



REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

HORTICULTURAL CROPS PRODUCER

LEVEL 3



TVET CDACC
P.O. BOX 15745-00100
NAIROBI

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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 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. The education sector had to be aligned to the Constitution of Kenya 2010 and this resulted in the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No. 4 of 2016). 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, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that these Occupational Standards were developed for the purpose of developing a competency-based curriculum for Horticulture Production. These Occupational Standards will also be the bases for assessment of an individual for competence certification.

It is my conviction that these Occupational Standards will play a great role towards development of competent human resource for the Agriculture sector's growth and sustainable development.

**PRINCIPAL SECRETARY
VOCATIONAL AND TECHNICAL TRAINING
MINISTRY OF EDUCATION**

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 Technical and Vocational Education and Training Act No. 29 of 2013 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 in order to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

The TVET Curriculum Development, Assessment and Certification Council (CDACC), in conjunction with Horticulture Sector Skills Advisory Committee (SSAC), German International Cooperation and Ministry of Agriculture, Livestock and Fisheries have developed these Occupational Standards for Horticulture Producer. TVET CDACC in conjunction with Micro Enterprises Support Programme Trust (MESPT) have reviewed this Occupational Standards and incorporated Food Safety. These standards will be the basis for development of competency-based curriculum for Horticulture Production Level 3.

The occupational standards are designed and organized with clear performance criteria for each element of a unit of competency. These standards also outline the required knowledge and skills as well as evidence guide.

I am grateful to the Council Members, Council Secretariat, Horticulture SSAC, expert workers and all those who participated in the development and review of these Occupational Standards.

CHAIRPERSON
TVET CDACC

ACKNOWLEDGMENT

These Occupational Standards were developed through 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 inputs towards the development of these Standards.

I thank TVET Curriculum Development, Assessment and Certification Council (CDACC) for providing guidance on the development of these Standards. My gratitude goes to Horticulture Sector Skills Advisory Committee (SSAC) members for their contribution to the development of these Standards. I thank all the individuals and organizations who participated in the validation of these Standards.

My gratitude also goes to NEPAD Planning and Coordinating Agency (NPCA) of the Africa Union Commission and German Ministry of Economic Cooperation and Development (BMZ) through its implementing agency German International Cooperation (GIZ) GmbH which enabled the development of these Standards through the CAADP ATVET project.

I also appreciate the office of the National Coordinator of GIZ CAADP ATVET Project which was instrumental in the cooperation between the project team, Ministry of Agriculture, Livestock and Fisheries (MoALF) and Ministry of Education.

Much gratitude goes to Micro Enterprises Support Program Trust (MESPT) who initiated the review process and the incorporation of Food Safety in the Curriculum. I acknowledge the Danish International Development Agency (DANIDA) and the European Union (EU) who sponsored the review process.

I acknowledge all other institutions which in one way or another contributed to the development of these Standards.

**CHAIRPERSON,
HORTICULTURE SECTOR SKILLS ADVISORY COMMITTEE**

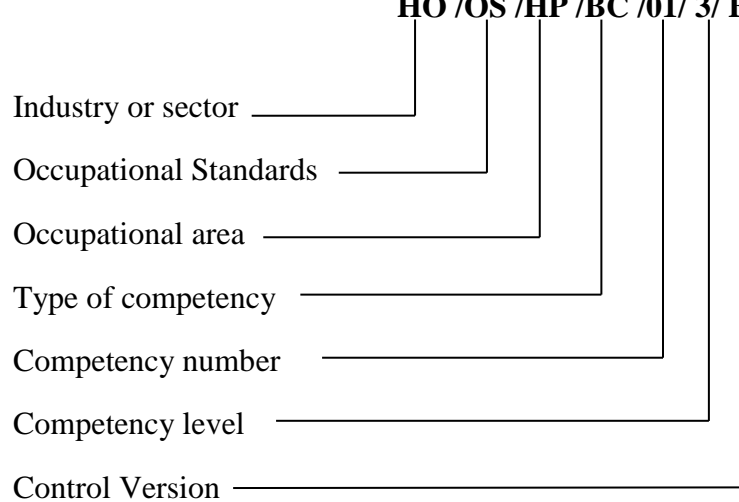
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ABBREVIATION AND ACRONYMS

ATVET	: Agricultural Technical and Vocational Education and Training
BC	: Basic Competency
CAADP	: Comprehensive Africa Agricultural Development Programme
CDACC	: Curriculum Development, Assessment and Certification Council
CR	: Core Competency
DANIDA	Danish International Development Agency
EMCA	: Environment Management Coordination Act
GAP	: Good Agricultural Practices
GIZ	: German International Cooperation
HCD	: Horticultural Crops Directorate
HO	: Horticulture
HP	: Horticulture Producer
ICT	: Information Communication Technology
MESPT	Micro Enterprises Support Programme Trust
MoALF	: Ministry of Agriculture, Livestock and Fisheries
OS	: Occupational Standards
OSH	: Occupation Safety and Health
OSHA	: Occupation Safety and Health Act
OSHS	: Occupational Safety and Health Standards
PPE	: Personal Protective Equipment
SSAC	: Sector Skills Advisory Committee
TVET	: Technical and Vocational Education and Training

KEY TO UNIT CODE
HO /OS /HP /BC /01/ 3/ B



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OVERVIEW

Horticulture Production qualification level 3 consists of competencies that an individual must achieve to grow horticultural produce. It entails producing tropical fruits, sub-tropical fruits, temperate fruits, vine fruits, herbs and spices, nuts and vegetables.

This qualification consists of the following basic and core competencies:

BASIC UNITS OF COMPETENCY

Unit Code	Unit Title
HO/OS/HP/BC/01/3/B	Demonstrate Communication Skills
HO/OS/HP/BC/02/3/B	Demonstrate Numeracy Skills
HO/OS/HP/BC/03/3/B	Demonstrate Digital Literacy
HO/OS/HP/BC/04/3/B	Demonstrate Entrepreneurial Skills
HO/OS/HP/BC/05/3/B	Demonstrate Employability Skills
HO/OS/HP/BC/06/3/B	Demonstrate Environmental Literacy
HO/OS/HP/BC/07/3/B	Demonstrate Occupational Safety and Health Practices

CORE COMPETENCIES

Unit Code	Unit Title
HO/OS/HP/CR/01/3/B	Produce Tropical Fruits
HO/OS/HP/CR/02/3/B	Produce Sub-Tropical Fruits
HO/OS/HP/CR/03/3/B	Produce Temperate Fruits
HO/OS/HP/CR/04/3/B	Produce Vine Fruits
HO/OS/HP/CR/05/3/B	Produce Mushrooms
HO/OS/HP/CR/06/3/B	Produce Herbs And Spices
HO/OS/HP/CR/07/3/B	Produce Nuts
HO/OS/HP/CR/08/3/B	Produce Ornamental Plants
HO/OS/HP/CR/09/3/B	Produce Cut Flowers
HO/OS/HP/CR/10/3/B	Produce Vegetable

BASIC UNITS OF COMPETENCY

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DEMONSTRATE COMMUNICATION SKILLS

UNIT CODE: HO/OS/HP/BC/01/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to demonstrate communication skills. It involves obtaining and conveying workplace information, speaking English at a basic operational level, participating in workplace meetings and discussions, and completing relevant work-related documents.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	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. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from <i>appropriate sources</i> based on standard procedures 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information based on communication needs 1.3 Appropriate <i>medium</i> is used to transfer information and ideas in accordance with workplace guidelines 1.4 Appropriate non- verbal communication is used as per the communication needs 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed based on workplace requirements 1.6 Location and storage of information is undertaken according to workplace procedures 1.7 Personal interaction is carried out clearly and concisely according to workplace requirements
2. Speak English at a basic operational level	2.1 Participation in simple conversations with work colleagues is undertaken based on familiar topics 2.2 Simple verbal instructions and requests are responded to according to workplace guidelines 2.3 <i>Routine procedures</i> are provided in accordance with workplace policy 2.4 Likes, dislikes and preferences are expressed based on individual preference

	2.5 Different forms of expression in English are identified in line with workplace requirements
3. Participate in workplace meetings and discussions	<p>3.1 Team meetings are attended on time according to schedules</p> <p>3.2 Own opinions are clearly expressed and those of others are listened to in accordance with workplace guidelines</p> <p>3.3 Meeting inputs are provided based on the meeting purpose and established <i>protocols</i></p> <p>3.4 <i>Workplace interactions</i> are conducted as per organizations' code of conduct</p> <p>3.5 Work-related questions are asked and responded based on set protocols</p> <p>3.6 Meetings outcomes are interpreted and implemented as per organizations' objectives</p>
4. Complete relevant work-related documents	<p>4.1 Range of forms relating to conditions of employment are completed according to workplace procedures</p> <p>4.2 Workplace data is recorded based on workplace requirements</p> <p>4.3 Errors in recording information are identified and acted upon in accordance with workplace policies</p> <p>4.4 Reporting requirements are completed according to organizational guidelines</p>

RANGE

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

Variable	Range
1. Appropriate Sources may include but not limited to:	<ul style="list-style-type: none"> • Various department heads, • organization documents
2. Medium may include but not limited to:	<ul style="list-style-type: none"> • Method of communication • Physical media • Mechanical media

3. Routine procedures may include but not limited to:	<ul style="list-style-type: none"> • Day to day activities
4. Protocols may include but not limited to:	<ul style="list-style-type: none"> • Procedures for doing a task
5. Workplace interactions may include but not limited to:	<ul style="list-style-type: none"> • Official inter relations

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:

- Analytical
- Active Listening
- Communication
- writing
- Interpretation
- Basic Information Technology (IT)

Required Knowledge

The individual needs to demonstrate knowledge of:

- Minutes writing
- Report writing

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 Prepared written communication following standard format of the organization</p> <p>1.2 Accessed information using communication equipment</p> <p>1.3 Spoken English at a basic operational level</p>
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	<p>1.4 Made use of relevant terms as an aid to transfer information effectively</p> <p>1.5 Conveyed information effectively adopting the formal or informal communication</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 activity or tasks</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Direct Observation</p> <p>3.2 Interview</p> <p>3.3 Written test</p>
4. Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 On the job</p> <p>4.2 Off the job</p> <p>4.3 During industrial attachment</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

DEMONSTRATE NUMERACY SKILLS

UNIT CODE: HO/OS/HP/BC/02/3/B

UNIT DESCRIPTION:

This unit covers the competencies required to demonstrate numeracy skills. It involves using whole numbers and money up to one hundred thousand for work, Locating, comparing and using highly familiar measurement for work, using highly familiar maps and diagrams for work, identifying and using some common 2D shapes for work and locating specific information in highly familiar tables, graphs and charts for work

ELEMENTS AND PERFORMANCE CRITERIA

Element	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. <i>Bold and italicized terms are elaborated in the Range</i>
1. Use whole numbers for work	1.1 Whole numbers and money amount up to 100,000 in highly familiar workplace documents and tasks are named and read according to workplace procedures. 1.2 Understanding of place value and the role of zero is demonstrate according to standard operating procedures. 1.3 Halves are recognised and understood in workplace as per Standard operating procedures. 1.4 Whole numbers and money amounting up to 100,000 are organised in size order and are compared as per workplace procedures. 1.5 Counting is done in numbers as per standard operating procedures. 1.6 Addition and subtraction of whole numbers and money up to 100,000 done in accordance with workplace requirement 1.7 Links between operations of addition and subtraction are clearly described as per job requirement. 1.8 Reasonableness of outcome with prompting and support is checked as per work requirement. 1.9 Numerical information is recorded, and the result of the task is communicated using informal language and symbolism as per workplace procedures.

