



REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

AGRICULTURE AND EXTENSION TECHNICIAN

LEVEL 5

(CYCLE 3) PROGRAMME CODE: 0811 454A



TVET CDACC
P.O. BOX 15745-00100
NAIROBI

CARRY OUT BEE PRODUCTION

UNIT CODE: 0811 451 14A

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

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function .	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the range.</i>
1. Establish bee apiary	1.1 Apiary site is identified as per work requirement and farm plan 1.2 <i>Materials, tools</i> and <i>equipment</i> for clearing the apiary site are assembled as per workplace procedures 1.3 Apiary site is prepared as per the work procedures 1.4 Bee hives are constructed as per work procedure 1.5 Bee hives are erected in the apiary as per work requirement 1.6 Bee hives are stocked as per work procedures
2. Manage bee colony	2.1 <i>Personal protective equipment</i> is worn as per work requirement 2.2 Bees are fed based on availability of nectar and water 2.3 Bee hives are inspected periodically as per work procedures 2.4 Queen bee is managed as per work procedures 2.5 Honey bee colony is divided as per work procedures
3. Manage bee pests and disease	3.1 Protective gear is worn as per the work requirement 3.2 Bee hive is inspected for pests and diseases as per work

	<p>procedures</p> <p>3.3 Materials and equipment for pest and disease control are assembled as per work requirement</p> <p>3.4 Pest and disease control method is applied based on type of pest and disease being controlled</p> <p>3.5 Pest and disease control record is prepared as per work procedure</p>
4. Harvest bee products	<p>4.1 Colonies to be harvested are identified as per work procedures.</p> <p>4.2 <i>Personal protective equipment</i> is worn as per work requirement</p> <p>4.3 Honey is harvested as per the work procedures</p> <p>4.4 Bee propolis is harvested as per work procedures</p> <p>4.5 Bee pollen is trapped and collected as per work procedures</p> <p>4.6 Bee broods are harvested as per work procedures</p>
5. Manage bee products	<p>5.1 Bee products are processed as per work requirement</p> <p>5.2 Bee products are packaged as per work requirement</p> <p>5.3 Bee products are labelled and branded as per work procedures</p> <p>5.4 Bee products are marketed as per farm procedures</p>

RANGE OF VARIABLES

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

RANGE	VARIABLE
1 Bee products includes but not limited to	<ul style="list-style-type: none"> • Honey • Propolis • Bee venom • Creamed honey • Manuka honey

	<ul style="list-style-type: none"> • Comb honey • Honeycomb • Beeswax • Bee pollen • Royal jelly
2 tools and equipment	<ul style="list-style-type: none"> • Smokers • Hive tools • Conical honey strainer • Wax press • Solar wax melter
3 personal protective equipment includes	<ul style="list-style-type: none"> • Bee suit • Gloves • Gumboots
3.Bee disease includes but not limited to	<ul style="list-style-type: none"> • Bee viruses • Nosemosis • Varroa mites • American Foulbrood (AFB) • European Foulbrood (EFB) • Amebiosis • Chalkbrood • Stonebrood • Small Hive Beetle (SHB)
4.Bee pests includes but not limited to	<ul style="list-style-type: none"> • Carpenter bee • Honey bee • Bumblebee • Ants • Mite • Lesser wax moth

	<ul style="list-style-type: none"> • Bee louse • Greater wax moth
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REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Communication
- Analytical
- Evaluation
- Management
- Problem solving
- Time management
- Data collection
- Numeracy
- Observation
- Negotiation
- Digital literacy
- Equipment calibration

Required knowledge

The individual needs to demonstrate knowledge of:

- Beehive construction
- Apiary site selection
- Beehive stocking
- Swarming of bee
- Bee multiplication
- Bee nutrition
- Parasite and disease management in bees
- Bee products

- Bee production records
- Animal Produce handling

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency.	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Constructed beehives based on resources available</p> <p>1.2 Managed apiaries based on GAPs</p> <p>1.4 Harvested bee products based on market demand</p> <p>1.5 Managed bee diseases based on GAPs</p> <p>1.6 Controlled bee parasites and predators based on GAPs</p>
2. Resource Implications.	<p>The following resources should be provided:</p> <p>2.1 Access to relevant workplace where assessment can take place</p> <p>2.2 Appropriately simulated environment where assessment can take place</p> <p>2.3 Materials relevant to the proposed assessment activity or tasks</p>
3. Methods of Assessment.	<p>Competency may be assessed through:</p> <p>3.1 Practical</p> <p>3.2 Project</p> <p>3.3 Portfolio of evidence</p> <p>3.4 Third Party Report</p> <p>3.5 Written Tests</p> <p>3.6 Oral Questioning</p>
4. Context of Assessment.	<p>This competency may be assessed in a workplace or in a simulated workplace.</p>

5. Guidance information for assessment.	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.
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