BEE PRODUCTION

UNIT CODE: 0811 551 14A

TVET CDACC UNIT CODE: AGR/CU/EXT/CR/03/5/MA

UNIT DURATION: 60 HOURS

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Carry out bee production

Unit Description

This unit specifies competencies required to establish apiary, manage bee colony and managing bee pests and diseases. It also involves harvesting of bee products and processing of harvested bee products.

Summary of Learning Outcomes

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

S/No	Learning Outcomes	Duration (Hours)
1.	To establish bee apiary	10
2.	To manage bee colony	10
3.	To manage bee pests and diseases	10
4.	To harvest bee products	20
5.	Manage bee products	10
Total		**60**

Learning Outcomes, Content and Suggested Assessment Methods

Learning outcomes	Content	Suggested assessment methods
1. Establish bee apiary	**Theory** 1.1 Apiary establishment 1.1.1 Site selection	• Written tests • Reflection papers • Projects

	1.1.2 Importance of site selection 1.1.3 Apiary construction tools and equipment's 1.1.4 Uses of apiary site establishment materials tools and equipment's 1.1.5 Maintenance of apiary establishment materials, tools and equipment's 1.2 Apiary site preparation 1.3 Bee hives construction 1.3.1 Types of bee hives 1.3.1.1 Langstroth 1.3.1.2 Kenya top bar hive 1.3.1.3 Log hive 1.3.1.4 Ware Hive 1.3.2 Materials, tools and equipment's 1.3.2.1 Wood and timber 1.3.2.2 Claw hammers 1.3.2.3 Nails 1.3.2.4 Saws 1.3.2.5 Wire mesh 1.3.3 Uses of materials, tools and equipment's 1.3.4 Maintenance of tools and equipment's 1.4 Installation of bee hives into apiary 1.5 Fencing apiary 1.6 Stocking of bee hives **Practice** 1.7 Carry out construction of bee hives	• Interviews/ Oral questions • Workshop reports • Individual/group assignments • Practicals
2 Manage bee colony	**Theory** 2.1 Bee colony management 2.1.1 Definition of terms 2.1.2 Importance of bee colony management.	• Written tests • Reflection papers • Projects • Interviews/ Oral questions

	2.2 Colony feeding 2.3 Inspection of bee hives 2.4 Queen bee management 2.5 Honey bee colony division **Practice** 2.6 Carry out feeding of bee colonies Divide bee colonies	• Workshop reports • Individual/group assignments • Practical
3 Manage bee pests and diseases	**Theory** 3.1 Bee pests and diseases management 3.1.1 Definition of terms 3.1.2 Inspection of bee hives 3.2 Bee pests and diseases 3.2.1 Bee viruses 3.2.2 Nosemosis 3.2.3 Varroa mites Bee pests 3.3.1 Small Hive Beetle (SHB • Carpenter bee • Honey bee • Bumblebee • Ants • Mite • Lesser wax moth 3.2.4 Methods of controlling pests and diseases 3.2.5 Bee pests and diseases control records preparation **Practice** 3.3 Carry out hive inspection. 3.4 Carry out bee pests and diseases control Prepare bee pests and diseases control methods	• Written tests • Reflection papers • Projects • Interviews/ Oral questions • Workshop reports • Individual/group assignments • Practical
4 Manage bee pests and diseases	**Theory** 4.1 Bee pests and diseases management	• Written tests • Reflection papers

	4.1.1 Definition of terms 4.1.2 Inspection of bee hives 4.2 Bee pests and diseases 4.2.1 Bee viruses 4.2.2 Nosemosis 4.2.3 Varroa mites 4.2.4 Small Hive Beetle (SHB) 4.2.5 Carpenter bee 4.2.6 Honey bee 4.2.7 Bumblebee 4.2.8 Ants 4.2.9 Mite 4.2.10 Lesser wax moth 4.2.11 Methods of controlling pests and diseases 4.2.12 Bee pests and diseases control records preparation **Practice** 4.3 Carry out hive inspection. 4.4 Carry out bee pests and diseases control 4.5 Prepare bee pests and diseases control methods	• Projects • Interviews/ Oral questions • Workshop reports • Individual/group assignments • Practical
5 Manage bee products	**Theory** 5.1 Bee products management 5.1.1 Definition of terms 5.2 Bee products processing 5.3 Bee products packaging 5.4 Bee products labelling 5.5 Marketing of bee products **Practice** 5.6 carry out bee products post-harvest practices	• Written tests • Reflection papers • Projects • Interviews/ Oral questions • Workshop reports • Individual/group assignments • Practicals

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)
A	**Learning Materials**			
1.	Journals	Apiculture	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	**Learning Facilities & infrastructure**			
1.	Lecture/theory room		1	1:25
2.	Agriculture lab		1	1:25
C	**Tools and Equipment**			
1.	Timber		5	1:1
2.	Board		5	1:1
3.	Labelling marker		1	1:25
4.	Claw hummer		1	1:25
5.	Nails		1	1:25
6.	Bee smokers		5	1:5

7.	Hive tool/uncapping knife		5	1:5
8.	Bee brush		1	1:25
9.	Honey bottling bucket		1	1:25