

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARDS**

**FOR**

**HORTICULTURE PROCESSOR**

**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 to 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 shall be competency based, curriculum development shall be industry led, certification shall be based on demonstration of competence and mode of delivery shall allow 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 processor. These Occupational Standards will also be the basis 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. 4 of 2016 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification in TVET. This called for 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 (TVET CDACC), in conjunction with Aquaculture Sector Skills Advisory Committee (SSAC), German International Cooperation and Ministry of Agriculture, Livestock and Fisheries have developed these Occupational Standards for a Horticulture processor. TVET CDACC in conjunction with Micro Enterprises Support Programme Trust (MESPT) have reviewed these Occupational Standards and incorporated Food Safety. These standards will be the bases for development of competency based curriculum for Horticulture processing 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, Food Safety 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 (TVETCDACC) for providing guidance on the development of these Standards. My gratitude goes to Aquaculture 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 Occupational Standards. 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**

# 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

GIZ : German International Cooperation

HP Horticulture Processor

ICT : Information Communication Technology

KCSE : Kenya Certificate of Secondary Education

KNQA : Kenya National Qualifications Authority

MESPT Micro Enterprises Support Programme Trust

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

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# KEY TO UNIT CODE

 **HO /OS /AT /BC/CR /01/ 3/B**

Industry or sector

Occupational Standards

Occupational area

Type of competency

Competency number

Competency level

Control version

# OVERVIEW

Horticulture processor Level 3 consists of competencies that an individual must achieve to be able to participate in processing of horticultural produce. It entails storing horticultural produce, processing horticultural fruits, vegetables, flowers, nuts as well as herbs and spices.

This qualification consists of the following basic and core competencies:

**BASIC COMPETENCIES**

**BASIC COMPETENCIES**

|  |  |
| --- | --- |
| UNIT CODE | UNIT NAME |
| HO/OS/HG/BC/01/3/B | Demonstrate communication skills  |
| HO/OS/HG/BC/02/3/B | Demonstrate numeracy skills |
| HO/OS/HG/BC/03/3/B | Demonstrate digital literacy |
| HO/OS/HG/BC/04/3/B | Demonstrate entrepreneurial skills |
| HO/OS/HG/BC/05/3/B | Demonstrate employability skills |
| HO/OS/HG/BC/06/3/B | Demonstrate environmental literacy |
| HO/OS/HG/BC/07/3/B | Demonstrate occupational safety and health practices |

**CORE COMPETENCIES**

|  |  |
| --- | --- |
| UNIT CODE | UNIT NAME |
| HO/OS/HG/CR/01/3/B | Store horticultural produce |
| HO/OS/HG/CR/02/3/B | Process horticultural herbs and spices |
| HO/OS/HG/CR/03/3/B | Process horticultural fruits |
| HO/OS/HG/CR/04/3/B | Process horticultural vegetables |
| HO/OS/HG/CR/05/3/B | Process horticultural flowers |
| HO/OS/HG/CR/06/3/B | Process horticultural nuts |

# BASIC COMPETENCIES

# DEMONSTRATE COMMUNICATION SKILLS

**UNIT CODE: HO/OS/HG/BC/01/3/A**

**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** These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Obtain and convey workplace information
 | 1. Specific and relevant information is accessed from ***appropriate sources*** based on standard procedures
2. Effective questioning, active listening and speaking skills are used to gather and convey information based on communication needs
3. Appropriate ***medium*** is used to transfer information and ideas in accordance with workplace guidelines
4. Appropriate non- verbal communication is used as per the communication needs
5. Appropriate lines of communicationwith supervisors and colleagues are identified and followed based on workplace requirements
6. Location and storage of information is undertaken according to workplace procedures
7. Personal interaction is carried out clearly and concisely according to workplace requirements
 |
| 1. Speak English at a basic operational level
 | * 1. Participation in simple conversations with work colleagues is undertaken based on familiar topics
	2. Simple verbal instructions and requests are responded to according to workplace guidelines
	3. ***Routine procedures*** are provided in accordance with workplace policy
	4. Likes, dislikes and preferences are expressed based on individual preference
	5. Different forms of expression in English are identified in line with workplace requirements
 |
| 1. Participate in workplace meetings and discussions
 | * 1. Team meetings are attended on time according to schedules
	2. Own opinions are clearly expressed and those of others are listened to in accordance with workplace guidelines
	3. Meeting inputs are provided based on the meeting purpose and established ***protocols***
	4. ***Workplace interactions*** are conducted as per organizations’ code of conduct
	5. Work-related questions are asked and responded based on set protocols
	6. Meetings outcomes are interpreted and implemented as per organizations’ objectives
 |
| 1. Complete relevant work-related documents
 | * 1. Range of forms relating to conditions of employment are completed according to workplace procedures
	2. Workplace data is recorded based on workplace requirements
	3. Errors in recording information are identified and acted upon in accordance with workplace policies
	4. Reporting requirements are completed according to organizational guidelines
 |

**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:
 | * Various department heads,
* organization documents
 |
| 1. Medium may include but not limited to:
 | * Method of communication
* Physical media
* Mechanical media
 |
| 1. Routine procedures may include but not limited to:
 | * Day to day activities
 |
| 1. Protocols may include but not limited to:
 | * Procedures for doing a task
 |
| 1. Workplace interactions may include but not limited to:
 | * 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
 | Assessment requires evidence that the candidate:1. Prepared written communication following standard format of the organization
2. Accessed information using communication equipment
3. Spoken English at a basic operational level
4. Made use of relevant terms as an aid to transfer information effectively
5. Conveyed information effectively adopting the formal or informal communication
 |
| 1. Resource Implications
 | The following resources should be provided: 1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
3. Materials relevant to the proposed activity or tasks
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Direct Observation
	2. Interview
	3. Written test
 |
| 1. Context of Assessment
 | Competency may be assessed: 1. On the job
2. Off the job
3. During industrial attachment
 |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE NUMERACY SKILLS

