

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**APIARY ATTENDANT LEVEL 4**

**OS ISCED CODE:** **0811 354 A**

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## FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social-economic development. Quality education and training will contribute to the achievement of Kenya’s development blueprint, Vision 2030 and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. These reforms resulted to the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No.14 of 2012). A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET be competency based, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

The reforms also demand that iindustry inform curriculum development to ensure the curriculum addresses its competence needs. It is against this background that these Occupational Standards were developed for developing a Competency-Based Education and Training (CBET) curriculum for aapiary attendant level 4. This ooccupational sstandard will also be the basis for the assessment of an individual for competency certification.

It is my conviction that this occupational standard will play a great role in the development of a competent human resource for sustainable development.

## PREFACE

Kenya Vision 2030 aims to transform the country into a newly industrializing, middle-income country providing a high-quality life to all its citizens by the year 2030. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills, and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency-Based Education and Training (CBET).

The TVET Act CAP 210A and Sessional Paper No. 14 of 2012 on reforming education and training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by the industry as well as increase the global competitiveness of the Kenyan labour force.

## ACKNOWLEDGMENT

This occupational standard was developed through the combined effort of various stakeholders from private and public organizations. I am thankful to the management of these organizations for allowing their staff to participate in this course. I wish to acknowledge the invaluable contribution of industry players who provided input towards the development of this occupational standard.

I also thank all the individuals and organizations who participated in the validation of this occupational standard.

**TABLE OF CONTENTS**

[FOREWORD iii](#_Toc197038714)

[PREFACE iv](#_Toc197038715)

[ACKNOWLEDGMENT v](#_Toc197038716)

[OVERVIEW vii](#_Toc197038717)

[COMMON UNITS OF COMPETENCY 8](#_Toc197038718)

[APPLY BEE BIOLOGY KNOWLEDGE 9](#_Toc197038719)

[APPLY BEE BEHAVIOR IN HANDLING BEES 13](#_Toc197038720)

[APPLY SAFETY AND HYGIENE 16](#_Toc197038721)

[CORE UNITS OF COMPETENCY 20](#_Toc197038722)

[CARRY OUT APIARY ESTABLISHMENT 21](#_Toc197038723)

[MANAGE APIARY 26](#_Toc197038724)

[HARVEST BEE PRODUCTS 32](#_Toc197038725)

# OVERVIEW

Apiary attendance level 4 qualification consists of competencies required by an apiary attendant to carry out apiary establishment and manage apiary, harvest bee products.

Units of competency comprising Apiary attendance level 4 qualification include the following common and core:

**Common Units of Competency**

|  |  |
| --- | --- |
| **Unit Code** | **Unit Title** |
| 0811 341 01 A | Apply bee biology knowledge |
| 0811 341 02 A | Apply bee behavior in handling bees |
| 0811 341 03 A | Apply safety and hygiene |

**Core Units of Competency**

|  |  |
| --- | --- |
| **Unit Code** | **Unit Title** |
| 0811 341 04 A | Carry out apiary establishment |
| 0811 341 05 A | Manage apiary |
| 1022 341 06 A | Harvest bee products |

# COMMON UNITS OF COMPETENCY

# APPLY BEE BIOLOGY KNOWLEDGE

**UNIT CODE:** 0811 341 01 A

**UNIT DESCRIPTION**

This unit covers the competencies required to apply bee biology knowledge. It involves identifying bee species; applying knowledge of bee lifecycle and caste and applying knowledge of bee external anatomy.

