleaning • Sorting • Grading • Drying • Processing • Packaging • Branding • Storage <p>4.4 Sub-tropical fruits marketing techniques</p> <ul style="list-style-type: none"> • Online marketing • Influencer marketing • Referrals • Advertisement • Auctioneering • Public relation • Cold calling 	<ul style="list-style-type: none"> • Written tests • Oral questioning
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	<ul style="list-style-type: none"> • Content marketing • Invoicing <ul style="list-style-type: none"> • Loyalty programs 	
	4.5 Sub-tropical fruits waste management <ul style="list-style-type: none"> • Environmental waste regulations • Segregation • Disposal 	

Suggested Methods of Delivery

- Practical
- Projects
- Demonstrations
- Group discussions
- Direct instructions
- Field trip

Recommended Resources

Category/Item/ Learning Materials	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
Secateurs		13	1:5
Shovels		13	
Soil augur	For trainer's use	13	
Pangas		13	1:1
Buckets		13	1:1
Dibblers		13	1:1
Graph books		25	1:1
13Hoes		13	1:1
Machetes		13	1:1

Pegs		25	1:1
Spray pumps		13	1:2
Watering cans		13	1:1
Hose pipes	Assorted types	13pcs each	1:2
Plough		1	1:2
Harrows		1	1:2
Ridger		1	1:2
Boom sprayer		1	1:2
Pruning saw		1	
Wire strainers		2	1:2
Pipe sprinklers		13	1:2
Scouting flags		13	1:2
Storage tanks		2	1:2
Tractor		1	1:2
Grading shed		1	
Waste bins		3	1:5
Pipe sprinklers		5	1:5
Scouting flags		1	1:25
Storage tanks		2	1:2

Theory room		1	1:25
Drip kits	Assorted types of pipes	13	1:2
lab containing:	<ul style="list-style-type: none"> Fitted Benches and Workstations Fume hoods Chemical Storage Cabinets: Secure cabinets for storing hazardous materials, segregated by compatibility (e.g., acids, 	1	1:25

	<p>bases, flammable materials).</p> <ul style="list-style-type: none"> • Refrigerators and Freezers: For temperature-sensitive reagents and samples. Basic • Laboratory Glassware like Beakers, flasks, test tubes, pipettes, and graduated cylinder • Analytical Instruments like Balances, spectrophotometers, chromatographs, and pH meters. • Heating Devices like Hot plates, Bunsen burners, and ovens for heating substances. 		
PPEs	Dust coat, gumboots, gloves	1 pair each	1:1
Hoes		13	1:2
Machetes		13	1:2
Shovels		13	1:2
Soil augur		13	1:2
Bucket		13	1:2
Shears		13	1:2
Dibblers		13	1:2
Pegs			
Flame photometer		13	1:2

pH meters		13	1:2
Measuring cylinders		13	1:2
1 Theory room		1	1:25
Personal protective	Safety boot, dustcoat, overall, glove, goggles	25 each	1:1
Engineering workshop containing:	<ul style="list-style-type: none"> Fitted workbenches Fitted tool Cabinets and Storage Racks Measuring Instruments: Hand Tools and equipment Workshop tools and equipment Hand Tools and equipment	1	1:25
Spades=		13	1:2
Hammers		13	1:2
Lubricants			
Tractor drawn plough		1	1:25
Irrigation systems		13	1:2
Tape measures		13	1:2
Plumb bobs		13	1:2
laptop		1	1:25
		1	1:25
		1	1:25