**UNIT CODE: HO/OS/HG/BC/02/3/A**

**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.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Use whole numbers for work
 | 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.
2. Understanding of place value and the role of zero is demonstrate according to standard operating procedures.
3. Halves are recognised and understood in workplace as per Standard operating procedures.
4. Whole numbers and money amounting up to 100,000 are organised in size order and are compared as per workplace procedures.
5. Counting is done in numbers as per standard operating procedures.
6. Addition and subtraction of whole numbers and money up to 100,000 done in accordance with workplace requirement
7. Links between operations of addition and subtraction are clearly described as per job requirement.
8. Reasonableness of outcome with prompting and support is checked as per work requirement.
9. Numerical information is recorded, and the result of the task is communicated using informal language and symbolism as per workplace procedures.
 |
| 1. Locate, compare and use highly familiar measurement for work
 | 1. Measurements in highly familiar workplace documents and tasks are located as per standard operating procedures
2. Different units of measurements and their uses are identified in accordance with job specifications
3. The comparative relationship between the units of measurement identified as per standard operating procedures.
4. Understanding of conversion of amounts is demonstrated in accordance with requirements.
5. Informal language is used to compare measurements as per workplace procedures.
6. Digital time is well read and am and pm used in reference to time
7. Calendar used appropriately to record information in accordance with organizational events.
8. Basic measurement information is well read and recorded as per the manuals
9. Additions and subtraction of simple quantities done in workplace as per SOPs.
 |
| 1. Use highly familiar maps and diagrams for work
 | 1. Familiar items or places are in highly familiar maps and diagrams in accordance with SOPs
2. Simple symbols and pictorial representations are identified in accordance with familiar maps and diagrams
3. Simple oral directions are given to locate objects as per SOPs
4. Simple oral directions followed to locate objects as per job specifications
5. Understanding of informal directional language is demonstrated as per work procedures.
 |
| 1. Identify and use some common 2D shapes for work
 | 1. ***Common two-dimensional* shapes** are identified and named as per SOPs
2. Common objects are described in terms of size and shape as per SOPs
3. Common, every day, informal language is used to compare objects in accordance SOPs
4. Common objects are grouped based on shape, size, colour and features as per job requirements
 |
| 1. Locate specific Information in highly familiar tables, graphs and charts for work
 | 1. Features of simple tables identified as per work place procedures
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
3. Numerical information and data in highly familiar tables compared using appropriate informal language as per workplace procedures.
4. Information related to relevant workplace tasks as per workplace procedures
5. Features of simple graphs and charts identified as per SOPs
6. Specific numerical information located in highly familiar graphs and charts as per workplace procedures.
7. Numerical information and data compared using appropriate informal language as per SOPs.
 |

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. Common two -dimensional shapes: may include but not limited to:
 | * + 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. Measured objects or materials as per job requirements
	2. Used calculator to perform the four fundamental operations
	3. Performed calculations involving money up to one hundred thousand
	4. Performed conversions between hours, minutes and seconds
	5. Calculated area and volume of regular shapes
	6. Created tables and graphs to represent and interpret information
 |
| 1. Resource Implications for competence assessment
 | The following resources should be provided: 1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
3. Materials relevant to the proposed activity or tasks
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Written Test
	2. Interview
	3. Oral Questioning
	4. Demonstration
 |
| 1. Context of Assessment
 | Competency may be assessed: 1. On the job
2. Off the job
3. During industrial attachment
 |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE DIGITAL LITERACY

**UNIT CODE: HO/OS/HG/BC/03/3/A**

**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** These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Identify computer software and hardware
 | * 1. ***Computer software*** are identified according to manufacturer’s specification
	2. ***Appropriate computer hardware*** is identified according to manufacturer’s specification
 |
| 1. Apply security measures to data, hardware, software
 | * 1. ***Data security and privacy are classified*** in accordance with the technological situation
	2. ***Security and control measures*** are applied in accordance with laws governing protection of ICT
	3. Computer threats and crimes are detected in accordance with information management guidelines.
	4. Protection against computer crimes is undertaken in accordance with laws governing protection of ICT
 |
| 1. Apply computer software in solving tasks
 | * 1. Basic ***word processing concepts*** are applied in resolving workplace tasks as per job requirement.
	2. ***Word processing utilities*** are applied in accordance with workplace procedures
	3. Data is manipulated on worksheet in accordance with office procedures
 |
| 1. Apply internet and email in communication at workplace
 | * 1. Electronic mail is applied in workplace communication in accordance with office procedures
	2. Office internet functions are defined and executed in accordance with office procedures
	3. ***Network configuration*** 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:
 | * Operating system
* MS office
* Web browser

Media players  |
| 1. Computer hardware may include but not limited to:
 | * Computer Case
* Monitor
* Keyboard
* Mouse
* Hard Disk Drive
* Motherboard
* Video Card
 |
| 1. Data security and privacy may include but not limited to:
 | * Confidentiality
* Cloud computing
* Confidentiality
* Cyber terrorism
* Integrity -but-curious data serving
 |
| 1. Security and control measures may include but not limited to:
 | * Countermeasures and risk reduction
* Cyber threat issues
* Risk management
 |
| 1. Word processing concepts may include but not limited to:
 | * 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. Identified input, output, CPU and storage media devices of computers in accordance to computer specification
	2. Identified concepts, types and functions of computer software according to operation manual
	3. Identified and controlled security threats
	4. Detected and protected computer crimes
	5. Applied word processing in office tasks
	6. Prepared work sheet and applied data to the cells in accordance to workplace procedures
	7. Used Electronic Mail for office communication as per workplace procedure
	8. Applied internet and World Wide Web for office tasks in accordance with office procedures
	9. Applied laws governing protection of ICT
 |
| 1. Resource Implications for competence assessment
 | The following resources should be provided: 1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
3. Materials relevant to the proposed activity or tasks
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Written Test
	2. Observation
	3. Practical assignment
	4. Interview
	5. Oral Questioning
 |
| 1. Context of Assessment
 | Competency may be assessed: 1. On the job
2. Off the job
3. During industrial attachment
 |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE ENTREPRENEURIAL SKILLS