**ELEMENT 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.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Identify bee species | * 1. ***Honey bee species*** are identified based on taxonomic classification   2. ***Honey bee sub-species*** are identified based on taxonomic classification   3. ***Honey bee races*** are identified based on geographical origin |
| 1. Apply knowledge of bee lifecycle and caste | * 1. ***Bee castes*** are identified based on roles   2. Bee developmental stages are applied as per National Bee Keeping Manual   3. Bee lifecycle is applied according to bee development stages |
| 1. Apply knowledge bee external anatomy | * 1. Queen bee external anatomy is identified based on taxonomic classification   2. Drone bee external anatomy is identified based on taxonomic classification   3. Worker bee external anatomy is identified based on taxonomic classification |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Honey bee species may include but not limited to: | * 1. Apis mellifera   2. Apis florea   3. Apis dorseta |
| 1. Honey bee sub-species may include but not limited to: | 1. Carniolan honey bee 2. Apis mellifera simensis 3. Apis mellifera adansonii 4. East African lowland honey bee 5. European dark bee 6. Caucasian honey bee |
| 1. Honey bee races may include but not limited to: | 1. European honey bee 2. African wild bee 3. Italian honey bee 4. German black bee |
| 1. Honey bee castes may include but not limited to: | 1. Queen bee 2. Drone 3. Worker bee 4. Brood |

**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:

* Organizing skills
* Analytical skills
* Interpersonal skills
* Communication skills
* Evaluation skills
* Problem solving
* Critical thinking

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Types of bees
* Types of PPE
* Lifecycle
* Caste system
* Physiological systems of bees

**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 | * 1. Identifiedhoney bee species based on taxonomic classification   2. Identifiedhoney bee sub-species based on taxonomic classification   3. Identifiedhoney bee races based on geographical origin   4. Identifiedbee castes based on roles   5. Applied bee lifecycle according to bee development stages   6. Identified bee external anatomy based on taxonomic classification |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place.   2. Access to relevant assessment environments.   3. Resources relevant to the proposed assessment activity or tasks. |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * Practical * Project * Written tests * Third party report * Portfolio of evidence * Oral questions |
| 1. Context of Assessment | This competency maybe assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# APPLY BEE BEHAVIOR IN HANDLING BEES

**UNIT CODE: 0811 341 02 A**

**UNIT DESCRIPTION**

This unit covers the competencies required to apply bee behavior in handling bees. It involves applying knowledge of bee communication behavior, applying knowledge of reproductive bee behavior and bee swarming behavior.

**ELEMENT 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.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Apply knowledge of bee communication behavior | * 1. ***Bee communication behavior*** is applied in handling bees National Bee Keeping Manual   2. Bee communication behavior is applied in minimizing conflict as per National Bee Keeping Manual   3. Bee communication behavior is applied in strengthening colony unity as per National Bee Keeping Manual   4. Bee communication behavior is applied in defending colony unity as per National Bee Keeping Manual |
| 1. Apply knowledge of reproductive bee behavior | * 1. Bee reproductive behaviour is applied in managing bee colonies as per National Bee Keeping Manual   2. Bee reproductive behaviour is applied in managing of breeding as per National Bee Keeping Manual   3. Bee reproductive behaviour is applied in controlling inbreeding as per National Bee Keeping Manual |
| 1. Apply bee swarming behavior | * 1. Bee swarming behaviour is applied in managing bee colonies   2. Bee swarming behaviour is applied in division of colonies as per National Bee Keeping Manual   3. Bee swarming behaviour is applied in controlling swarming as per National Bee Keeping Manual |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Bee communication behavior may include but not limited to: | * 1. Dances   2. Pheromones |

**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:

* Organizing skills
* Analytical skills
* Interpersonal skills
* Communication skills
* Evaluation skills
* Problem solving
* Critical thinking

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Types of bee behavior
* Factors affecting bee behavior
* Methods of controlling bee behavior
* Bee behavior

**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 | * 1. Applied bee communication behavior in handling bees National Bee Keeping Manual   2. Applied bee reproductive behavior in managing bee colonies as per National Bee Keeping Manual   3. Applied bee swarming behavior is in managing bee colonies |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place.   2. Access to relevant assessment environments.   3. Resources relevant to the proposed assessment activity or tasks. |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * Practical * Project * Written tests * Third party report * Portfolio of evidence * Oral questions |
| 1. Context of Assessment | This competency maybe assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# APPLY SAFETY AND HYGIENE

**UNIT CODE:** 1022 341 03 A

**UNIT DESCRIPTION**

This unit covers the competencies required to apply safety and hygiene. It involves applying knowledge of apiary attendant safety; hygiene and bee products safety and hygiene.