<p>2. Locate, compare and use highly familiar measurement for work</p>	<p>2.1 Measurements in highly familiar workplace documents and tasks are located as per standard operating procedures</p> <p>2.2 Different units of measurements and their uses are identified in accordance with job specifications</p> <p>2.3 The comparative relationship between the units of measurement identified as per standard operating procedures.</p> <p>2.4 Understanding of conversion of amounts is demonstrated in accordance with requirements.</p> <p>2.5 Informal language is used to compare measurements as per workplace procedures.</p> <p>2.6 Digital time is well read and am and pm used in reference to time</p> <p>2.7 Calendar used appropriately to record information in accordance with organizational events.</p> <p>2.8 Basic measurement information is well read and recorded as per the manuals</p> <p>2.9 Additions and subtraction of simple quantities done in workplace as per SOPs.</p>
<p>3. Use highly familiar maps and diagrams for work</p>	<p>3.1 Familiar items or places are in highly familiar maps and diagrams in accordance with SOPs</p> <p>3.2 Simple symbols and pictorial representations are identified in accordance with familiar maps and diagrams</p> <p>3.3 Simple oral directions are given to locate objects as per SOPs</p> <p>3.4 Simple oral directions followed to locate objects as per job specifications</p> <p>3.5 Understanding of informal directional language is demonstrated as per work procedures.</p>
<p>4. Identify and use some common 2D shapes for work</p>	<p>4.1 Common two-dimensional shapes are identified and named as per SOPs</p> <p>4.2 Common objects are described in terms of size and shape as per SOPs</p> <p>4.3 Common, every day, informal language is used to compare objects in accordance SOPs</p> <p>4.4 Common objects are grouped based on shape, size, colour and features as per job requirements</p>

<p>5. Locate specific Information in highly familiar tables, graphs and charts for work</p>	<p>5.1 Features of simple tables identified as per work place procedures</p> <p>5.2 Specific numerical information located in highly familiar tables using grid movement (up and down columns and across rows) and key as graph and chart manuals</p> <p>5.3 Numerical information and data in highly familiar tables compared using appropriate informal language as per workplace procedures.</p> <p>5.4 Information related to relevant workplace tasks as per workplace procedures</p> <p>5.5 Features of simple graphs and charts identified as per SOPs</p> <p>5.6 Specific numerical information located in highly familiar graphs and charts as per workplace procedures.</p> <p>5.7 Numerical information and data compared using appropriate informal language as per SOPs.</p>
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RANGE

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.

Variable	Range
<p>1. Common two - dimensional shapes: may include but not limited to:</p>	<ul style="list-style-type: none"> • Round/circle • Square • Rectangular • Triangle

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:

- Measuring
- Logical thinking
- Computing
- Drawing of graphs
- Applying mathematical formulas
- Analytical

Required knowledge

The individual needs to demonstrate knowledge of:

- Types of common shapes
- Differentiation between two dimensional shapes / objects
- Formulae for calculating area and volume
- Types and purpose of measuring instruments
- Units of measurement and abbreviations
- Fundamental operations (addition, subtraction, division, multiplication)
- Rounding techniques
- Types of fractions
- Different types of tables and graphs
- Meaning of graphs, such as increasing, decreasing, and constant value
- Preparation of basic data, tables & graphs

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	Assessment requires evidence that the candidate: 1.1 Measured objects or materials as per job requirements 1.2 Used calculator to perform the four fundamental operations 1.3 Performed calculations involving money up to one hundred thousand 1.4 Performed conversions between hours, minutes and seconds 1.5 Calculated area and volume of regular shapes 1.6 Created tables and graphs to represent and interpret information
2.Resource Implications for competence assessment	The following resources should be provided: 2. 1 Access to relevant workplace where assessment can take place 2. 2 Appropriately simulated environment where assessment can take place 2. 3 Materials relevant to the proposed activity or tasks
3.Methods of Assessment	Competency may be assessed through: 3.1 Written Test 3.2 Interview

	<p>3.3 Oral Questioning</p> <p>3.4 Demonstration</p>
4.Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 On the job</p> <p>4.2 Off the job</p> <p>4.3 During industrial attachment</p>
5.Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

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DEMONSTRATE DIGITAL LITERACY

UNIT CODE: HO/OS/HP/BC/03/3/B

UNIT DESCRIPTION

This unit covers the competencies required to demonstrate digital literacy in a working environment. It entails identifying computer software and hardware, applying security measures to data, hardware, software, applying computer software in solving tasks and applying internet and email in communication at workplace.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	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. Identify computer software and hardware	1.1 <i>Computer software</i> are identified according to manufacturer's specification 1.2 <i>Appropriate computer hardware</i> is identified according to manufacturer's specification
2. Apply security measures to data, hardware, software	2.1 <i>Data security and privacy are classified</i> in accordance with the technological situation 2.2 <i>Security and control measures</i> are applied in accordance with laws governing protection of ICT 2.3 Computer threats and crimes are detected in accordance with information management guidelines. 2.4 Protection against computer crimes is undertaken in accordance with laws governing protection of ICT
3. Apply computer software in solving tasks	3.1 Basic <i>word processing concepts</i> are applied in resolving workplace tasks as per job requirement. 3.2 <i>Word processing utilities</i> are applied in accordance with workplace procedures 3.3 Data is manipulated on worksheet in accordance with office procedures
4. Apply internet and email in communication at workplace	4.1 Electronic mail is applied in workplace communication in accordance with office procedures 4.2 Office internet functions are defined and executed in accordance with office procedures 4.3 <i>Network configuration</i> and uses are determined in accordance with office operations procedures

RANGE

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.

Variable	Range
1. Computer software may include but not limited to:	<ul style="list-style-type: none">• Operating system• MS office• Web browser• Media players
2. Computer hardware may include but not limited to:	<ul style="list-style-type: none">• Computer Case• Monitor• Keyboard• Mouse• Hard Disk Drive• Motherboard• Video Card
3. Data security and privacy may include but not limited to:	<ul style="list-style-type: none">• Confidentiality• Cloud computing• Confidentiality• Cyber terrorism• Integrity -but-curious data serving
4. Security and control measures may include but not limited to:	<ul style="list-style-type: none">• Countermeasures and risk reduction• Cyber threat issues• Risk management
5. Word processing concepts may include but not limited to:	<ul style="list-style-type: none">• Create• Edit• Print• Documents

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:

- Analytical skills
- Interpretation
- Typing
- Communication

- Computing skills
- Basic ICT skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Input and output devices
- Central processing Unit (CPU)
- Peripherals
- Storage Media
- Software concept
- Types of concept
- Function of computer software
- Data security and privacy
- Security threats and control measures
- Computer crimes
- Detection and protection of computer crimes
- Laws governing protection of ICT
- Word processing;
 - Functions and concepts of word processing.
 - Documents and tables creation and manipulations
 - Mail merging
 - Word processing utilities
- Spread sheet;
 - Meaning, formulae, function and charts, uses, layout, data manipulation and application to cell
- Networking and Internet;
 - Meaning, functions and uses of networking and internet.
 - Electronic mail and world wide web
- Emerging trends and issues in ICT;
 - Identify and apply emerging trends and issues in ICT
 - Challenges posed by emerging trends and issues

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	Assessment requires evidence that the candidate: 1.1 Identified input, output, CPU and storage media devices of computers in accordance to computer specification
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	<p>1.2 Identified concepts, types and functions of computer software according to operation manual</p> <p>1.3 Identified and controlled security threats</p> <p>1.4 Detected and protected computer crimes</p> <p>1.5 Applied word processing in office tasks</p> <p>1.6 Prepared work sheet and applied data to the cells in accordance to workplace procedures</p> <p>1.7 Used Electronic Mail for office communication as per workplace procedure</p> <p>1.8 Applied internet and World Wide Web for office tasks in accordance with office procedures</p> <p>1.9 Applied laws governing protection of ICT</p>
2. Resource Implications for competence assessment	<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 activity or tasks</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Written Test</p> <p>3.2 Observation</p> <p>3.3 Practical assignment</p> <p>3.4 Interview</p> <p>3.5 Oral Questioning</p>
4. Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 On the job</p> <p>4.2 Off the job</p> <p>4.3 During industrial attachment</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

DEMONSTRATE ENTREPRENEURIAL SKILLS

UNIT CODE : HO/OS/HP/BC/04/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to demonstrate Entrepreneurial skills. It involves developing entrepreneurial culture, identifying entrepreneurial opportunities, starting, operating and growing a small business.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>These are assessable statements which specify the required level of performance for each of the elements.</p> <p>Bold and italicized terms are elaborated in the Range</p>
<p>1. Develop entrepreneurial culture</p>	<p>1.1 <i>Entrepreneurship terminologies</i> are defined following established procedures.</p> <p>1.2 Contribution of entrepreneurship towards national development is identified in accordance to national development goals</p> <p>1.3 Self-employment benefit are identified and emphasized to help create a positive attitude</p> <p>1.4 Cultural factors that promote or inhibit entrepreneurial development are identified and emphasis made on entrepreneurial promotion</p> <p>1.5 Ways of managing factors that inhibit development of entrepreneurial culture are identified in accordance with cultural background and national social economic situation</p>
<p>2. Identify entrepreneurial opportunities</p>	<p>2.1 Myths associated with entrepreneurship, types of entrepreneurs and characteristics of entrepreneurship are determined in accordance with the set procedures</p> <p>2.2 Identification of <i>sources of business ideas</i>, generation of business ideas is undertaken in accordance with the existing procedure</p> <p>2.3 Evaluation of business opportunities is undertaken according to prevailing office procedures</p>

	2.4 Competencies are matched with business opportunities in accordance with business practices.
3. Start a small business	<p>Factors to consider when starting a small business are identified according to business sector.</p> <p>3.1 Forms of business ownership are identified and procedure of starting a small business stipulated according to relevant legal requirements</p> <p>3.2 Procedure of starting a small business is identified as per the legal requirements</p> <p>3.3 Challenges faced when starting a small business are identified and mitigating factors provided for in accordance prevailing legal and regulatory requirement</p> <p>3.4 Resource requirement for a small business are specified according to nature of business</p> <p>3.5 Business life cycle is projected as per the nature of business and national social economic situation</p>
4. Operate a small business	<p>4.1 Relevant terms are defined in accordance with the set rules</p> <p>4.2 Small business record is maintained in accordance with office procedures</p> <p>4.3 Business support services are set up in accordance with the nature and size of business</p> <p>4.4 Marketing activities are effected according to the nature and size of business</p> <p>4.5 Small enterprise business plan is prepared depending on the size and nature of business and the client specification</p> <p>4.6 Small business resources are run for efficiency and profitability</p> <p>4.7 Small business records are kept for decision making purposes</p> <p>4.8 Word processing concepts are applied in the management of small business according to office procedures</p> <p>4.9 Basic computer application software and emerging trends and concerns are applied in small business management in accordance with office procedures</p>
5. Grow a small business	5.1 Methods of growing/expanding a small business are identified and implemented in accordance with growth schedule