**UNIT CODE : HO/OS/HG/BC/04/3/A**

**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**These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements.Bold and italicized terms are elaborated in the Range |
| 1. Develop entrepreneurial culture
 | 1. ***Entrepreneurship terminologies*** are defined following established procedures.
2. Contribution of entrepreneurship towards national development is identified in accordance to national development goals
3. Self-employment benefit are identified and emphasized to help create a positive attitude
4. Cultural factors that promote or inhibit entrepreneurial development areidentified and emphasis made on entrepreneurial promotion
5. Ways of managing factors that inhibit development of entrepreneurial culture are identified in accordance withcultural background and national social economic situation
 |
| 1. Identify entrepreneurial opportunities
 | 1. Myths associated with entrepreneurship, types of entrepreneurs and characteristics of entrepreneurship are determined in accordance with the set procedures
2. Identification of ***sources of business ideas,*** generation of business ideas is undertaken in accordance with the existing procedure
3. Evaluation of business opportunities is undertaken according to prevailing office procedures
4. Competencies are matched with business opportunities in accordance with business practices.
 |
| 1. Start a small business
 | Factors to consider when starting a small business are identified according to business sector. 1. ***Forms of business ownership*** are identified and procedure of starting a small business stipulated according to relevant legal requirements
2. Procedure of starting a small business is identified as per the legal requirements
3. Challenges faced when starting a small business are identified and mitigating factors provided for in accordance prevailing legal and regulatory requirement
4. Resource requirement for a small business are specified according to nature of business
5. Business life cycle is projected as per the nature of business and national social economic situation
 |
| 1. Operate a small business
 | 1. Relevant terms are defined in accordance with the set rules
2. Small business record is maintained in accordance with office procedures
3. Business support services are set up in accordance with the nature and size of business
4. Marketing activities are effected according to the nature and size of business
5. Small enterprise business plan is prepared depending on the size and nature of business and the client specification
6. Small business resources are run for efficiency and profitability
7. Small business records are kept for decision making purposes
8. Word processing concepts are applied in the management of small business according to office procedures
9. Basic computer application software and emerging trends and concerns are applied in small business management in accordance with office procedures
 |
| 1. Grow a small business
 | 1. Methods of growing/expanding a small business are identified and implemented in accordance with growth schedule
2. Resources for growing small business are identified and implementing
3. Small business growth plans are prepared according to growth schedule
4. ICT and small business growth schedule is prepared in accordance with office procedures
5. Use of computers and technology is incorporated in small scale business growth schedule in accordance with technological trends
6. Social media is used for business growth and profitability
7. Emerging issues and trends are considered in accordance with business growth schedule and activities
8. Community interest is built in product/service according to growth plan
9. Business communication is enhanced according to business communication planand profitability
10. Basic business growth strategies are identified and implemented for increased profitability
11. Word processing concepts are applied in growing of small business according to office procedures
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
 |

**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:
 | * Intrapreneurship
* Enterprise
* Business vision. Mission, core values, objectives
 |
| 1. Sources of business ideas may include but not limited to:
 |

|  |
| --- |
| * Brainstorming
* Personal hobbies
* Newspapers, magazines,
* Friends and relatives
* Accounting/Administrative work
* Modern trends and concerns
 |

 |
| 1. Forms of business ownership may include but not limited to:
 | * 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. Demonstrated basic entrepreneurial skills
2. Demonstrated ability to conceptualize and plan a micro/small enterprise
3. Demonstrated ability to manage/operate a micro/small-scale business
4. Demonstrated basic marketing skills
 |

 |
| 1. Resource Implications for assessment
 | The following resources should be provided: 1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
3. Materials relevant to the proposed activity or tasks
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through:

|  |  |
| --- | --- |
| 3.1 Written tests3.2 Oral Questioning 3.3 Observation3.4 Third Party Report |  |

 |
| 1. Context of Assessment
 |

|  |
| --- |
| Competency may be assessed:4.1 On the job4.2 Off the job4.3 During industrial attachment |
|  |

 |
| 1. 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: …./OS/…/BC/05/3/A**

**UNIT DESCRIPTON**

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**These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms are elaborated in the Range*** |
| 1. Conduct self-management
 | 1. Personal vision, mission and goals are formulated based on potential and in relation to organization objectives
2. Emotional intelligence is demonstrated as per workplace requirements.
3. Individual performance is evaluated ~~and monitored~~ according to the agreed targets.
4. Assertiveness is developed and maintained based on the requirements of the job.
5. Accountability and responsibility for own actions are demonstrated based on workplace instructions.
6. Self-esteem and a positive self-image are developed and maintained based on values.
7. Time management, attendance and punctuality are observed as per the organization policy.
8. Goals are managed as per the organization’s objectives
9. Self-strengths and weaknesses are identified based on personal objectives
 |
| 1. Demonstrate critical safe work habits
 | 1. Stress is managed in accordance with workplace policy.
2. Punctuality and time consciousness is demonstrated in line with workplace policy.
3. Personal objectives are integrated with organization goals based on organization’s strategic plan.
4. ***Resources*** are utilized in accordance with workplace policy.
5. Work priorities are set in accordance to workplace goals and objectives.
6. Leisure time is recognized and utilized in line with personal objectives.
7. ***Drugs and substances of abuse*** are identified and avoided based on workplace policy.
8. HIV and AIDS prevention awareness is demonstrated in line with workplace policy.
9. Safety consciousness is demonstrated in the workplace based on organization safety policy.
10. ***Emerging issues*** are identified and dealt with in accordance with organization policy.
 |
| 1. Demonstrate workplace learning
 | * 1. Learning opportunities are sought and managed based on job requirement and organization policy.
	2. Improvement in performance is demonstrated based on courses attended.
	3. Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job
	4. Time and effort is invested in learning new skills based on job requirements
	5. Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy.
	6. New systems are developed and maintained in accordance with the requirements of the job.
	7. Awareness of personal role in workplace ***innovation*** is demonstrated based on requirements of the job.
 |
| 1. Demonstrate workplace ethics
 | 1. Policies and guidelines are observed as per the workplace requirements
2. Self-worth and professionalism is exercised in line with personal goals and organizational policies
3. Code of conduct is observed as per the workplace requirements
4. Integrity is demonstrated as per legal requirement
 |