**ELEMENT 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.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Apply knowledge of apiary attendant safety | * 1. Personal protective equipment (PPEs) are used as per work requirement   2. Bee behavior and communication knowledge is applied as per National Bee Keeping Manual   3. Bees are handled safely as per National Bee Keeping Manual   4. First aid is performed as per National Bee Keeping Manual |
| 1. Apply knowledge apiary attendant hygiene | * 1. ***Personal grooming*** is applied as per National Bee Keeping Manual   2. ***Personal clothing*** is applied as per National Bee Keeping Manual   3. Public health regulations on handling bee products are adhered to based on National Health Regulations Act |
| 1. Apply knowledge of bee products safety and hygiene | * 1. ***Cleaning and sanitation procedures*** are carried out as per code of hygiene practice   2. ***Personal hygiene operations*** are carried out as per code of hygiene practice   3. Cleaning and sanitization efficiency is evaluated as per code of hygiene practice   4. Bee product hygiene records are updated as per workplace requirements |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Personal grooming may include but not limited to: | * 1. Nail care   2. Bathing   3. Hair care   4. Avoid perfumes   5. Hand washing |
| 1. Personal clothing may include but not limited to: | 1. Wearing white dust coat 2. Donning hair net 3. Wearing clean clothes |
| 1. Cleaning procedures may include but not limited to: | 1. Cleaning in place 2. Cleaning out of place. |
| 1. Personal hygiene may include but not limited to: | 1. Wearing PPEs 2. General cleanliness 3. Personal grooming. 4. Staff vaccination. |

**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:

* Organizing skills
* Analytical skills
* Interpersonal skills
* Communication skills
* Evaluation skills
* Problem solving
* Critical thinking

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Safety and hygiene
* Personal grooming
* Detergents usage
* Cleaning methods
* Waste management
* Regulatory requirements
* Occupational safety

**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 | * 1. Handled bees safely as per National Bee Keeping Manual   2. Performed first aid as per National Bee Keeping Manual   3. Applied personal grooming as per National Bee Keeping Manual   4. Applied personal clothing as per National Bee Keeping Manual   5. Adhered to public health regulations on handling bee products based on National Health Regulations Act   6. Carried out personal hygiene operations as per code of hygiene practice |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place.   2. Access to relevant assessment environments.   3. Resources relevant to the proposed assessment activity or tasks. |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * Practical * Project * Written tests * Third party report * Portfolio of evidence * Oral questions |
| 1. Context of Assessment | This competency maybe assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CORE UNITS OF COMPETENCY

# CARRY OUT APIARY ESTABLISHMENT

**UNIT CODE: 0811 341 04A**

**UNIT DESCRIPTION**

This unit covers the competencies required to carry out apiary establishment. It involves selecting apiary site, preparing apiary site, constructing bee house, installing bee hives and stocking bee hives.