	<p>5.2 Resources for growing small business are identified and implementing</p> <p>5.3 Small business growth plans are prepared according to growth schedule</p> <p>5.4 ICT and small business growth schedule is prepared in accordance with office procedures</p> <p>5.5 Use of computers and technology is incorporated in small scale business growth schedule in accordance with technological trends</p> <p>5.6 Social media is used for business growth and profitability</p> <p>5.7 Emerging issues and trends are considered in accordance with business growth schedule and activities</p> <p>5.8 Community interest is built in product/service according to growth plan</p> <p>5.9 Business communication is enhanced according to business communication plan and profitability</p> <p>5.10 Basic business growth strategies are identified and implemented for increased profitability</p> <p>5.11 Word processing concepts are applied in growing of small business according to office procedures</p> <p>5.12 Basic computer application software, programming and emerging trends and concerns are applied in small business growth in accordance with office procedures for growth and profitability</p>
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RANGE

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

Variable	Range
1. Entrepreneurship terminologies include but not limited to:	<ul style="list-style-type: none"> • Intrapreneurship • Enterprise • Business vision. Mission, core values, objectives
2. Sources of business ideas	<ul style="list-style-type: none"> • Brainstorming • Personal hobbies • Newspapers, magazines,

may include but not limited to:	<ul style="list-style-type: none"> • Friends and relatives • Accounting/Administrative work • Modern trends and concerns
3. Forms of business ownership may include but not limited to:	<ul style="list-style-type: none"> • Sole proprietorship • Partnership • Limited Company • Unlimited Company

REQUIRED SKILLS AND KNOWLEDGE

Required Skills

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

The individual needs to demonstrate the following skills:

- Marketing skills
- Advertising
- Basic book-keeping
- accounting skills
- Communication skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Public relations concepts
- Basic product promotion strategies
- Basic market and feasibility studies
- Basic business ethics
- Building customer relations
- Business models and strategies
- Types and categories of businesses
- Business internal controls
- Relevant national and local legislation and regulations
- Basic quality control and assurance concepts
- Building relations with customer and employees
- Building competitive advantage of the enterprise

EVIDENCE GUIDE

This section describes the required skills which supports performance. These skills will need to be considered in the learning and assessment process.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Demonstrated basic entrepreneurial skills 1.2 Demonstrated ability to conceptualize and plan a micro/small enterprise 1.3 Demonstrated ability to manage/operate a micro/small-scale business 1.4 Demonstrated basic marketing skills
2. Resource Implications for assessment	The following resources should be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place 2.3 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Written tests 3.2 Oral Questioning 3.3 Observation 3.4 Third Party Report
4. Context of Assessment	Competency may be assessed: 4.1 On the job 4.2 Off the job 4.3 During industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE EMPLOYABILITY SKILLS

UNIT CODE: HO/OS/HP/BC/05/3/B

UNIT DESCRIPTION

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating critical safe work habits, demonstrating workplace learning and workplace ethics.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	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. Conduct self-management	1.1 Personal vision, mission and goals are formulated based on potential and in relation to organization objectives 1.2 Emotional intelligence is demonstrated as per workplace requirements. 1.3 Individual performance is evaluated and monitored according to the agreed targets. 1.4 Assertiveness is developed and maintained based on the requirements of the job. 1.5 Accountability and responsibility for own actions are demonstrated based on workplace instructions. 1.6 Self-esteem and a positive self-image are developed and maintained based on values. 1.7 Time management, attendance and punctuality are observed as per the organization policy. 1.8 Goals are managed as per the organization's objectives 1.9 Self-strengths and weaknesses are identified based on personal objectives
2. Demonstrate critical safe work habits	2.1. Stress is managed in accordance with workplace policy. 2.2. Punctuality and time consciousness is demonstrated in line with workplace policy.

	<p>2.3. Personal objectives are integrated with organization goals based on organization’s strategic plan.</p> <p>2.4. Resources are utilized in accordance with workplace policy.</p> <p>2.5. Work priorities are set in accordance to workplace goals and objectives.</p> <p>2.6. Leisure time is recognized and utilized in line with personal objectives.</p> <p>2.7. Drugs and substances of abuse are identified and avoided based on workplace policy.</p> <p>2.8. HIV and AIDS prevention awareness is demonstrated in line with workplace policy.</p> <p>2.9. Safety consciousness is demonstrated in the workplace based on organization safety policy.</p> <p>2.10. Emerging issues are identified and dealt with in accordance with organization policy.</p>
<p>3. Demonstrate workplace learning</p>	<p>3.1 Learning opportunities are sought and managed based on job requirement and organization policy.</p> <p>3.2 Improvement in performance is demonstrated based on courses attended.</p> <p>3.3 Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job</p> <p>3.4 Time and effort is invested in learning new skills based on job requirements</p> <p>3.5 Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy.</p> <p>3.6 New systems are developed and maintained in accordance with the requirements of the job.</p> <p>3.7 Awareness of personal role in workplace innovation is demonstrated based on requirements of the job.</p>
<p>4. Demonstrate workplace ethics</p>	<p>4.1 Policies and guidelines are observed as per the workplace requirements</p> <p>4.2 Self-worth and professionalism is exercised in line with personal goals and organizational policies</p> <p>4.3 Code of conduct is observed as per the workplace requirements</p> <p>4.4 Integrity is demonstrated as per legal requirement</p>

RANGE

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

Range	Variable
1. Drug and substance abuse may include but not limited to:	Commonly abused <ul style="list-style-type: none">• Alcohol• Tobacco• Miraa• Over-the-counter drugs• Cocaine• Bhang• Glue
2. Feedback may include but not limited to:	<ul style="list-style-type: none">• Verbal• Written• Informal• Formal
3. Team may include but not limited to:	<ul style="list-style-type: none">• Small work group• Staff in a section/department• Inter-agency group
4. Innovation may include but not limited to:	<ul style="list-style-type: none">• New ideas• Original ideas• Different ideas• Methods/procedures• Processes• New tools
5. Emerging issues may include but not limited to:	<ul style="list-style-type: none">• Terrorism• Social media• National cohesion• Open offices

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
- Critical thinking
- Observation

- Organizing
- Record keeping
- Problem solving
- Decision Making
- Resource utilization

Required Knowledge

The individual needs to demonstrate knowledge of:

- Work values and ethics
- Company policies
- Company operations, procedures and standards
- Occupational Health and safety procedures
- Fundamental rights at work
- Personal hygiene practices
- Workplace communication
- Concept of time
- Time management
- Decision making
- Types of resources
- Work planning
- Organizing work
- Record keeping
- Workplace problems and how to deal with them
- Assertiveness
- Team work
- HIV and AIDS
- Drug and substance abuse
- Safe work habits
- Professional growth and development
- Technology in the workplace
- Innovation
- Emerging issues
 - Social media
 - Terrorism
 - National cohesion

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	Assessment requires evidence that the candidate: 1.1 Conducted self-management 1.2 Demonstrated critical safe work habits 1.3 Demonstrated workplace learning 1.4 Demonstrated workplace ethics
2. Resource Implications	The following resources should be provided: 2. 1 Access to relevant workplace where assessment can take place 2. 2 Appropriately simulated environment where assessment can take place
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Oral questioning 3.2 Portfolio of evidence 3.3 Third Party Reports 3.4 Written tests
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE ENVIRONMENTAL LITERACY

UNIT CODE : HO/OS/HP/BC/06/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to demonstrate environmental literacy. It involves controlling environmental hazard, controlling environmental pollution and demonstrating sustainable resource use.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	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. Control environmental hazard	1.1 Storage and handling methods for environmentally hazardous materials are strictly followed according to environmental regulations and OSHS. 1.2 Disposal methods of hazardous wastes are followed at all times according to environmental regulations and OSHS. 1.3 <i>PPE</i> is used according to OSHS.
2. Control environmental Pollution	2.1 <i>Environmental pollution control measures</i> are complied with following standard protocol. 2.2 Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999 2.3 Methods for minimizing noise pollution complied following environmental regulations.
3. Demonstrate sustainable use of resource	3.1 Methods for minimizing wastage are complied with. 3.2 <i>Waste management procedures</i> are employed following principles of 3Rs (Reduce, Reuse, Recycle) 3.3 Methods for economizing or reducing <i>resource</i> consumption are practiced.

RANGE

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.

Variable	Range
1. PPE may include but not limited to:	<ul style="list-style-type: none"> • Mask • Gloves • Goggles • Safety hat • Overall • Hearing protector
2. Environmental pollution control measures may include but not limited to:	<ul style="list-style-type: none"> • Methods for minimizing or stopping spread and ingestion of airborne particles • Methods for minimizing or stopping spread and ingestion of gases and fumes • Methods for minimizing or stopping spread and ingestion of liquid wastes
3. Waste management procedures may include but not limited to:	<ul style="list-style-type: none"> • Sorting • Storing of items • Recycling of items • Disposal of items
4. Resources may include but not limited to:	<ul style="list-style-type: none"> • Electric • Water • Fuel • Telecommunications • Supplies • Materials
5. Workplace environmental hazards may include but not limited to:	<ul style="list-style-type: none"> • Biological hazards • Chemical and dust hazards • Physical hazards

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
- Observation
- Writing
- Analytical

Required Knowledge

The individual needs to demonstrate knowledge of:

- Storage methods of environmentally hazardous materials
- Disposal methods of hazardous wastes
- Usage of PPE Environmental regulations
- OSHS
- Types of pollution
- Environmental pollution control measures
- Different solid wastes
- Solid waste management
- Different noise pollution
- Methods of minimizing noise pollution
- Solid Waste Act
- Methods of minimizing wastage
- Waste management procedures
- Economizing of resource consumption
- Principle of 3Rs

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	Assessment requires evidence that the candidate: 1.1 Controlled environmental hazard 1.2 Controlled environmental pollution 1.3 Demonstrated sustainable resource use
2. Resource Implications for assessment	The following resources should be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
3 Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written examination

4 Context of Assessment	Competency may be assessed 4.1 On the job 4.2 Off the job 4.3 During industrial attachment
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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DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES

UNIT CODE: HO/OS/HP/BC/07/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to practice and promote safety and health at work. This entails preparing to practice safety and health at work and complying and promoting compliance of workers to organization's occupational safety and health instructions and requirements

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>These are assessable statements which specify the required level of performance for each of the elements.</p> <p><i>Bold and italicized terms are elaborated in the Range</i></p>
<p>1. Prepare to practice safety and health at work</p>	<p>1.1 Awareness of legislation that outlines the minimum standards for occupational safety and health requirements/ regulations are emphasized</p> <p>1.2 Benefits of implementing an occupational safety and health program are identified</p> <p>1.3 <i>Safety requirements/ regulations</i> of own work and of other workers are familiarized</p> <p>1.4 Workplace standards and procedures <i>for incidents and Emergencies</i> are determined</p> <p>1.5 <i>Prevention and control measures</i>, including use of <i>safety gears/PPE</i> (Personal Protective Equipment) to avoid accident, injuries and sickness are identified</p>
<p>2. Comply and promote compliance of workers to organization's occupational safety and health instructions and requirements</p>	<p>2.1 Safety instructions and safety signs are followed and disseminated to co-workers</p> <p>2.2 Safe handling of tools, equipment and materials is learned and shared with co-workers</p> <p>2.3 Execution of own work and of co-workers is</p>

	<p>monitored in</p> <p>according to safe work procedures</p> <p>2.4 Use of safe guards and safety devices is monitored</p> <p>2.5 Hazards, incidents, injuries and sickness in the workplace are reported properly following standards and procedures</p>
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RANGE

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.