**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* Alcohol
* Tobacco
* Miraa
* Over-the-counter drugs
* Cocaine
* Bhang
* Glue
 |
| 1. Feedback may include but not limited to:
 | * Verbal
* Written
* Informal
* Formal
 |
| 1. Team may include but not limited to:
 | * Small work group
* Staff in a section/department
* Inter-agency group
 |
| 1. Innovation may include but not limited to:
 | * New ideas
* Original ideas
* Different ideas
* Methods/procedures
* Processes
* New tools
 |
| 1. Emerging issues may include but not limited to:
 | * 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. Conducted self-management
	2. Demonstrated critical safe work habits
	3. Demonstrated workplace learning
	4. Demonstrated workplace ethics
 |
| 1. Resource Implications
 | The following resources should be provided: 1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through: 1. Oral questioning
2. Portfolio of evidence
3. Third Party Reports
4. Written tests
 |
| 1. Context of Assessment
 | Competency may be assessed: 1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 1. 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/HG/BC/06/3/A**

**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**These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Control environmental hazard
 | 1. Storage and handling methods for environmentally hazardous materials are strictly followed according to environmental regulations and OSHS.
2. Disposal methods of hazardous wastes are followed at all times according to environmental regulations and OSHS.
3. ***PPE*** is used according to OSHS.
 |
| 1. Control environmental Pollution
 | * 1. ***Environmental pollution******control measures*** are complied with following standard protocol.
	2. Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999
	3. Methods for minimizing noise pollution complied following environmental regulations.
 |
| 1. Demonstrate sustainable use of resource
 | * 1. Methods for minimizing wastage are complied with.
	2. ***Waste management procedures*** are employed following principles of 3Rs (Reduce, Reuse, Recycle)
	3. Methods for economizing or reducing ***resource*** 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:
 | * + Mask
	+ Gloves
	+ Goggles
	+ Safety hat
	+ Overall
	+ Hearing protector
 |
| 1. Environmental pollution control measures may include but not limited to:
 | * 1. Methods for minimizing or stopping spread and ingestion of airborne particles
	2. Methods for minimizing or stopping spread and ingestion of gases and fumes
	3. Methods for minimizing or stopping spread and ingestion of liquid wastes
 |
| 1. Waste management procedures may include but not limited to:
 | 1. Sorting
2. Storing of items
3. Recycling of items
4. Disposal of items
 |
| 1. Resources may include but not limited to:
 | * 1. Electric
	2. Water
	3. Fuel
	4. Telecommunications
	5. Supplies
1. Materials
 |
| 1. Workplace environmental hazards may include but not limited to:
 | 1. Biological hazards
2. Chemical and dust hazards
3. 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 |
| 1. Resource Implications for assessment
 | The following resources should be provided:* 1. Workplace with storage facilities
	2. Tools, materials and equipment relevant to the tasks (ex. Cleaning tools, cleaning materials, trash bags, etc.)
	3. PPE
	4. Manuals and references
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through:3.1 Observation3.2 Oral questioning3.3 Written examination |
| 1. Context of Assessment
 | Competency may be assessed 1. On the job
2. Off the job
3. During industrial attachment
 |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES

**UNIT CODE: …./OS/…./BC/07/3/A**

**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**These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Prepare to practice safety and health at work
 | 1.1 Awareness of legislation that outlines the minimum standards for occupational safety and health requirements/ regulations are emphasized1.2 Benefits of implementing an occupational safety and health program are identified1.3 ***Safety requirements/ regulations*** of own work and of other workers are familiarized1.4 Workplace standards and procedures ***for incidents and Emergencies*** are determined1.5 ***Prevention and control measures***, including use of ***safety gears/PPE*** (Personal Protective Equipment) to avoid accident, injuries and sickness are identified |
| 1. Comply and promote compliance of workers to organization’s occupational safety and health instructions and requirements
 | 2.1 Safety instructions and safety signs are followed and disseminated to co-workers2.2 Safe handling of tools, equipment and materials is learned and shared with co-workers2.3 Execution of own work and of co-workers is monitored in according to safe work procedures 2.4 Use of safe guards and safety devices is monitored2.5 Hazards, incidents, injuries and sickness in the workplace are reported properly following standards and 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. ***Safety requirements / regulations*** may include but are not limited to:
 | * Building code
* Permit to Operate
* Occupational Safety and Health Standards
 |
| 1. ***Incidents and emergencies*** may include but are not limited to:
 | * Chemical spills
* Equipment/vehicle accidents
* Explosion
* Fire
* Gas leak
* Injury to personnel
* Structural collapse
* Toxic and/or flammable vapors emission.
 |
| 1. ***Prevention and control measures*** may include but are not limited to:
 | * 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
 |
| 1. ***Safety devices/ PPEs*** (personal protective equipment) May include but are not limited to:
 | * 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
 |

**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
 | Assessment requires evidence that the candidate:1. Arranged work area and items in accordance with workplace procedures requirements
2. Followed work standards and procedures based on instructions
3. Applied ***Prevention and control measures*** based on instructions
4. Undertook orientations on ***OSH requirements and regulations*** in line with policy.
5. Provided feedback on occupational health and safety as per workplace instructions.
6. Adhered to workplace procedures for reporting hazards, incidents, injuries and sickness to as per workplace policy.
7. Identified and proposed ***OSH-related training needs*** as per workplace policy.
 |
| 1. Resource Implications for assessment
 | The following resources should be provided:1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through: 1. Oral questioning
2. Portfolio of evidence
3. Third Party Reports
4. Written tests
 |
| 1. Context of Assessment
 | Competency may be assessed: 1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CORE COMPETENCIES

# STORE HORTICULTURAL PRODUCE

**UNIT CODE:** HO/OS/HG/CR/01/3/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to store horticultural produce. It involves applying food safety measures in setting up of the working surface, sorting, cleaning, packing horticultural produce as well as disposing off storage waste.