**ELEMENT 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.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Select Apiary Site | * 1. ***Personal protective equipment (PPEs)*** are worn as per work requirement   2. Farm layout for apiary siting is designed as per National Bee Keeping Manual   3. Apiary site is identified as per National Bee Keeping Manual   4. Site selection records are maintained as per work requirement |
| 1. Prepare Apiary Site | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. ***Tools, equipment and materials*** are assembled as per work requirement   3. Apiary site is cleared as per work requirement   4. Apiary site is levelled as per work requirement   5. Apiary site is demarcation as per work requirement   6. Site preparation records are maintained as per work requirement   7. Farm waste is managed as per Environmental protection regulations |
| 1. Construct Bee house | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. Tools, equipment and materials are assembled as per work requirement   3. Size of the bee house is determined as per National Bee Keeping Manual   4. Bee house is constructed as per the National Bee Keeping Manual   5. Bee house construction records are maintained as per work requirement   6. Bee house construction waste is managed as per Environmental protection regulations |
| 1. Install bee hives | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. Tools, equipment and materials are assembled as per work requirement   3. ***Bee hives*** are assembled as per workplace procedures   4. Bee hives are cleaned as per National Bee Keeping Manual   5. Bee hives are labelled as per National Bee Keeping Manual   6. Bee hives are baited as per National Bee Keeping Manual   7. Bee hives stands are fixed as per the workplace procedures   8. Bee hives are suspended between posts as per National Bee Keeping Manual   9. Bee hives installation records are maintained as per work requirement   10. Waste is managed as per Environmental protection regulations |
| 1. Stock bee hives | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. Tools and equipment are assembled as per work requirement   3. Bee swarm is trapped as per National Bee Keeping Manual   4. Bee lures and attractants are applied as per National Bee Keeping Manual   5. Strong bee colonies are divided as per National Bee Keeping Manual   6. Stocking records are maintained as per work requirement   7. Waste is managed as per Environmental protection regulations |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1.Personal Protective Equipment (PPEs) may include but not limited to: | * 1. Gumboots   2. Gloves   3. Dust coat   4. Overall   5. Bee suit |
| 1. Tools, Equipment and Materials may include but not limited to: | 1. Jembe 2. Monkey strainer 3. Hammer 4. Tape measure 5. Slasher 6. Rake 7. Hand saw 8. Chain link 9. Barbed wire 10. Poles 11. Nails |
| 1. Bee hives include but not limited to: | 1. Langstroth bee hive 2. Kenya Top Bar Hive (KTBH) 3. Log hive |

**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:

* Organizing skills
* Analytical skills
* Interpersonal skills
* Communication skills
* Evaluation skills
* Problem solving
* Critical thinking
* Appropriate use of tools and equipment.
* Numeracy
* Digital literacy

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Types of bee hives
* Importance of baiting
* Materials used for baiting
* Factors considered while selecting an apiary site
* Hive placement methods
* Bee swarming
* Bee colony

**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 | * 1. Identified apiary site as per National Bee Keeping Manual   2. Cleared apiary site as per work requirement   3. Fixed poles as per work requirement   4. Fenced off apiary site as per work requirement   5. Baited bee hives as per National Bee Keeping Manual   6. Suspended bee hives between posts as per National Bee Keeping Manual   7. Constructed bee house as per National Bee Keeping Manual   8. Trapped bee swarms as per National Bee Keeping Manual |
| 1. Resource Implications | * 1. The following resources should be provided:   2. Appropriately simulated environment where assessment can take place.   3. Access to relevant assessment environments.   4. Resources relevant to the proposed assessment activity or tasks. |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * Practical * Project * Written tests * Third party report * Portfolio of evidence * Oral questions |
| 1. Context of Assessment | This competency maybe assessed in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# MANAGE APIARY

**UNIT CODE: 0811 341 05 A**

**UNIT DESCRIPTION**

This unit covers the competencies required to manage an apiary. It involves managing bee forage resources; carrying out bee feeding; inspecting bee hives and controlling bee pests and diseases and performs hygiene and sanitation.