Variable	Range
1. Safety requirements / regulations may include but are not limited to:	<ul style="list-style-type: none"> • Building code • Permit to Operate • Occupational Safety and Health Standards
2. Incidents and emergencies may include but are not limited to:	<ul style="list-style-type: none"> • Chemical spills • Equipment/vehicle accidents • Explosion • Fire • Gas leak • Injury to personnel • Structural collapse • Toxic and/or flammable vapors emission.
3. Prevention and control measures may include but are not limited to:	<ul style="list-style-type: none"> • Eliminate the hazard • Isolate the hazard • Substitute the hazard with a safer alternative • Use administrative controls to reduce the risk • Use engineering controls to reduce the risk • Use personal protective equipment • Safety, Health and Work Environment Evaluation • Periodic and/or special medical examinations of workers

<p>4. Safety devices/ PPEs (personal protective equipment) May include but are not limited to:</p>	<ul style="list-style-type: none"> • Arm/Hand guard, gloves • Eye protection (goggles, shield) • Hearing protection (ear muffs, ear plugs) • Hair Net/cap/bonnet • Hard hat • Face protection (mask, shield) • Apron/Gown/coverall/jump suit • Anti-static suits • High-visibility reflective vest
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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
- Observation
- Reporting
- Organizing

Required Knowledge

The individual needs to demonstrate knowledge of:

- Elements of an effective occupational safety and health program
- Benefits of implementing an occupational safety and health program
- Safety requirements of own work and of other workers
- Standard emergency plan and procedures in the workplace
- Different OSH control measures
- General OSH principles
- Work standards and procedures
- Safe handling procedures of tools, equipment's and materials
- Standard emergency plan and procedures in the workplace
- Different OSH control measures
- Standard accident and illness reporting procedures in the workplace
- Monitoring system on compliance to work safety and health

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> <ul style="list-style-type: none"> 1.1. Arranged work area and items in accordance with workplace procedures requirements 1.2. Followed work standards and procedures based on instructions 1.3. Applied <i>Prevention and control measures</i> based on instructions 1.4. Undertook orientations on <i>OSH requirements and regulations</i> in line with policy. 1.5. Provided feedback on occupational health and safety as per workplace instructions. 1.6. Adhered to workplace procedures for reporting hazards, incidents, injuries and sickness to as per workplace policy. 1.7. Identified and proposed <i>OSH-related training needs</i> as per workplace policy.
2. Resource Implications for assessment	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Oral questioning 3.2 Portfolio of evidence 3.3 Third Party Reports 3.4 Written tests
4. Context of Assessment	<p>Competency may be assessed:</p> <ul style="list-style-type: none"> 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

CORE UNITS OF COMPETENCY

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PRODUCE TROPICAL FRUITS

UNIT CODE: HO/OS/HP/CR/01/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in establishing and maintaining a tropical fruits orchard. This includes applying food safety measures in producing tropical fruits, preparing to produce tropical fruits, producing tropical fruits and completing production of tropical fruits

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. Apply food safety measures in producing tropical fruits	1.1 Orchard is established and maintained according to recommended <i>agronomic practices</i> and instructions given. 1.2 Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks 1.3 <i>Food safety procedures</i> are followed in producing tropical fruits 1.4 Possible <i>sources of food safety hazards</i> are identified and documented as per instructions
2. Prepare to produce tropical fruits	1.1 <i>Tools, equipment, materials and supplies</i> are assembled based on the requirements of the job. 1.2 <i>Occupational safety and health procedures</i> are adhered to according workplace procedures and instructions given. 1.3 Soil samples are collected as per instructions. 1.4 Land for <i>tropical</i> and sub-tropical fruits production is prepared according to type of fruit tree and instructions given.
3. Produce tropical fruits	3.1 Nutrients are applied to the fruit trees based on the recommended rates and instructions given. 3.2 Diseases, pests and physiological disorders of fruit are managed as per the instructions given.
4. Complete production of tropical fruits	1.1 Fruits are harvested in accordance with the workplace instructions 1.2 <i>Post-harvest handling</i> of the tropical fruits is carried out based on the workplace instructions 1.3 Tropical fruit production records are kept as per workplace instructions 1.4 Waste disposal is undertaken in accordance with workplace practices and instructions given.

RANGE

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

Variable	Range
1. Agronomic practices may include but not limited to:	<ul style="list-style-type: none">• Growing cycle and growing period• Rooting of cuttings• Optimizing soil conditions• Determining crop water needs• Application of nutrients• Control pests, diseases, physiological disorders and weeds
2. Food safety procedures may include but not limited to	<ul style="list-style-type: none">• Hand washing• Use of PPE• Judicious use of agro inputs• Personal hygiene• Clean as you go
3. Sources of food safety hazards may include but not limited to:	<ul style="list-style-type: none">• Water• Growing media• Site• Organic and inorganic fertilizer• Agro-chemicals
4. Food safety hazards may include but not limited to:	<ul style="list-style-type: none">• Chemicals• Heavy metals• Pesticides• Biological
5. Tools may include but not limited to:	<ul style="list-style-type: none">• Hoes• Machetes• Secateurs• Shovels• Soil augur• Pegs• Hammer• Wire strainer• Pruning saw• Bucket• Shears• Dibbler
6. Farm machinery, implements &	<ul style="list-style-type: none">• Spray pumps• Watering cans• Hose pipes

equipment may include but not limited to:	<ul style="list-style-type: none"> • Plough • Harrows • Ridger • Pruning saw • Traps • Pipe sprinklers • Scouting flags • Storage tanks • Tractors • Bud count square • Meteorological equipment
7. Materials and supplies may include but not limited to:	<ul style="list-style-type: none"> • Seedlings /planting materials • Pesticides • Herbicides • Pheromones for arthropod traps • Fertilizers • Staking sticks • Nails • Khaki paper bags • Stationery • Manures • Measuring tape • Layout string • Shade nets • Translucent papers • Planting pots • Fencing wire
8. Occupational safety and health procedures may include but not limited to:	<ul style="list-style-type: none"> • Fire • Use of tools • Chemical contamination and poisoning
9. Tropical fruits may include but not limited to:	<ul style="list-style-type: none"> • Mangoes • Oranges • Papaya • Pineapple • Custard • Avocado • Bananas
10. Harvest and post-harvest handling may include but not limited to:	<ul style="list-style-type: none"> • Removal of edible crop parts (e.g. fruits) from the plant • Basic cooling • Cleaning • Transporting • Sorting and grading • Weighing

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:

- Record keeping
- Basic hygiene
- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Produce handling
- Soil sampling
- Basic numeracy
- Communication

Required knowledge

The individual needs to demonstrate knowledge of:

- Basic food hygiene practices
- Record keeping Basic tropical/ sub-tropical fruits orchard establishment and management
- Basic tools and equipment used in production of tropical fruits
- Basic soil sampling
- Basic soil conservation
- Basic agronomic practices in tropical/ sub-tropical fruits production
- Basic maturity indices in tropical/ sub-tropical fruits
- Harvesting and post harvesting handling of tropical/ sub-tropical fruits
- Basic production records
- Basic waste disposal
- Occupational safety and health

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	Assessment requires evidence that the candidate: 1.1 Prepared planting land depending on the type of fruit tree and instructions given. 1.2 established and maintained the orchard according to recommended <i>agronomic practices</i> as instructed
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	<p>1.3 Harvested and carried out post-harvest handling practices as instructed</p> <p>1.4 Observed safety measures by using Personal Protective Equipment (PPE) and correct tools as per the instructions</p> <p>1.5 Observed food safety procedures as per instructions</p> <p>1.6 Documented food safety records as per instructions</p>
2. Resource Implications for competence assessment	<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 activity or tasks</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Oral questioning</p> <p>3.3 Interviews</p> <p>3.4 Third party report</p>
4. Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 Off-the-job</p> <p>4.2 On-the-job</p> <p>4.3 Work placement -attachment</p> <p>Off the job assessment must be undertaken in a closely simulated workplace environment.</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

PRODUCE SUB-TROPICAL FRUITS

UNIT CODE: HO/OS/HP/CR/02/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in establishing and maintaining a sub-tropical fruits orchard. This includes applying food safety measures in land preparation, planting, weeding, nutrient application, control of pests and diseases, harvesting and post-harvest handling of fruits.

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. Apply food safety measures in producing sub-tropical fruits	1.1 Orchard is established and maintained according to recommended <i>agronomic practices</i> and instructions given. 1.2 Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks 1.3 <i>Food safety procedures</i> are followed in producing sub-tropical fruits 1.4 Possible <i>sources of food safety hazards</i> are identified and documented as per instruction
2. Prepare to produce sub-tropical fruits	2.1 <i>Tools, equipment, materials and supplies</i> are assembled based on the requirements of the job 2.2 <i>Occupational safety and health procedures</i> are adhered to according workplace procedures 2.3 Soil samples are collected as per instructions. 2.4 Land for tropical and <i>sub-tropical fruits</i> production is prepared according to type of fruit tree and instructions given.
3. Produce sub-tropical fruits	3.1 Nutrients are applied to the fruit trees based on the soil analysis report and as instructed 3.2 Diseases, pests and physiological disorders of fruit are managed as per the instructions given.
4. Complete production of sub-tropical fruits	4.1 Fruits are harvested in accordance with the workplace instructions 4.2 <i>Post-harvest handling</i> of the tropical fruits is carried out based on the workplace instructions 4.3 Tropical fruit production records are kept as per workplace instructions 4.4 Waste disposal is undertaken in accordance with workplace instructions.

RANGE

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

Variable	Range
1. Agronomic practices may include but not limited to:	<ul style="list-style-type: none">• Growing cycle and growing period• Rooting of cuttings• Optimizing soil conditions• Determining crop water needs• Application of nutrients• Control pests, diseases, physiological disorders and weeds
2. Food safety procedures may include but not limited to:	<ul style="list-style-type: none">• Hand washing• Use of PPE• Judicious use of agro inputs• Personal hygiene• Clean as you go
3. Sources of food safety hazards may include but not limited to:	<ul style="list-style-type: none">• Water• Growing media• Site• Organic and inorganic fertilizer
4. Food safety hazards may include but not limited to:	<ul style="list-style-type: none">• Chemicals• Heavy metals• Pesticides• Biological• Physical
5. Tools may include but not limited to:	<ul style="list-style-type: none">• Hoes• Machetes• Secateurs• Shovels• Soil augur• Pegs• Hammer• Wire strainer• Pruning saw• Bucket• Shears• Dibbler

<p>6. Farm machinery & equipment includes but not limited to:</p>	<ul style="list-style-type: none"> • Spray pumps • Watering cans • Hose pipes • Plough • Harrows • Ridger • Pruning saw • Traps • Pipe sprinklers • Scouting flags • Storage tanks • Tractors • Bud count square • Meteorological equipment
<p>7. Materials and supplies may include but not limited to:</p>	<ul style="list-style-type: none"> • Seedlings /planting materials • Pesticides • Herbicides • Pheromones for arthropod traps • Fertilizers • Staking sticks • Nails • Khaki paper bags • Stationery • Manures • Measuring tape • Layout string • Shade nets • Translucent papers • Planting pots • Fencing wire
<p>8. Occupational safety and health procedures may include but not limited to:</p>	<p>The practices to manage hazards from:</p> <ul style="list-style-type: none"> • Fire • Use of tools • Chemical contamination and poisoning
<p>9. Sub-tropical fruits may include but not limited to:</p>	<p>Types of :</p> <ul style="list-style-type: none"> • Mangoes • Oranges • Papaya • Pineapple • Custard • Avocado • Bananas
<p>10. Planting materials may include but not limited to:</p>	<ul style="list-style-type: none"> • Seeds • seedlings • splits • crowns

	<ul style="list-style-type: none"> • slips • Cuttings • Suckers • Tissue culture
11. post-harvest handling includes but not limited to:	<ul style="list-style-type: none"> • Removal of edible crop parts (e.g. fruits) from the plant • Basic cooling • Cleaning • Transporting • Sorting and grading • Weighing

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:

- Record keeping
- Basic hygiene
- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Produce handling
- Soil sampling
- Basic numeracy
- Communication

Required knowledge

The individual needs to demonstrate knowledge of:

- Basic food hygiene practices
- Record keeping
- Basic tropical/ sub-tropical fruits orchard establishment and management
- Basic tools and equipment used in production of tropical fruits
- Basic soil sampling
- Basic soil conservation
- Basic agronomic practices in tropical/ sub-tropical fruits production
- Basic maturity indices in tropical/ sub-tropical fruits
- Harvesting and post harvesting handling of tropical/ sub-tropical fruits
- Basic production records
- Basic waste disposal

- Occupational safety and health

EVIDENCE GUIDE

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

<p>1 Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Prepared planting land depending on the type of fruit tree and instructions given.</p> <p>1.2 Established and maintained the orchard according to recommended <i>agronomic practices</i> and as per instructions given.</p> <p>1.3 Harvested and carried out post-harvest handling practices as instructed</p> <p>1.4 Observed safety measures by using Personal Protective Equipment (PPE) and correct tools as per the instructions</p> <p>1.5 Observed food safety procedures as per instructions</p> <p>1.6 Documented food safety records as per instructions</p>
<p>2 Resource Implications for competence assessment</p>	<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 activity or tasks</p>
<p>3 Methods of Assessment</p>	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Oral questioning</p> <p>3.3 Interviews</p> <p>3.4 Third party report</p>
<p>4. Context of Assessment</p>	<p>Competency may be assessed:</p> <p>2.1 Of-the job</p> <p>2.2 On-the-job</p> <p>2.3 Work placement -attachment</p> <p>Off the job assessment must be undertaken in a closely simulated workplace environment.</p>
<p>5. Guidance information for assessment</p>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

PRODUCE TEMPERATE FRUITS

UNIT CODE: HO/OS/HP/CR/03/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in establishing and maintaining a temperate fruits orchard. This includes applying food safety measures in land preparation, planting, weeding, nutrient application, control of pests and diseases, harvesting and post-harvest handling of fruits.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>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></p>
<p>1. Apply food safety measures in producing temperate fruits</p>	<p>1.1 Orchard is established and maintained according to recommended <i>agronomic</i> and instructions given 1.2 Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks 1.3 <i>Food safety procedures</i> are followed in producing temperate fruits 1.4 Possible <i>sources of food safety hazards</i> are identified and documented as per instruction</p>
<p>2. Prepare to produce temperate fruits</p>	<p>2.1 <i>Tools, equipment, materials and supplies</i> are assembled based on the requirements of the job 2.2 <i>Occupational safety and health procedures</i> are adhered to according workplace procedures 2.3 Soil for analysis is sampled as per <i>soil sampling procedure</i> and instructions given. 2.4 Land for <i>temperate fruits</i> production is prepared according to type of fruit tree and instructions given.</p>
<p>3 Produce temperate fruits</p>	<p>1.5 Nutrients are applied to the fruit trees based on the recommended rates and instructions given. 1.6 Diseases, pests and physiological disorders of fruit are managed as per the instructions.</p>
<p>4. Complete production of temperate fruits</p>	<p>4.1 Fruits are harvested in accordance with the instructions given. 4.2 <i>Post-harvest handling</i> of the temperate fruits is carried out based on the instructions given. 4.3 Temperate fruit production records are kept as per instructions given</p>

	4.4 Waste disposal is undertaken in accordance with workplace practices and as instructed
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RANGE

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

Variable	Range
1. Agronomic requirements may include but not limited to:	<ul style="list-style-type: none"> • Growing cycle and growing period • Rooting of cuttings • Optimizing soil conditions • Determining crop water needs • Application of nutrients • Control pests, diseases, physiological disorders and weeds • Application of dormancy breaking practices
2. Food safety procedures may include but not limited to	<ul style="list-style-type: none"> • Hand washing • PPE • Personal hygiene • Clean as you go
3. Sources of food safety hazards may include but not limited to:	<ul style="list-style-type: none"> • Water • Growing media • Site • Organic and inorganic fertilizer
4. Food safety hazards may include but not limited to:	<ul style="list-style-type: none"> • Chemicals • Heavy metals • Pesticides • Biological • Physical
5. Tools may include but not limited to:	<ul style="list-style-type: none"> • Hoes • Machetes • Secateurs • Shovels • Soil augur • Panga • Pegs • Hammer • Pruning saw • Bucket • Brush • Shears

	<ul style="list-style-type: none"> • Dibbler
6. Equipment may include but not limited to:	<ul style="list-style-type: none"> • Spray pumps • Watering cans • Hose pipes • Plough • Harrows • Ridgers • Boom sprayer • Pruning saw • Wire strainer • Traps • Pipe sprinklers • Scouting flags • Storage tanks • Tractors • Grading shed • Bud count square • Meteorological equipment
7. Materials and supplies may include but not limited to:	<ul style="list-style-type: none"> • Seedlings /planting materials • Pesticides • Herbicides • Pheromones • Dormancy breaking chemicals • Fertilizers • Staking sticks • Nails • Khaki paper bags size 3 • Stationery • Planting pots • Fencing wire • Manures • Measuring tape • Layout string • Shade nets • Translucent papers
8. Occupational safety and health procedures may include but not limited to:	<p>The practices to manage hazards from:</p> <ul style="list-style-type: none"> • Fire • Use of tools • Chemical contamination and poisoning
9. Soil sampling procedure may include but not limited to:	<p>The process of</p> <ul style="list-style-type: none"> • soil collection • packaging • Labeling • submission for analysis
10. Temperate fruits may include but not limited to:	<p>Types of:</p> <ul style="list-style-type: none"> • Plums

	<ul style="list-style-type: none"> • Pears • Apples • Peaches • Apricot • Raspberries • blackberries • Straw berries.
11. Harvest and post-harvest handling may include but not limited to:	<ul style="list-style-type: none"> • Removal of edible crop parts (e.g. fruits) from the plant • Basic cooling • Cleaning • Transporting • Sorting and grading • Weighing

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:

- Record keeping
- Basic hygiene
- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Timing and application of dormancy breaking practices
- Produce handling
- Soil sampling
- Basic numeracy
- Communication

Required knowledge

The individual needs to demonstrate knowledge of:

- Basic food hygiene practices
- Record keeping
- Basic temperate fruits orchard establishment and management
- Basic tools and equipment used in production of temperate fruits
- Basic soil sampling
- Basic soil conservation
- Basic agronomic practices in temperate fruits production
- Basic maturity indices in temperate fruits

- Harvesting and post harvesting handling of temperate fruits
- Basic production records
- Basic waste disposal
- Occupational safety and health

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 Prepared planting land depending on the type of fruit tree and instructions given.</p> <p>1.2 Established and maintained the orchard according to recommended <i>agronomic practices</i> and instructions given.</p> <p>1.3 Harvested and carried out post-harvest handling practices as instructed</p> <p>1.4 Observed safety measures by using Personal Protective Equipment (PPE) and correct tools as per the instructions</p> <p>1.5 Observed food safety procedures as per instructions</p> <p>1.6 Documented food safety records as per instructions</p>
2. Resource Implications for competence assessment	<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 activity or tasks</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Oral questioning</p> <p>3.3 Interviews</p> <p>3.4 Third party report</p>
4. Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 Off-the-job</p> <p>4.2 On-the-job</p> <p>4.3 Work placement -attachment</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

PRODUCE VINE FRUITS

UNIT CODE: HO/OS/HP/CR/04/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in establishing and maintaining a vine fruits orchard. This includes applying food safety measures in land preparation, planting, weeding, nutrient application, control of pests and diseases, harvesting and post-harvest handling of fruits.

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 Apply food safety measures in producing vine fruits	1.1 Orchard is established and maintained according to recommended <i>agronomic practices</i> and instructions given. 1.2 Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks 1.3 <i>Food safety procedures</i> are followed in producing vine fruits 1.4 Possible <i>sources of food safety hazards</i> are identified and documented as per instruction
2 Prepare to produce horticultural fruit vines	2.1 <i>Tools, equipment, materials and supplies</i> are assembled based on the requirements of the job 2.2 <i>Occupational safety and health procedures</i> are adhered to according workplace procedures 2.3 Soil for analysis is sampled as per <i>soil sampling procedure</i> and instructions given. 2.4 Land for <i>fruit vines</i> production is prepared according to instructions given.
3 Produce fruit vines	3.1 <i>Trellis/ support system</i> is set up according to the type of fruit vine and instructions given. 3.2 Nutrients are applied to the nut trees based on the soil analysis report and instructions given. 3.3 Diseases, pests and physiological disorders of fruits are managed as per the workplace instructions
4 Complete production of fruit vines	4.1 Nuts are harvested in accordance with the instructions given. 4.2 <i>Post-harvest handling</i> of the fruits is carried out based on t instructions given

	<p>4.3 Fruit production records are kept as per workplace instructions</p> <p>4.4 Waste disposal is undertaken in accordance with workplace practices and instructions given</p>
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RANGE

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

Variable	Range
1. Agronomic practices may include but not limited to:	<ul style="list-style-type: none"> • Growing cycle and growing period • Rooting of cuttings • Optimizing soil conditions • Determining crop water needs • Application of nutrients • Control pests, diseases, physiological disorders and weeds
2. Food safety procedures may include but not limited to	<ul style="list-style-type: none"> • Hand washing • PPE • Personal hygiene • Clean as you go
3. Sources of food safety hazards may include but not limited to:	<ul style="list-style-type: none"> • Water • Growing media • Site • Organic and inorganic fertilizers • Agro-chemicals
4. Food safety hazards may include but not limited to:	<ul style="list-style-type: none"> • Chemicals • Heavy metals • Pesticides • Biological • Physical
5. Tools may include but not limited to:	<ul style="list-style-type: none"> • Hoes • Machetes • Secateurs • Shovels • Soil augur • Panga • Pegs • Hammer • Pruning saw • Bucket

	<ul style="list-style-type: none"> • Shears • Dibbler
6. Equipment may include but not limited to:	<ul style="list-style-type: none"> • Spray pumps • Watering cans • Hose pipes • Plough • Harrows • Ridger • Boom sprayer • Pruning saw • Wire strainer • Traps • Pipe sprinklers • Scouting flags • Storage tanks • Tractors • Bud count square • Meteorological equipment
7. Materials and supplies may include but not limited to:	<ul style="list-style-type: none"> • Seedlings /planting materials • Pesticides • Herbicides • Pheromones • Fertilizers • Staking sticks • Nails • Khaki paper bags size 3 • Stationery • Manures • Measuring tape • Layout string • Shade nets • Translucent papers • Planting pots • Fencing wire
8. Occupational safety and health procedures may include but not limited to:	<p>The practices to manage hazards from:</p> <ul style="list-style-type: none"> • Fire • Use of tools • Chemical contamination and poisoning
9. Soil sampling procedure may include but not limited to:	<p>The process of</p> <ul style="list-style-type: none"> • soil collection, • packaging • labeling • submission soils for analysis

10. Vine fruits may include but not limited to:	Varieties of : <ul style="list-style-type: none"> • Grapes • Passion fruits • Dates • Kiwi • Water melon • Sweet melon
11. Trellis/ support system may include but not limited to:	<ul style="list-style-type: none"> • Support for climbing plants • It takes various shapes depending on the type of plants • The support system can take different forms e.g. life fences, trees, wire on posts
12. Post-harvest handling includes but not limited to:	<ul style="list-style-type: none"> • Removal of edible crop parts (e.g. nuts) from the plant • Basic cooling • Cleaning • Transporting • Sorting and grading • Weighing

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:

- Record keeping
- Basic hygiene
- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Produce handling
- Soil sampling
- Basic numeracy
- Communication

Required knowledge

The individual needs to demonstrate knowledge of:

- Basic food hygiene practices
- Record keeping
- Basic nuts fruits orchard establishment and management
- Basic tools and equipment used of fruit vine production

- Basic soil sampling
- Basic soil conservation
- Basic agronomic practices in fruit vine production
- Basic maturity indices of fruits
- How to set up trellis/ support system
- Harvesting and post harvesting handling of fruits
- Basic production records
- Basic waste disposal
- Occupational safety and health
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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 Prepared planting land depending on the type of vine as instructed</p> <p>1.2 Established and maintained the orchard according to recommended <i>agronomic practices</i> and instructions given.</p> <p>1.3 Harvested and carried out post-harvest handling practices as instructed</p> <p>1.4 Observed safety measures by using Personal Protective Equipment (PPE) and correct tools as per the instructions</p> <p>1.5 Observed food safety procedures as per instructions</p> <p>1.6 Documented food safety records as per instructions</p>
2. Resource Implications for competence assessment	<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 activity or tasks</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Oral questioning</p> <p>3.3 Interviews</p> <p>3.4 Third party report</p>
4. . Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 Off-the-job</p> <p>4.2 On-the-job</p> <p>4.3 Work placement -attachment,</p> <p>Off the job assessment must be undertaken in a closely simulated workplace environment.</p>

5. Guidance information for assessment	What can be assessed in Holistic assessment (with other units relevant to the industry sector, workplace and job roles) is recommended. Attitude is assessed alongside production of vine fruits
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PRODUCE MUSHROOMS

UNIT CODE: HO/OS/HP/CR/05/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in production of mushrooms. It includes applying food safety measures in preparing mushroom production structures, managing and harvesting the mushrooms and carrying out post-harvest handling of mushrooms.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>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></p>
<p>1. Apply food safety measures in producing mushrooms</p>	<p>1.1 The type of <i>mushroom</i> to be established is determined in accordance with market demand and instructions given</p> <p>1.2 Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks</p> <p>1.3 <i>Food safety procedures</i> are followed in producing mushrooms</p> <p>1.4 Possible <i>sources of food safety hazards</i> are identified and documented as per instruction</p>
<p>2. Prepare to produce mushroom</p>	<p>2.1 The <i>mushroom house</i> is sited according to farm plans and instructions given.</p> <p>2.2 <i>Tools, equipment, materials and supplies</i> are identified and sourced based on the requirements of the job</p> <p>2.3 The mushroom house is constructed depending on MoALF production guidelines and instructions given.</p>
<p>3. Produce mushroom</p>	<p>3.1 The starter culture is put in place based on MoALF production guidelines and instructions given.</p> <p>3.2 Established mushrooms are managed as per MoALF production guidelines and instructions given.</p> <p>3.3 Established mushroom are protected from pests and diseases as per MoALF production guidelines and instructions given.</p> <p>3.4 Established mushroom are harvested as per production guidelines and instructions given.</p>
<p>4. Complete production of mushrooms</p>	<p>4.1 Post-harvest handling of the mushrooms is carried out as per MoALF production manual and instructions given.</p> <p>4.2 Waste management is undertaken in accordance with Environmental Management and Coordination Act (EMCA) and instructions given.</p>

RANGE

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

Variable	Range
1. Mushroom may include but not limited to:	<ul style="list-style-type: none">• Oyster,• shiitake and• white button
2. Food safety procedures may include but not limited to	<ul style="list-style-type: none">• Hand washing• Use of PPE• Judicious use of agro inputs• Personal hygiene• Clean as you go
3. Sources of food safety hazards may include but not limited to:	<ul style="list-style-type: none">• Water• Growing media• Site• Organic and inorganic fertilizer
4. Food safety hazards may include but not limited to:	<ul style="list-style-type: none">• Chemicals<ul style="list-style-type: none">• Heavy metals• Pesticides• Mycotoxins (Aflatoxin)• Biological• Physical
5. Mushroom houses may include but not limited to:	<ul style="list-style-type: none">• Mushroom House• Shelves• Plastic Bags• Heat Oven
6. Tools may include but not limited to:	<ul style="list-style-type: none">• Weighing scale
7. Materials may include but not limited to:	<ul style="list-style-type: none">• Poly tubes• Lockable drum• Table spoon• Sisal twines• Supplement –soya bean meal• Plant residues –stalks and bran• Polythene bags• Shelves• Shade• Spawn• Water• Substrate

8. Equipment may include but not limited to:	<ul style="list-style-type: none"> • PPE –hand gloves, dust coat, dust masks • Hand spray equipment • Oven • Basin
9. Materials and supplies may include but are not limited to:	<ul style="list-style-type: none"> • Methylated spirit • Lime • Fuel for heating substrate • Molasses • Sisal twine • Soap

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:

- Record keeping
- Basic hygiene Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Pests, diseases and nutrients deficiency scouting
- Equipment calibration
- Technical Report writing
- Produce handling
- Soil sampling
- Observation
- Negotiation
- Digital literacy

Required knowledge

The individual needs to demonstrate knowledge of:

- Basic food hygiene practices
- Record keeping
- Agro Ecological Zonation
- Mushroom production structure Management
- Types of mushrooms
- Physiology of mushrooms
- Types of tools and equipment used in production of mushrooms
- Sourcing/Procurement Procedures (I.E. Seedlings, Supplies)
- Accounting principles
- Mushrooms production Terminologies

- Mushroom production Technologies
- Occupational Safety and Health Procedures
- Controlling Pests and Diseases in mushrooms
- Soil Testing
- Regulations and Standards of establishing mushroom production structures
- Waste Management
- Determining mushroom maturity
- Harvesting and Post Harvesting Handling of mushrooms
- General management of mushroom production farm
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EVIDENCE GUIDE

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

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Prepared growing structures to a level suitable to the planting material as instructed.</p> <p>1.2 Observed safety measures by using Personal Protective Equipment (PPE) and correct tools</p> <p>1.3 Followed required process of producing mushrooms as instructed</p> <p>1.4 Efficiently used the inputs</p> <p>1.5 Harvested mushrooms and carried out post-harvest handling of mushrooms as instructed.</p> <p>1.6 Observed food safety procedures as per instructions</p> <p>1.7 Documented food safety records as per instructions</p>
<p>2. Resource Implications for competence assessment</p>	<p>The following 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>2.1 Materials relevant to the proposed activity or tasks</p>
<p>3. Methods of Assessment</p>	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Written tests</p> <p>3.3 Oral questioning</p> <p>3.4 Third party reports</p>
<p>4. Context of Assessment</p>	<p>Competency may be assessed:</p> <p>4.1 Off-the-job</p> <p>4.2 On-the-job</p> <p>4.3 Work placement -attachment</p> <p>Off the job assessment must be undertaken in a closely simulated workplace environment.</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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PRODUCE HERBS AND SPICES

UNIT CODE: HO/OS/HP/CR/06/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in producing quality herbs and spices while applying food safety measures, observing regulatory requirements and keeping accurate production records.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	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 Apply food safety measures in producing herbs and spices	1.1 Garden is established and maintained according to recommended <i>agronomic practices</i> and instructions given. 1.2 Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks 1.3 <i>Food safety procedures</i> are followed in producing herbs and spices 1.4 Possible <i>sources of food safety hazards</i> are identified and documented as per instruction
2 Prepare to produce herbs and spices	2.1 <i>Tools, equipment, materials and supplies</i> are assembled based on the requirements of the job 2.2 <i>Occupational safety and health procedures</i> are adhered to according workplace procedures 2.3 Soil for analysis is sampled as per <i>soil sampling procedure</i> and instructions given. 2.4 Land for <i>herbs and spices</i> production is prepared according to recommended practices as instructed
3 Produce herbs and spices	3.1 Nutrients are applied to the nut trees based on the recommended rates and instructions given. 3.2 Diseases and pests are managed as per the workplace instructions
4 Complete production of herbs and spices	4.1 Nuts are harvested in accordance with the instructions given. 4.2 <i>Post-harvest handling</i> of the herbs and spices is carried out based on the instructions given. 4.3 Herbs and spices production records are kept as per workplace instructions

	4.4 Waste disposal is undertaken in accordance with workplace practices
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RANGE

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

Variable	Range
1. Agronomic practices may include but not limited to:	<ul style="list-style-type: none"> • Growing cycle and growing period • Rooting of cuttings • Optimizing soil conditions • Determining crop water needs • Application of nutrients • Control pests, diseases, physiological disorders and weeds
2. Food safety procedures may include but not limited to	<ul style="list-style-type: none"> • Hand washing • PPE • Personal hygiene • Clean as you go
3. Sources of food safety hazards may include but not limited to:	<ul style="list-style-type: none"> • Water • Growth media • Site • Organic and inorganic fertilizers • Agro-chemicals
4. Food safety hazards may include but not limited to:	<ul style="list-style-type: none"> • Chemicals <ul style="list-style-type: none"> • Heavy metals • Pesticides • Biological • Physical
5. Tools may include but not limited to:	<ul style="list-style-type: none"> • Hoes • Machetes • Secateurs • Shovels • Soil augur • Panga • Pegs • Hammer • Bucket • Dibbler
6. Equipment may include but not limited to:	<ul style="list-style-type: none"> • Spray pumps • Watering cans • Hose pipes

	<ul style="list-style-type: none"> • Plough • Harrows • Ridger • Boom sprayer • Wire strainer • Traps • Pipe sprinklers • Scouting flags • Storage tanks • Tractors • Bud count square • Meteorological equipment
7. Materials and supplies may include but not limited to:	<ul style="list-style-type: none"> • Seedlings /planting materials • Pesticides • Herbicides • Pheromones • Fertilizers • Staking sticks • Nails • Khaki paper bags size 3 • Stationery • Manures • Measuring tape • Layout string • Shade nets • Translucent papers • Planting pots • Fencing wire
8. Occupational safety and health procedures may include but not limited to:	<p>The practices to manage hazards from:</p> <ul style="list-style-type: none"> • Fire • Use of tools • Chemical contamination and poisoning
9. Soil sampling procedure may include but not limited to:	<p>The process of</p> <ul style="list-style-type: none"> • soil collection, • packaging • labeling • submission soils for analysis
10. Herbs and spices may include but not limited to:	<p>Varieties of :</p> <ul style="list-style-type: none"> • Coriander • Parsley • Garlic • Ginger • Dill • Chives • Mint

	<ul style="list-style-type: none"> • Rosemary • Thyme
11. Post-harvest handling may include but not limited to:	<ul style="list-style-type: none"> • Removal of edible crop parts (e.g. leaves, stems, roots tubers, combs) from the plant • Basic cooling • Cleaning • Transporting • Sorting and grading • Weighing

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:

- Record keeping
- Basic hygiene
- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Produce handling
- Soil sampling
- Basic numeracy
- Communication

Required knowledge

The individual needs to demonstrate knowledge of:

- Basic food hygiene practices
- Record keeping
- Basic nuts fruits orchard establishment and management
- Basic tools and equipment used of herbs and spices production
- Basic soil sampling
- Basic soil conservation
- Basic agronomic practices in herbs and production
- Basic maturity indices of herbs and spices
- How to set up trellis/ support system
- Harvesting and post harvesting handling of herbs and spices
- Basic production records
- Basic waste disposal
- Occupational safety and health

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	Assessment requires evidence that the candidate: 1.1 Prepared planting land depending on the type of herbs and spices as instructed. 1.2 Established and maintained the orchard according to recommended <i>agronomic practices</i> and instructions given. 1.3 Harvested and carried out post-harvest handling practices as instructed. 1.4 Observed safety measures by using Personal Protective Equipment (PPE) and correct tools as per the instructions 1.5 Observed food safety procedures as per instructions 1.6 Documented food safety records as per instructions
2. Resource Implications for competence assessment	The following resources should be provided: 2. 1 Access to relevant workplace where assessment can take place 2. 2 Appropriately simulated environment where assessment can take place 2. 3 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Interviews 3.4 Third party report
4. Context of Assessment	Competency may be assessed: 4.1 Off-the-job 4.2 On-the-job 4.3 Work placement –attachment Off the job assessment must be undertaken in a closely simulated workplace environment.
5. Guidance information for assessment	This section describes the skills and knowledge required for this unit of competency.

PRODUCE HORTICULTURAL NUTS

UNIT CODE: HO/OS/HP/CR/07/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in establishing and maintaining horticultural nut orchard. It includes applying food safety measures in production of cashew nuts, macadamia and coconuts. The activities involved include land preparation, planting, weeding, nutrient application, control of pests and diseases, harvesting and post-harvest handling of nuts.

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. Apply food safety measures in producing horticultural nuts	1.1 Land for horticultural nuts production is prepared according to recommended practices and instructions given. 1.2 Possible sources of <i>food safety hazards</i> are identified and documented as per instruction 1.3 <i>Food safety procedures</i> are followed in producing nuts 1.4 Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks
2. Prepare to produce horticultural nuts	2.1 <i>Tools, equipment, materials and supplies</i> are assembled based on the requirements of the job and instructions given. 2.2 <i>Occupational safety and health procedures</i> are adhered to according workplace procedures 2.3 Soil for analysis is sampled as per <i>soil sampling procedure</i> and instructions given.
3. Produce horticultural nuts	3.1 Nutrients are applied to the nut trees based on the soil analysis report 3.2 Diseases, pests and physiological disorders of nuts are managed as per the workplace instructions
4. Complete production of horticultural nuts	4.1 Nuts are harvested in accordance with the instructions given. 4.2 <i>Post-harvest handling</i> of the nuts is carried out based on instructions given 4.3 Horticultural nut production records are kept as per instructions

	4.4 Waste disposal is undertaken in accordance with workplace practices
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RANGE

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

Variable	Range
1. Food safety hazards include but not limited to:	<ul style="list-style-type: none"> • Chemicals • Heavy metals • Pesticides • Mycotoxins (Aflatoxins) • Biological • Physical
2. Food safety procedures may include but not limited to:	<ul style="list-style-type: none"> • Hand washing • PPE • Personal hygiene • Clean as you go
3. Tools may include but not limited to:	<ul style="list-style-type: none"> • Hoes • Machetes • Secateurs • Shovels • Soil augur • Panga • Pegs • Hammer • Pruning saw • Bucket • Shears • Dibbler
4. Equipment may include but not limited to:	<ul style="list-style-type: none"> • Spray pumps • Watering cans • Hose pipes • Plough • Harrows • Ridger • Boom sprayer • Pruning saw • Wire strainer • Traps

	<ul style="list-style-type: none"> • Pipe sprinklers • Scouting flags • Storage tanks • Tractors • Bud count square • Meteorological equipment
5. Materials and supplies may include but not limited to:	<ul style="list-style-type: none"> • Seedlings /planting materials • Pesticides • Herbicides • Pheromones • Fertilizers • Staking sticks • Nails • Khaki paper bags size 3 • Stationery • Manures • Measuring tape • Layout string • Shade nets • Translucent papers • Planting pots • Fencing wire
6. Occupational safety and health procedures include but not limited to:	<p>The practices to manage hazards from:</p> <ul style="list-style-type: none"> • Fire • Use of tools • Chemical contamination and poisoning
7. Soil sampling procedure may include but not limited to:	<p>The process of</p> <ul style="list-style-type: none"> • soil collection, • packaging • labeling • submission soils for analysis
8. Post-harvest handling includes but not limited to:	<ul style="list-style-type: none"> • Removal of edible crop parts (e.g. nuts) from the plant • Basic cooling • Cleaning • Transporting • Sorting and grading • Weighing

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:

- Record keeping

- Basic hygiene
- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Produce handling
- Soil sampling
- Basic numeracy
- Communication

Required knowledge

The individual needs to demonstrate knowledge of:

- Basic food hygiene practices
- Record keeping
- Basic nut tree orchard establishment and management
- Basic tools and equipment used in production of nut trees
- Basic soil sampling
- Basic soil conservation
- Basic agronomic practices in nut tree production
- Basic maturity indices in nuts trees
- Harvesting and post harvesting handling of horticultural nuts
- Basic production records
- Basic waste disposal
- Occupational safety and health

EVIDENCE GUIDE

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

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Prepared planting land depending on the type of nut tree as instructed</p> <p>1.2 Established and maintained the orchard according to recommended <i>agronomic practices</i> as instructed</p> <p>1.3 Harvested and carried out post-harvest handling practices as instructed.</p> <p>1.4 Observed safety measures by using Personal Protective Equipment (PPE) and correct tools as per the instructions.</p>
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	<p>1.5 Observed food safety procedures as per instructions</p> <p>1.6 Documented food safety records as per instructions</p>
2. Resource Implications for competence in assessment	<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 activity or tasksp</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Oral questioning</p> <p>3.3 Interviews</p> <p>3.4 Third party report</p>
4. Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 Off-the-job</p> <p>4.2 On-the-job</p> <p>4.3 Work placement -attachment</p> <p>Off the job assessment must be undertaken in a closely simulated workplace environment.</p>
5. Guidance information for assessment	<p>This section describes the skills and knowledge required for this unit of competency.</p>

PRODUCE ORNAMENTAL PLANTS

UNIT CODE: HO/OS/HP/CR/08/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in producing quality and clean ornamental plants. It involves preparing the growing structures for ornamental plants, planting, carrying out husbandry practices on the ornamental plants while observing regulatory requirements and keeping production records, acclimatizing the ornamental plants and generating a production report.

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. Prepare to produce ornamental plants	1.1 <i>Tools, equipment, materials and supplies</i> are identified and sourced based on the requirements of the job 2.1 Soil for analysis is sampled as per <i>soil sampling procedure</i> and instructions given. 3.1 Soil erosion is controlled based on topography, soil type, level of degradation and instructions given. 4.1 <i>Propagation structure</i> is prepared in accordance with the ornamental plants production manual and instructions given. 5.1 Soil based planting medium is prepared in accordance with Good Agricultural Practices (GAP) manual, ornamental plants production manual and instructions given.
2. Produce ornamental plants	2.1 Seedlings/seeds are planted/potted as per <i>potting containers</i> , ornamental plants production manual and instructions given. 2.2 <i>Ornamental plants</i> are watered, weeded, pruned, supported/trained as per the ornamental plants production manual and instructions given. 2.3 Established ornamental plants are fed based on soil analysis report and instructions given. 2.4 Established ornamental plants are protected from pests and diseases as per GAP and instructions given.
3. Complete production of ornamental plants	3.1 Ornamental plants production is documented in accordance with ornamental plants production manual and instructions given.

RANGE

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

Variable	Range
1. Tools may include but not limited to:	<ul style="list-style-type: none"> • Hoes • Machetes • Shovels • Soil augur • Panga • Pegs • Hammer • Saw • Bucket • Secateurs • Shears
2. Equipment includes but not limited to:	<ul style="list-style-type: none"> • Spray pumps • Watering cans • Hose pipes • Plough • Harrows • Pruning saw • Wire strainer • Traps • Pipe sprinklers • Scouting flags • Storage tanks • Tractors
3. Materials and Supplies includes but not limited to:	<ul style="list-style-type: none"> • Pesticides • Fertilizers • Stationery • Manures • Seedlings /planting materials • Khaki paper bags size 3 • Rope • Nets • Translucent papers • Papers • Fencing wire • Nails • Herbicides
4. Soil sampling procedure may include but not limited to:	<p>The process of</p> <ul style="list-style-type: none"> • soil collection, • packaging and • submission for analysis
5. Propagation structures may include but not limited to:	<ul style="list-style-type: none"> • Lath House • Net House

6. Potting containers may include but not limited to:	<ul style="list-style-type: none"> • Pots • Boxes • Planters • Trays
7. Ornamental plants include but not limited to:	<ul style="list-style-type: none"> • Asters • Chrysanthemum • Bougainvillea • Statice • Marigold • Geranium • Larkspur • Petunia

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:

- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Pests , diseases and nutrients deficiency scouting
- Equipment calibration
- Technical Report writing
- handling of ornamental plants
- Soil sampling
- Observation
- Negotiation
- Digital literacy

Required knowledge

The individual needs to demonstrate knowledge of:

- Sources of quality water
- Agro Ecological Zonation
- Establishment and management of ornamental plants
- Landscaping
- Types of ornamental plants
- Physiology of ornamental plants
- Types of tools and equipment used in production of ornamental plants
- Soil sampling and testing

- Soil conservation
- Phyto-sanitary requirements
- Good Agricultural Practices
- Sources of quality planting materials for ornamental plants
- Soilless growing medium
- Husbandry practices in ornamental plants
- Ornamental plants production Technologies
- Accounting principles
- Production records and reports
- Waste Management
- Occupational Safety and Health Procedures
- Acclimatization of Ornamental Plants
- General management of ornamental plants production farm

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	Assessment requires evidence that the candidate: 1.1 Prepared planting/potting structure/containers to a level suitable to the planting material as instructed 1.2 Prepared planting medium as per the HCD phyto sanitary requirements and instructions given. 1.3 Applied safety measures by using Personal Protective Equipment 1.4 Followed required process of producing ornamental plants as instructed. 1.5 Efficiently used the inputs
2. Resource Implications for competence assessment	The following resources must be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place 2.3 Materials relevant to the proposed activity or tasks Ornamental plants production manual
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Written tests 3.3 Oral questioning 3.4 Third party reporting
4. Context of Assessment	Competency may be assessed: 4.1 Off-the-job 4.2 On-the-job 4.3 Work placement -attachment

	Off the job assessment must be undertaken in a closely simulated workplace environment.
5. Guidance information for assessment	What can be assessed in holistic assessment (with other units relevant to the industry sector, workplace and job roles) is recommended. Attitude is assessed alongside production of ornamental plants.

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PRODUCE CUT FLOWERS

UNIT CODE: HO/OS/HP/CR/09/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in producing quality and clean-cut flowers. It involves preparation of the production structures, planting, carrying out husbandry practices while observing regulatory requirements and keeping accurate production records, carrying out postharvest handling of the flowers and generating a production report.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>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></p>
<p>1. Prepare to produce cut flowers</p>	<p>1.1 Site for production of the cut flowers is selected as per the farm plan and instructions given. 1.2 <i>Tools, equipment, materials and supplies</i> are identified and sourced based on the type of cut flower to be established and instructions given. 1.3 Soil for analysis is sampled as per <i>sampling procedure</i> and instructions given. 1.4 Propagation structure is prepared in accordance with the cut flowers production manual and instructions given. 1.5 Soil-based growing medium is prepared in accordance with Good Agricultural Practices (GAP) manual, cut flowers production manual and instructions given.</p>
<p>2. Produce cut flowers</p>	<p>2.1 <i>Cut flowers</i> are planted as per Good Agricultural Practices (GAP) manual, cut flowers production manual and instructions given. 2.2 Cut flowers are watered, weeded, supported, thinned, pinched, disbudded, and pruned as per the cut flowers production manual and instructions given. 2.3 Pests and diseases in cut flowers are controlled based on GAP, cut flowers production manual and instructions given. 2.4 The cut flowers are harvested as per cut flowers production manual and instructions given.</p>
<p>3. Complete production of cut flowers</p>	<p>3.1 Post-harvest handling of cut flowers is carried out as per flower production manual and instructions given. 3.2 Cut flowers production is documented in accordance with cut flowers production manual 3.3 Waste management is undertaken in accordance with Environmental Management and Coordination Act (EMCA)</p>

RANGE

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

Variable	Range
1. Tools may include but not limited to:	<ul style="list-style-type: none">• Hoes• Machetes• Shovels• Soil augur• Panga• Hammer• Saw• Bucket• Secateurs• Shears• Pegs
2. Equipment may include but not limited to:	<ul style="list-style-type: none">• Spray pumps• Watering cans• Hose pipes• Plough• Harrows• Pruning saw• Wire strainer• Traps• Pipe sprinklers• Scouting flags• Storage tanks• Tractors
3. Materials and Supplies may include but not limited to:	<ul style="list-style-type: none">• Pesticides• Fertilizers• Stationery• Manures• Seedlings /planting materials• Khaki paper bags size 3• Rope• Nets• Translucent papers• Papers• Fencing wire• Nails

	<ul style="list-style-type: none"> • Herbicides
4. Soil sampling procedure may include but not limited to:	<p>The process of</p> <ul style="list-style-type: none"> • soil collection, • packaging and • submission for analysis
5. Cut flowers may include but not limited to:	<ul style="list-style-type: none"> • Roses • Carnation • Alstromeria • Gypsophila • Ornis • Hydrangea • Strelitzia • Arabicum • Orchids • Agapanthus • Delphinium

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:

- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Pests , diseases and nutrients deficiency scouting
- Equipment calibration
- Technical Report writing
- handling of cut flowers
- Soil sampling
- Observation
- Negotiation
- Digital literacy

Required knowledge

The individual needs to demonstrate knowledge of:

- Sources of quality water
- Agro Ecological Zonation
- Types of tools and equipment used in production of cut flowers
- Structures for production of cut flowers

- Types of cut flowers
- Physiology of cut flowers
- Soil sampling and testing
- Soil conservation
- Phyto-sanitary requirements
- Good Agricultural Practices
- Sources of quality planting materials for cut flowers
- Husbandry practices in cut flowers production
- Cut flowers production Technologies
- Procedures for calibration of equipment
- Soilless growing medium
- Flower induction
- Maturity indices in cut flowers
- Harvesting and Post Harvesting Handling of cut flowers
- Accounting principles
- Production records and reports
- Waste Management
- Occupational Safety and Health Procedures
- Harvesting and Post Harvesting Handling of cut flowers
- General management of cut flowers production farm

EVIDENCE GUIDE

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

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Prepared planting structure to a level suitable to the planting material as instructed</p> <p>1.2 Prepared soil-based growing medium as per the HCD phyto-sanitary guide and instructions given.</p> <p>1.3 Applied safety measures by using Personal Protective Equipment</p> <p>1.4 Followed required process of producing cut flowers as instructed.</p> <p>1.5 Efficiently used the inputs</p> <p>1.6 Harvested and carried out post-harvest handling of cut flowers as instructed.</p>
<p>2. Resource Implications for competence assessment</p>	<p>The following resources must 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 activity or tasks</p> <p>Ornamental plants production manual</p>

3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Written tests 3.3 Oral questioning 3.4 Interviews
4. Context of Assessment	Competency may be assessed: 4.1 Off-the-job 4.2 On-the-job 4.3 Work placement -attachment Off the job assessment must be undertaken in a closely simulated workplace environment.
5. Guidance information for assessment	This section describes the skills and knowledge required for this unit of competency.

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PRODUCE VEGETABLES

UNIT CODE: HO/OS/HP/CR/10/3/B

UNIT DESCRIPTION

This unit specifies the competencies required to participate in production of quality vegetable crops which include exotic, indigenous and Asian vegetables. It involves applying food safety measures in land preparation, establishment, management, harvest and post-harvest handling of vegetables, and keeping accurate records.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	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. Apply food safety measures in producing vegetables	1.1 <i>Exotic and indigenous</i> vegetable garden is established and maintained according to recommended <i>agronomic practices</i> and instructions given. 1.2 Possible <i>sources of food safety hazards</i> are identified and documented as per instruction 1.3 <i>Food safety procedures</i> are followed in producing vegetables 1.4 Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks
2. Prepare to produce vegetables	2.1 <i>Tools, equipment, materials and supplies</i> are assembled based on the requirements of the job 2.2 <i>Occupational safety and health procedures</i> are adhered to according workplace procedures 2.3 Soil for analysis is sampled as per <i>soil sampling procedure</i> and instructions given. 2.4 Land for <i>vegetables</i> production is prepared according with instructions given. 2.5 Vegetable <i>production structures</i> are constructed according to vegetable production manual and instructions given.
3. Produce vegetables	3.1 Nutrients are applied to the vegetable plants based on the soil analysis report and instructions given. 3.2 Diseases and pests are managed as per the instructions given
4. Complete production of vegetables	4.1 Vegetables are harvested in accordance with the instructions given. 4.2 <i>Post-harvest handling</i> of vegetables is carried out as instructed

	4.3 Vegetable production records are kept as per instructions 4.4 Waste disposal is undertaken in accordance with instructions given.
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RANGE

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

Variable	Range
1. Exotic vegetable may include but not limited to:	Types: <ul style="list-style-type: none"> • Cole crops: cabbage, kales, broccoli, and cauliflower: • Solanaceae: tomato, Irish potato, capsicum: • Legumes: French beans, garden peas: • Root: onions; carrots: • Others: Sweet corn, lettuce, spinach, asparagus, cucumber, melons, squash.
2. Indigenous and Asian vegetables may include but not limited to:	Types: <ul style="list-style-type: none"> • Eggplant/ brinjals • capsicums • okra, • karella • moringa • black nightshade • Spider weed • amaranth • cowpeas • pumpkin • crotalaria
3. Sources of food safety hazards may include but not limited to:	<ul style="list-style-type: none"> • Water • Growing media • Site • Agro-chemicals • Organic and inorganic fertilizer
4. Food safety procedures may include but not limited to	<ul style="list-style-type: none"> • Hand washing • PPE • Personal hygiene • Clean as you go
5. Tools may include but not limited to:	<ul style="list-style-type: none"> • Hoes • Machetes • Secateurs

	<ul style="list-style-type: none"> • Shovels • Soil augur • Panga • Pegs • Hammer • Bucket • Dibbler
6. Equipment may include but not limited to:	<ul style="list-style-type: none"> • Spray pumps • Watering cans • Hose pipes • Plough • Harrows • Ridger • Boom sprayer • Wire strainer • Traps • Pipe sprinklers • Scouting flags • Storage tanks • Tractors • Bud count square • Meteorological equipment
7. Materials and supplies may include but not limited to:	<ul style="list-style-type: none"> • Seedlings /planting materials • Pesticides • Herbicides • Pheromones • Fertilizers • Staking sticks • Nails • Khaki paper bags size 3 • Stationery • Manures • Measuring tape • Layout string • Shade nets • Translucent papers • Planting pots • Fencing wire
8. Occupational safety and health procedure may include but not limited to:	<p>The practices to manage hazards from:</p> <ul style="list-style-type: none"> • Fire • Use of tools • Chemical contamination and poisoning

9. Soil sampling procedure may include but not limited to:	The process of: <ul style="list-style-type: none"> • soil collection, • packaging • labeling • submission soils for analysis
10. Production structures may include but not limited to:	<ul style="list-style-type: none"> • High tunnels • Green houses • Screen houses
11. Harvest and post-harvest handling may include but not limited to:	<ul style="list-style-type: none"> • Removal of edible crop parts (e.g. leaves, stems, roots tubers, bulbs, combs) from the plant • Basic cooling • Cleaning • Transporting • Sorting and grading • Weighing

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:

- Record keeping
- Basic hygiene
- Tilling
- Measuring
- Leveling
- Gaping
- Pruning
- Spraying
- Produce handling
- Soil sampling
- Basic numeracy
- Communication

Required knowledge

The individual needs to demonstrate knowledge of:

- Basic food hygiene practices
- Record keeping
- Basic vegetable garden establishment and management
- Basic tools and equipment used of vegetable production
- Basic soil sampling
- Basic soil conservation
- Basic agronomic practices in vegetable production

- Vegetable production structures and support systems
- Basic maturity indices for vegetable production
- Harvesting and post harvesting handling of vegetables
- Basic production records
- Basic waste disposal
- Occupational safety and health

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 Prepared planting land depending on the type of vegetable as instructed.</p> <p>1.2 Established and maintained the vegetable garden according to recommended <i>agronomic practices</i> and instructions given.</p> <p>1.3 Harvested and carried out post-harvest handling practices based on the type of vegetable as instructed.</p> <p>1.4 Observed safety measures by using Personal Protective Equipment (PPE) and correct tools as per the instructions</p> <p>1.5 Observed food safety procedures as per instructions</p> <p>1.6 Documented food safety records as per instructions</p>
2. Resource Implications	<p>The following resources must be provided during assessment:</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 activity or tasks</p> <p>Ornamental plants production manual</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Oral questioning</p> <p>3.3 Interviews</p> <p>3.4 Third party report</p>
4. Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 Off-the-job</p> <p>4.2 On-the-job</p> <p>4.3 Work placement -attachment</p>
5. Guidance information for assessment	<p>This section describes the skills and knowledge required for this unit of competency.</p>