**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.***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures in storing horticultural produce
 | * 1. Possible ***sources of food safety hazards*** *are* identified and documented as per instruction
	2. ***Food safety procedures*** are followed in storing horticultural produce
	3. Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks
 |
| 1. Prepare to store horticultural produce
 | 1. Safety procedures were followed according to workplace procedures
2. Working surface for handling the produce is set up in accordance with workplace procedures
3. ***Tools, materials &supplies and equipment*** required for storing horticultural produce are assembled based on the produce type, quantity and the instructions given
4. ***Horticultural produce*** is sorted, cleaned and graded based on the produce quality.
 |
| 3. Complete horticultural produce storage | 3.1. Degradable horticultural waste is disposed as instructed.3.2 Non degradable horticultural waste is disposed as instructed. |

**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. **Sources of food safety hazards** include but not limited to**:**
 | * Water
* Chemical
* Site location
* Storage
* Storage facility
* Air
* Packaging material
* Personnel
 |
| 1. **Food safety procedures** include but not limited to:
 | * Hand washing
* PPE (personal protective equipment)
* Personal hygiene
* Clean as you go-
* Cleaning in progress
* Process flow
* Pest control
* Cleaning and sanitization
* Record keeping
* Packaging
 |
| 1. ***Horticultural produce*** includes but not limited to:
 | * Indigenous and exotic leafy vegetables,
* Cut flowers,
* Root vegetables
* Fruits,
* Nuts,
* Herbs and spices
 |
| 1. ***Tools*** includes but not limited to:
 | * Knives
* Buckets
* Bowls
* Wheel barrows
 |
| 1. ***Materials and supplies*** includes but not limited to:
 | * Water
* Pallets
* Horticultural produce
* Power
* Poly bags
* Labels
 |
| 1. ***Equipment*** includes but not limited to:
 | * Weighing scale
* Trolleys
* Crates
* First aid kit
* Trays
 |
| 1. ***Storage facilities*** includes but not limited to:
 | * Stores
* Shades
* cold rooms
* Warehouse
 |

**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 Listening
* Basic digital literacy
* Horticultural produce handling
* Horticultural products handling
* Interpersonal
* Observation
* Numeracy

**Required knowledge**

The individual needs to demonstrate knowledge of:

* First aid
* Hygiene
* Types of storage tools, materials and equipment and their uses
* Packaging
* Food safety
* Environmental protection
* Waste handling
* Operation of storage tools and equipment
* Basic horticulture processing operations
* Occupational safety
* Basic digital literacy
* Reporting channels
* Basic food hygiene practices
* Record keeping

**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. Adhered to safety precautions and environmental protection as per the instructions and workplace procedures
	2. Observed safety through use of personal protective equipment and proper handling of tools, materials and equipment as per the instructions
	3. Set up the working surface according to the instructions given
	4. Sorted and cleaned the horticultural produce according to the instruction
	5. Packed and stored horticultural produce
	6. Disposed of the wastes as per the instructions and workplace place procedures
	7. Observed food safety procedures as per instruction
	8. Documented food safety records as per instructions
 |
| 1. Resource Implications
 | The following resources must be provided:* 1. Assessment location
	2. Tools, materials and equipment.
	3. Supervisor’s instructions
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Observation
	2. Written tests
	3. Oral questioning
 |
| 1. Context of Assessment
 | Competency may be assessed:* 1. On the job
	2. Off the job
	3. In work placement (attachment)

Off the job assessment must be undertaken in a closely simulated workplace environment |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed alongside this unit of competency |

# PROCESS HORTICULTURAL FRUITS

**UNIT CODE:** HO/OS/HG/BC/02/3/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to process horticultural fruits. It involves applying food safety measures in setting up of the working surface, making various fruit products, packaging of processed products and disposing wastes.

**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.***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures in processing of horticultural fruit
 | * 1. Possible ***sources of food safety hazards*** *are* identified and documented as per instruction
	2. ***Food safety procedures*** are followed in processing horticultural fruits as instructed
	3. Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks
 |
| 1. Prepare to process horticultural fruits
 | * 1. Safety procedures were followed according to workplace procedures
	2. Working surface for handling the produce is set up in accordance with workplace procedures
	3. ***Tools, materials &supplies and equipment*** required for processing horticultural fruits are assembled based on the produce type, quantity and instructions provided
 |
| 3. Process the horticultural fruits | 3.1Horticultural fruits are processed to various ***Fruit products*** as per the instructions given3.2Fruit products are packaged based on instructions |
| 4. Complete horticultural fruit processing | 4.1 Horticultural processing unit waste is disposed according to the 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. **Sources of food safety hazards** include but not limited to**:**
 | * Water
* Chemical
* Site location
* Storage
* Storage facility
* Air
* Packaging material
* Personnel
 |
| 1. **Food safety procedures** include but not limited to:
 | * Hand washing
* PPE (personal protective equipment)
* Personal hygiene
* Clean as you go
* Cleaning in progress
* Process flow
* Pest control
* Cleaning and sanitization
* Record keeping
* Packaging
 |
| 1. ***Fruit products*** includes but not limited to:
 | All processed horticultural fruits products e.g. * Fruit powders
* Jellies
* Jams
* Fruit puree
* Fruit sauces
* Slices and cubes
* Fruit wines
* Pastes
* Marmalades
* Juices
* Dried fruits
 |
| 1. **Tools** includes but not limited to:
 | * Knives
* Buckets
* Sieves/ strains
* Spoons
* Sauce pans
* Bowls
* Measuring jars
* Cups
* Plates
* Basins
 |
| 1. ***Materials and supplies*** includes but not limited to:
 | * Packaging materials
* Power
* Raw materials
* Preservatives
* Labels
* Wax
* Water
* Seals
* Stationeries
* Packing tapes
 |
| 1. ***Equipment*** includes but not limited to:
 | * Weighing scales
* Sealers
* Strapping machine
* Trolleys
* Boilers
* Working benches
* Crates
* Trays
* Firefighting equipment
* First aid kits
* Metal detectors
* Blenders
* Juice extractors
 |