**ELEMENT 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.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Manage bee forage resources | * 1. ***Personal protective equipment (PPEs)*** are worn as per work requirement   2. Tools and equipment are assembled as per work requirement   3. Suitable ***bee forages*** are identified as per National Bee Keeping Manual   4. Bee forage is established as per National Bee Keeping Manual   5. Bee forage flowering calendar is developed as per National Bee Keeping Manual   6. Bee forages are conserved as per National Bee Keeping Manual   7. Bee forage resources records are maintained as per work requirement   8. Bee forage waste is managed as per Environmental protection regulations |
| 1. Carry out bee feeding | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. ***Artificial bee feeds*** are provided as per National Bee Keeping Manual   3. Water is provided as per National Bee Keeping Manual   4. Bee feeding records are maintained as per work requirement   5. Waste is managed as per Environmental protection regulations |
| 1. Inspect bee hives | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. Tools and equipment are assembled as per work requirement   3. Bee hive external inspection is carried out as per National Bee Keeping Manual   4. Bee hive is smoked as per National Bee Keeping Manual   5. Bee hive is opened as per National Bee Keeping Manual   6. Bees and combs are inspected as per National Bee Keeping Manual   7. Bee hive is closed as per National Bee Keeping Manual   8. Inspection records are maintained as per work requirement   9. Inspection waste is managed as per Environmental protection regulations |
| 1. Control bee pests and diseases | * 1. Bees and combs are inspected as per National Bee Keeping Manual   2. ***Control measures for bee pests*** are applied as per National Bee Keeping Manual   3. ***Control measures for bee diseases*** are applied as per National Bee Keeping Manual   4. Bee pests and disease records are maintained as per work requirement   5. Bee hive waste is managed as per Environmental protection regulations |
| 1. Perform hygiene and sanitation | * 1. Bee drinkers and feeders are cleaned and disinfected as per National Bee Keeping Manual   2. Affected bees, bee hives and combs are disposed as per National Bee Keeping Manual   3. Hygiene and sanitation records are maintained as per work requirement   4. Waste is managed as per Environmental protection regulations |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Personal Protective Equipment (PPEs) may include but not limited to: | * 1. Gumboots   2. Gloves   3. Dust coat   4. Overall   5. Bee suit |
| 1. Bee forages may include but not limited to: | 1. Mountain mint 2. Purple coneflower 3. Summer flox 4. Wood mint 5. Sunflower 6. Rosemary 7. Citrus trees 8. Avocado 9. Key apple 10. Eucalyptus 11. Passion 12. Bananas 13. Acacia species 14. Cucumber 15. Pumpkin 16. Bottle brush 17. Neem tree 18. Calliandra spp 19. Coffee 20. Croton spp 21. Sisal 22. Maize 23. Mango tree 24. Leucena 25. Prosopis 26. Dombeya 27. Clover |
| 1. Artificial bee feeds include but not limited to: | 1. Sucrose solution 2. Fruit juices |
| 1. Control measures for bee pests include but not limited to: | 1. Trapping active moths 2. Destruction of egg, larvae and pupa 3. Removing infested combs 4. Fumigating bee hives |
| 1. Control measures for bee diseases include but not limited to: | 1. Apiary sanitation 2. Avoid disposal of hive materials 3. Hive inspection |

**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:

* Organizing skills
* Negotiation skills
* Interpersonal skills
* Communication skills
* Evaluation skills
* Problem solving
* Critical thinking

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Use of tools and accessories
* Use of the right fuel material for the smoker
* Right approach to the hive
* Hive opening procedure
* Appearance of healthy and unhealthy brood
* Brood pests and diseases
* Castes differentiation
* Bee communication
* Bee pests and disease identification
* Pest infestation
* Differentiation of strong/ weak colonies
* Different pests/ disease control measures

**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 | * 1. Identified suitable bee forages as per National Bee Keeping Manual   2. Established bee forages as per National Bee Keeping Manual   3. Conserved bee forages as per National Bee Keeping Manual   4. Provided artificial bee feeds as per National Bee Keeping Manual   5. Provided water as per National Bee Keeping Manual   6. Carried out external bee hive inspection as per National Bee Keeping Manual   7. Inspected bees and combs as per National Bee Keeping Manual   8. Disposed affected bee hives as per National Bee Keeping Manual |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place.   2. Access to relevant assessment environments.   3. Resources relevant to the proposed assessment activity or tasks. |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * Practical * Project * Written tests * Third party report * Portfolio of evidence * Oral questions |
| 1. Context of Assessment | This competency maybe assessed in a workplace or in a simulated workplace.t |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# HARVEST BEE PRODUCTS

**UNIT CODE: 0811 341 06 A**

**UNIT DESCRIPTION**

This unit covers the competencies required; it involves in conduct pre-harvesting practices, perform bee product harvesting, extract bee honey and perform post-harvest practices.