**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
* Listening
* Basic digital literacy
* Observation
* Interpersonal
* Horticultural produce handling
* Horticultural fruit products handling

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Basic food hygiene practices
* Record keeping Personal safety
* Hygiene
* Horticultural processing operations
* Types of processing tools, materials and equipment
* Occupational safety,
* Food safety
* Waste handling
* Packaging fruit products
* Reporting channels

**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. Observed safety through use of personal protective equipment and proper handing of tools and equipment and working environment
	2. Participated in processing and packaging the fruit products as per the instructions
	3. Observed hygiene through maintaining cleanliness of the tools, equipment and working surfaces
	4. Efficiently used materials provided for processing according to instructions.
	5. Observed food safety procedures as per instruction
	6. Documented food safety records as per instructions
 |
| 1. Resource Implications
 | The following resources must be provided:* 1. Assessment location
	2. Tools, materials and equipment used in processing horticultural fruits
	3. Supervisor’s instructions
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Observation
	2. Written tests
	3. Oral questioning
 |
| 1. Context of Assessment
 | Competency may be assessed:* 1. On the job
	2. Off the job
	3. In work placement (attachment,)

Off the job assessment must be undertaken in a closely simulated workplace environment |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed alongside fruit processing |

# PROCESS HORTICULTURAL VEGETABLES

**UNIT CODE:** HO/OS/HG/BC/03/3/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to process horticultural vegetables. It involves applying food safety measures in setting up the working surface, making various vegetable products, packaging the processed fruits and disposing wastes.

**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.***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures in processing horticultural vegetables
 | * 1. Possible ***sources of food safety hazards*** *are* identified and documented as per instruction
	2. ***Food safety procedures*** are followed in processing horticultural vegetables
	3. Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks
 |
| 1. Prepare to process horticultural vegetables
 | * 1. Safety procedures were followed according to workplace procedures
	2. Working surface for handling the produce is set up in accordance with workplace procedures
	3. ***Tools, materials &supplies and equipment*** required for processing horticultural vegetables are assembled based on the produce type, quantity and instructions given
	4. Horticultural vegetables are sorted and cleaned based on type of vegetables and instructions given
 |
| 3. Process the horticultural vegetables | * 1. Horticultural vegetables are processed to various products based on the instructions given
	2. ***Processed Vegetables products*** are packaged based on instructions given
 |
| 4. Complete horticultural vegetable processing | 4.1 Horticultural vegetable processing waste is disposed off as per the 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. **Sources of food safety hazards** include but not limited to**:**
 | * Water
* Chemical
* Site location
* Storage
* Storage facility
* Air
* Packaging material
* Personnel
* Processing tools and equipment
 |
| 1. **Food safety procedures** include but not limited to:
 | * Hand washing
* PPE (personal protective equipment)
* Personal hygiene
* Clean as you go
* Cleaning in progress
* Process flow
* Pest control
* Cleaning and sanitization
* Record keeping
* Packaging
 |
| 1. ***Horticultural vegetables*** includes but not limited to:
 | All cultivated vegetables, that is:* Leafy vegetables
* Fruits
* Green beans
* Floral
* roots
 |
| 1. ***Tools*** includes but not limited to:
 | * Knives
* Buckets
* Spoons
* Sauce pans
* Bowls
* Plates
* Basins
 |
| 1. ***Materials and supplies*** includes but not limited to:
 | * Packaging materials
* Power
* Vegetables for processing
* Preservatives
* Labels
* Stationeries
* Water
* Seals
 |
| 1. Equipment includes but not limited to:
 | * Weighing scales
* Sealers
* Strapping machine
* Trolleys
* Boilers
* Thermometers
* Working benches
* Crates
* Trays
* Packaging equipment
* Fire-fighting equipment
* First aid kits
* Metal detectors
* pH meters
* Refractometers
* Blenders
* Juice extractors
 |
| 1. ***Processed Vegetable products*** includes but not limited to:
 | All processed horticultural fruits products e.g.* Leafy vegetable powders
* Root slices
* Vegetable juices
* Crystals
* Root vegetable flour
 |

**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
* Listening
* Basic digital
* Horticultural produce handling
* Horticultural products handling
* Interpersonal
* Observation
* Numeracy
*

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Basic food hygiene practices
* Record keeping
* First aid
* Hygiene
* Types of storage tools, materials and equipment and their uses.
* Packaging
* Food safety
* Environmental management
* Waste handling
* Operation of storage tools and equipment
* Basic horticulture processing operations
* Occupational safety
* Basic digital literacy
* Reporting channels

**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. Set up the working surface as per the instructions given
	2. Observed safety through use of personal protective equipment when handling tools and equipment as well as in working environment according to the instructions given.
	3. Processed and packaged the vegetable products as per the instructions given
	4. Observed hygiene through maintaining cleanliness of the tools, equipment and working surfaces.
	5. Efficiently used materials provided for processing.
	6. Observed the environmental protection measures laid in the work place procedures
	7. Observed food safety procedures as per instructions
	8. Documented food safety records as per instructions
 |
| 1. Resource Implications
 | The following resources must be provided:* 1. Assessment location
	2. Tools, materials and equipment used in processing horticultural fruits.
	3. Supervisors instructions
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Observation
	2. Written tests
	3. Oral questioning
 |
| 1. Context of Assessment
 | Competency may be assessed:* 1. On the job
	2. Off the job
	3. In work placement (attachment,)

Off the job assessment must be undertaken in a closely simulated workplace environment |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed alongside horticultural vegetable processing. |

# PROCESS HORTICULTURAL FLOWERS

**UNIT CODE:** HO/OS/HG/BC/04/3/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to process horticultural flowers. It involves setting up working surface, pre cooling flowers, sorting, preparing the various horticultural flower products and disposing the wastes.

**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.***Bold and italicized terms are elaborated in the range.*** |
| 1. Prepare to process horticultural flowers.
 | * 1. Safety procedures were followed according to workplace procedures
	2. Working surface for handling the produce is set up in accordance with workplace procedures
	3. ***Tools, materials &supplies and equipment*** required for processing horticultural flowers are assembled based on the produce type, quantity and according to instructions given
	4. Horticultural flowers are sorted based on the instructions given.
 |
| 2. Process horticultural flowers | * 1. ***Horticultural flowers products*** are preserved based on instructions given
	2. Horticultural flower products are packaged based on instructions given.
 |
| 3. Complete horticultural flower processing. | 3.1. Horticultural flower processing waste is disposed off as per the 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. ***Horticultural flowers*** includes but not limited to:
 | All cultivated cut flowers  |
| 1. Tools includes but not limited to:
 | * Knives
* Buckets
* Secateurs
 |
| 1. ***Materials and supplies*** includes but not limited to:
 | * Packaging materials
* Power
* Flowers for processing
* Preservatives
* Labels
* Stationeries
* Water
* Straps
* Hangers
* Litter bins
 |
| 1. ***Equipment*** includes but not limited to:
 | * Strapping machine
* Trolleys
* Thermometers
* Working benches
* Trays
* Packaging equipment
* Fire-fighting equipment
* First aid kits
* Driers
 |
| 1. ***Horticultural flowers products*** *includes but n*ot limited to:
 | All processed horticultural flower products e.g.* Bouquet
* Dried flowers
 |

**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:

* Listening
* Basic digital
* Horticultural produce handling
* Horticultural products handling
* Interpersonal
* Observation
* Numeracy

**Required knowledge**

The individual needs to demonstrate knowledge of:

* First aid
* Hygiene
* Types of storage tools, materials and equipment and their uses.
* Packaging
* Environmental management
* Waste handling
* Operation of storage tools and equipment
* Basic horticulture processing operations
* Occupational safety
* Basic digital literacy
* Reporting channels

**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. Set up the working surface according to the instructions given
	2. Observed safety through use of personal protective equipment when handling tools and equipment as well as in working environment according to instructions given.
	3. Efficiently used materials provided for processing.
	4. Observed the environmental protection measures laid in the work place procedures
	5. Flower products are prepared according to the instructions given.
 |
| 1. Resource Implications
 | The following resources must be provided:* 1. Assessment location
	2. Tools, materials and equipment used in processing horticultural flowers
	3. Supervisors instructions
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Observation
	2. Written tests
	3. Oral questioning
 |
| 1. Context of Assessment
 | Competency may be assessed:* 1. On the job
	2. Off the job
	3. In work placement (attachment,)

Off the job assessment must be undertaken in a closely simulated workplace environment |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed alongside flower processing. |

# PROCESS HORTICULTURAL NUTS

**UNIT CODE:** HO/OS/HG/BC/05/3/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to process horticultural nuts. It involves applying food safety measures in setting up horticultural nut processing working surface, sorting, processing and packaging as well as disposing wastes.

**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.***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures in processing horticultural nuts
 | 1. Possible ***sources of food safety hazards*** *are* identified and documented as per instruction
2. ***Food safety procedures*** are followed in processing horticultural nuts
3. Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks
 |
| 1. Prepare to process horticultural nuts.
 | * 1. Safety procedures were followed according to workplace procedures
	2. Working surface for handling the produce is set up in accordance with workplace procedures
	3. ***Tools, materials &supplies and equipment*** required for processing horticultural nuts are assembled based on the produce type, quantity and as per the instructions.
	4. Food safety is observed according to the workplace procedures
 |
| 3. Process the horticultural nuts | * 1. Horticultural nuts are processed into various ***horticultural nut products*** based on the instructions given and nut type
 |
| 4. Complete horticultural nut processing. | * 1. Packaged horticultural nut product is packed based on the instructions given.
	2. Horticultural nut processing waste is disposed as per the 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. **Sources of food safety hazards** include but not limited to**:**
 | * Water
* Chemical
* Mycotoxins (Aflatoxin)
* Site location
* Storage
* Storage facility
* Air
* Packaging material
* Personnel
 |
| 1. **Food safety procedures** include but not limited to:
 | * Hand washing
* PPE (personal protective equipment)
* Personal hygiene
* Clean as you go
* Cleaning in progress
* Process flow
* Pest control
* Cleaning and sanitization
* Record keeping
* Packaging
 |
| 1. ***Horticultural nut*** includes but not limited to:
 | * Ground nut
* Macadamia
* Cashew
 |
| 1. ***Tools*** includes but not limited to:
 | * Knives
* Buckets
* Spoons
* Sauce pans
* Drying mats
* Bowls
* Plates
* Basins
 |
| 1. ***Materials and supplies*** includes but not limited to:
 | * Packaging materials
* Power
* Heat
* Nuts for processing
* Preservatives
* Labels
* Stationeries
* Water
* Litter bins
* Poly bags
* Salt
 |
| 1. ***Equipment*** includes but not limited to:
 | * Strapping machine
* Trolleys
* Thermometers
* Working benches
* Trays
* Packaging equipment
* Firefighting equipment
* First aid kits
* Driers
* Milling machine
 |
| 1. ***Horticultural nut products*** *includes but n*ot limited to:
 | All processed horticultural nut products e.g.* Fried
* Baked
* Powder
* Nut pastes
* Seasoned nuts
* Nut oil
* Roasted
 |

**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
* Listening
* Basic digital
* Horticultural produce handling
* Horticultural products handling
* Interpersonal
* Observation
* Numeracy

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Basic food hygiene practices
* Record keeping
* First aid
* Hygiene
* Types of storage tools, materials and equipment and their uses.
* Packaging
* Food safety
* Environmental management
* Waste handling
* Operation of storage tools and equipment
* Basic horticulture processing operations
* Occupational safety
* Basic digital literacy
* Reporting channels

**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. Set up the working surface based on the nut type and the instructions given
	2. Observed safety through use of personal protective equipment and proper handling of tools and equipment and working environment
	3. Processed and packaged the horticultural nuts as per the instructions given and nut type.
	4. Observed hygiene through maintaining cleanliness of the tools, equipment and working surface.
	5. Observed the environmental protection measures laid in the work place procedures.
	6. Efficiently used materials provided for processing.
	7. Observed food safety procedures as per instruction
	8. Documented food safety records as per instructions
 |
| 1. Resource Implications
 | The following resources must be provided:* 1. Assessment location
	2. Tools, materials and equipment used in processing horticultural nuts.
	3. Supervisor’s instructions.
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Observation
	2. Written tests
	3. Oral questioning
 |
| 1. Context of Assessment
 | Competency may be assessed:* 1. On the job
	2. Off the job
	3. In work placement (attachment,)

Off the job assessment must be undertaken in a closely simulated workplace environment |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed alongside Horticultural nut processing |

# PROCESS HORTICULTURAL HERBS AND SPICES

**UNIT CODE:** HO/OS/HG/BC/06/3/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to process horticultural herbs and spices. It involves applying food safety measures in setting up horticultural herbs and spices processing working surface, sorting and processing the herbs and spices to various products, storage of horticultural herbs and spices and disposing wastes.

**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.***Bold and italicized terms are elaborated in the range.*** |
| 1. Implement food safety measures in processing horticultural herbs and spices
 | * 1. Possible ***sources of food safety hazards*** *are* identified and documented as per instruction
	2. ***Food safety procedures*** are followed in processing of horticultural herbs and spices
	3. Standard operating procedures for preventing and mitigating food safety risks are implemented as per the identified food safety risks
 |
| 1. Prepare to process horticultural herbs and spices.
 | * 1. Safety procedures were followed according to workplace procedures
	2. Working surface for handling the produce is set up in accordance with workplace procedures
	3. ***Tools, materials &supplies and equipment*** required for processing horticultural herbs and spices are assembled based on the produce type, quantity and stores management policy
 |
| 3. Process the horticultural herbs and spices | * 1. Horticultural spices are processed into various ***horticultural spices products*** based on the instructions given
	2. Horticultural herbs are processed into various ***horticultural herb products*** based on the instructions given
 |
| 4. Complete horticultural herbs and spices processing | 1. Packaged and stored horticultural herbs and spices product based on the instructions given
2. Disposed of horticultural herbs and spices processing waste as per the 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. **Sources of food safety hazards** include but not limited to**:**
 | * Water
* Chemical
* Site location
* Storage
* Storage facility
* Air
* Packaging material
* Personnel
 |
| 1. **Food safety procedures** include but not limited to:
 | * Hand washing
* PPE (personal protective equipment)
* Personal hygiene
* Clean as you go
* Cleaning in progress
* Process flow
* Pest control
* Cleaning and sanitization
* Record keeping
* Packaging
 |
| 1. ***Horticultural herbs and spices*** includes but not limited to:
 | * Onions
* Sage
* Rosemary
* Thymes
* Aloe Vera
* Ginger
* Cinnamon
* Coriander
* Parsley
* Ginger
* Dill
* Chives
* Mint
* Garlic
 |
| 1. ***Horticultural* spices products** includes but not limited to:
 | All processed horticultural spices products:* Powders
* Condiments
 |
| 1. ***Tools*** includes but not limited to:
 | * Knives
* Buckets
* Spoons
* Sauce pans
* Bowls
* Plates
* Mortars and pestles
* Basins
 |
| 1. ***Materials & supplies*** includes but not limited to:
 | * Packaging materials
* Power source
* Herbs and spices for processing
* Preservatives
* Labels
* Driers
* Salts
* Heat source
* Stationeries
* Water source
* Seals
 |
| 1. ***Equipment*** includes but not limited to:
 | * Weighing scales
* Sealers
* Strapping machine
* Trolleys
* Boilers
* Thermometers
* Working benches
* Crates
* Trays
* Packaging equipment
* Fire-fighting equipment
* First aid kits
 |
| 1. ***Horticultural herbs products*** includes but not limited to:
 | All processed horticultural herbs products e.g.* Soaps
* Pesticides
* Repellants
 |

**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
* Listening
* Basic digital
* Horticultural produce handling
* Horticultural products handling
* Interpersonal
* Observation
* Numeracy

**Required knowledge**

The individual needs to demonstrate knowledge of:

* First aid
* Hygiene
* Types of storage tools, materials and equipment and their uses.
* Packaging
* Food safety
* Environmental management
* Waste handling
* Operation of storage tools and equipment
* Basic horticulture processing operations
* Occupational safety
* Basic digital literacy
* Reporting channels
* Basic food hygiene practices
* Record keeping

**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. Set up the horticulture herbs and spices working surface as per the instructions given
	2. Observed safety through use of personal protective equipment when handling tools and equipment as well as in working environment according instruction given
	3. Processed and packed the horticultural herbs and spices as per the instructions given
	4. Observed hygiene through maintaining cleanliness of the tools, equipment and working surfaces
	5. Observed the environmental protection measures while disposing off the wastes based on the work place procedures.
	6. Efficiently used materials provided for processing
	7. Observed food safety procedures as per instruction
	8. Documented food safety records as per instructions
 |
| 1. Resource Implications
 | The following resources must be provided:* 1. Assessment location
	2. Tools, materials and equipment used in processing horticultural herbs and spices.
	3. Supervisor’s instructions
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Observation
	2. Written tests
	3. Oral questioning
 |
| 1. Context of Assessment
 | Competency may be assessed:* 1. On the job
	2. Off the job
	3. In work placement (attachment,)

Off the job assessment must be undertaken in a closely simulated workplace environment |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed alongside herbs and spices processing. |