**ELEMENT 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.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Conduct pre-harvesting practices | * 1. ***Personal protective equipment (PPEs)*** are worn as per work requirement   2. Tools and equipment are assembled as per work requirement   3. Bee colonies to be harvested are identified and marked as per National Bee Keeping Manual   4. Bee products to be harvested are identified as per National Bee Keeping Manual   5. Bee products harvesting schedule is prepared as per workplace requirement   6. Bee products pre-harvesting records are maintained as per work requirement |
| 1. Perform bee product harvesting | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. Tools and equipment are assembled as per work requirement   3. Ripe honey is harvested as per National Bee Keeping Manual   4. Harvesting records are maintained as per work requirement   5. Harvesting waste is managed as per Environmental protection regulations |
| 1. Extract bee honey | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. Tools and equipment are assembled as per work requirement   3. Harvested combs are decapped as per National Bee Keeping Manual   4. Bee honey is extracted as per National Bee Keeping Manual   5. Honey production records are maintained as per work requirement   6. Honey extraction waste is managed as per Environmental protection regulations |
| 1. Perform post-harvest practices | * 1. Personal protective equipment (PPEs) are worn as per work requirement   2. Bee handling tools and equipment are assembled as per work requirement   3. Langstroth super boxes are returned and installed as per National Bee Keeping Manual   4. Extracted bee honey is sieved as per National Bee Keeping Manual   5. Sieved bee honey is stored as per National Bee Keeping Manual   6. Post-harvest records are maintained as per work requirement   7. Post-harvest waste is managed as per Environmental protection regulations |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Personal Protective Equipment (PPEs) may include but not limited to: | * 1. Gumboots   2. Gloves   3. Dust coat   4. Overall   5. Bee suit |
| 1. Bee products may include but not limited to: | 1. Honey 2. Propolis 3. Royal jelly 4. Bee venom 5. Bee wax |
| 1. Bee handling tools and equipment includes but not limited to: | 1. Hive tool 2. Swarm net 3. Bee brush 4. Bee smoker 5. Honey extractor 6. Queen excluder |

**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:

* Numeracy
* Digital literacy
* Organizing skills
* Analytical skills
* Negotiation skills
* Interpersonal skills
* Communication skills
* Evaluation skills
* Problem solving
* Critical thinking

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Types of bee products
* Harvesting techniques
* Extraction techniques
* Appropriate use of tools and equipment.
* Bee products handling
* Equipment and techniques in bee product harvesting
* Types of PPE
* Safe use of tools and equipment
* Bee behavior
* Equipment for extraction
* Bee products harvesting, grading and storage.
* Bee products uses

**EVIDENCE GUIDE**

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

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| 1. Critical aspects of Competency | * 1. Identified bee colonies to be harvested and marked as per National Bee Keeping Manual   2. Identified bee products to be harvested and marked as per National Bee Keeping Manual   3. Smoked bees as per National Bee Keeping Manual   4. Opened bee hive as per National Bee Keeping Manual   5. Harvested ripe honey as per National Bee Keeping Manual   6. Decapped harvested combs as per National Bee Keeping Manual   7. Extracted bee honey as per National Bee Keeping Manual   8. returned and installed Langstroth super boxes as per National Bee Keeping Manual   9. Sieved extracted bee honey as per National Bee Keeping Manual |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place.   2. Access to relevant assessment environments.   3. Resources relevant to the proposed assessment activity or tasks. |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * Practical * Project * Written tests * Third party report * Portfolio of evidence * Oral questions |
| 1. Context of Assessment | This competency maybe assessed in a workplace or in a simulated workplace.t |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |