

PRODUCE HERBS AND SPICES IN PROTECTED ENVIRONMENT

ISCED UNIT CODE: 0812 251 12A

TVETCDACC UNIT CODE: HO/OS/HP/CR/04/3/MA

UNIT DESCRIPTION

This unit specifies the competencies required to produce herbs and spices in protected environment. It involves setting up protected environment, growing herbs and spices in protected environment, harvesting herbs and spices, undertaking post harvesting activities and undertaking marketing activities.

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. Set up Protected Environment	<p>1.1 Market survey is undertaken as per herbs and spices crop type demand</p> <p>1.2 Herbs and Spices seeds are selected for propagation as per market demand</p> <p>1.3 Work safety measures are observed as per the work requirements</p> <p>1.4 Tools and equipment are assembled as per work requirements</p> <p>1.5 Suitable production structure is prepared and managed as per work instructions</p> <p>1.6 Crop nursery is prepared as per herbs and spices type</p> <p>1.7 Propagation media is prepared based on work instructions</p> <p>1.8 Nursery trays are Selected and treated as per work instructions</p> <p>1.9 Water for irrigation is applied as per water analysis report</p> <p>1.10 Crop nursery management practices are carried out as per herbs and spices crop type</p>

	<p>1.11 Tools and equipment are maintained as per type</p> <p>1.12 Farm activities costs is documented and shared as per task requirements</p> <p>1.13 Waste is disposed in accordance with EMCA 2015 requirements</p> <p>1.14 Emerging trends are applied in Nursery preparation as per current technological development</p>
2. Grow Herbs and Spices in protected environment	<p>2.1 Work safety measures are observed as per the work requirements</p> <p>2.2 Tools, equipment and materials are assembled as per work requirements</p> <p>2.3 Plant parts identified as per crop type</p> <p>2.4 <i>Physiological processes</i> are described as per plant part</p> <p>2.5 Mapal troughs are watered as per crop water requirements</p> <p>2.6 Herbs and Spices seedlings are transplanted as per agronomics requirements</p> <p>2.7 Mulching of the Herbs and Spices is carried out as per agronomic requirements.</p> <p>2.8 Herbs and Spices are watered as per crop requirement.</p> <p>2.9 Herbs and Spices are gaped and thinned based as per agronomic requirements</p> <p>2.10 Herbs and Spices are trained, trellised and pruned as per crop type</p> <p>2.11 Pests and diseases are identified as per crop type</p> <p>2.12 Crop protection measures are applied as per pests and diseases</p> <p>2.13 Crop nutrition measures are undertaken as per crop requirement.</p> <p>2.14 Tools and equipment are maintained as per type</p> <p>2.15 Farm activities costs is documented as per task requirements</p> <p>2.16 Waste is disposed in accordance with EMCA requirements</p> <p>2.17 Emerging trends are applied in growing Herbs and Spices as per current technological development</p>

3. Harvest Herbs and Spices	<p>3.1 Work safety measures are observed as per the work requirements.</p> <p>3.2 Tools, equipment and materials are assembled as per work requirements</p> <p>3.3 <i>Maturity indices</i> are observed as per Herbs and Spices crop type.</p> <p>3.4 <i>Picking</i> of the crop is carried out as per the Herbs and Spices type</p> <p>3.5 Produce is transported to the pack house as per the Herbs and Spices type requirements</p> <p>3.6 Tools and equipment are maintained as per type</p> <p>3.7 Farm activities costs is documented as per task requirements</p> <p>3.8 Waste is disposed in accordance with EMCA 2015 requirements</p> <p>3.9 Emerging trends are applied in harvesting Herbs and Spices as per current technological development</p>
4. Undertake Post Harvest Activities	<p>4.1 Work safety measures are observed as per the work requirements.</p> <p>4.2 Tools, equipment and materials are assembled as per work requirements</p> <p>4.3 Harvested Herbs and Spices are received at the packhouse as per Herbs and Spices type</p> <p>4.4 Herbs and Spices are sorted as per Herbs and Spices type</p> <p>4.5 Produce is cleaned as per the Herbs and Spices crop requirements</p> <p>4.6 Herbs and Spices are graded as per market requirements</p> <p>4.7 Herbs and Spices are packaged as per market requirements</p> <p>4.8 Produce is Stored as per Herbs and Spices crop type</p> <p>4.9 Tools and equipment are maintained as per type</p> <p>4.10 Farm activities costs is documented as per task requirements</p>

	<p>4.11 Waste is disposed in accordance with EMCA 2015 requirements</p> <p>4.12 Emerging trends are applied in post-harvest activities as per current technological development</p>
5. Undertake Value Addition Processes	<p>5.1 Work safety measures are observed as per the work requirements</p> <p>5.2 Tools, equipment and materials are assembled as per work requirements</p> <p>5.3 Herbs and Spices are sorted and graded as per market product type</p> <p>5.4 Herbs and Spices are cleaned as per crop type</p> <p>5.5 Basic processing is undertaken as per market product type</p> <p>5.6 Tools and equipment are maintained as per type</p> <p>5.7 Farm activities costs is documented as per task requirements</p> <p>5.8 Waste is disposed in accordance with EMCA 2015 requirements</p> <p>5.9 Emerging trends in value addition as per current technological development</p>
6. Undertake Marketing Activities	<p>6.1 Crop price is compared based on different markets</p> <p>6.2 Produce price range and market is decided based on the market demand</p> <p>6.3 Basic value addition is undertaken as per the market demand</p> <p>6.4 Farm activities costs is documented as per task requirements</p> <p>6.5 Waste is disposed in accordance with EMCA 2015 requirements</p> <p>6.6 Emerging trends are applied in undertaking marketing activities as per current technological development</p>

RANGE

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

Variable	Range
1. Herbs and spices crops include but not limited to:	<ul style="list-style-type: none"> ● Coriander ● Rosemary ● Mint ● Basil ● Ginger ● Turmeric ● Chives ● Lemon grass
2. Propagation structure may include but not limited to:	<ul style="list-style-type: none"> ● Green houses ● Shed nets
3. Work safety measures include but not limited to:	<ul style="list-style-type: none"> ● PPEs ● Warning signage ● Tools and equipment safety
4. Propagation media may include but not limited to:	<ul style="list-style-type: none"> ● Peat moss ● Coco peat ● Vermiculite
5. Plant physiology process include but not limited to:	<ul style="list-style-type: none"> ● Photosynthesis ● Transpiration ● Respiration ● Osmosis ● Diffusion
6. Maturity indices include but not limited to:	<ul style="list-style-type: none"> ● Horticultural maturity ● Market maturity ● Physiological maturity
7. Picking include but not limited to:	<ul style="list-style-type: none"> ● Cutting ● Uprooting ● Digging ● Pinching
8. Basic value additions include but not limited to:	<ul style="list-style-type: none"> ● Waxing ● Packaging ● Product processing

<p>9. Emerging trends include but not limited to:</p>	<ul style="list-style-type: none"> ● New technologies for pests and diseases control ● Food system transformations ● Automated agriculture systems ● Climate smart agriculture ● Digital Agriculture
-------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

- Agronomic practices skills
- Measuring skills
- Spraying skills
- Observation skills
- Record keeping skills
- Marketing skills
- Analytical skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Soil composition
- Plant anatomy and physiology
- Crop husbandry practices
- Waste management practices
- Soil and water conservation measures
- Types of Soil
- Safety measures
- Weather patterns
- Pests and disease control measures
- Types of weeds and their control
- Ecological zones
- Irrigation methods
- Food safety measures
- Basic financial literacy
- Greenhouse structures
- Crop nutrition measures

EVIDENCE GUIDE

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

1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none">1.1 Selected herbs and spices crop seeds for propagation as per market demand1.2 Maintained protected environment propagation structure as per work instructions1.3 Carried out crop nursery management practices as per Herbs and spices crop type1.4 Established herbs and spices as per agronomic requirements1.5 Watered herbs and spices crop as per crop requirement1.6 Identified pests and diseases as per crop type1.7 Applied crop protection measures as per pests and diseases1.8 Undertook crop nutrition measures as per crop requirement.1.9 Observed maturity indices as per Herbs and spices crop type.1.10 Carried out harvesting of the crop as per the Herbs and spices type1.11 Stored produce as per Herbs and spices crop type1.12 Implemented herbs and spices safety measures as per conformity assessment standards
2. Resource implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none">2.1 Appropriately simulated environment where assessment can take place.2.2 Access to relevant work environments.2.3 Resources relevant to the proposed activities or task.
3. Methods of assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none">3.1 Observation3.2 Oral questioning3.3 Written tests3.4 Practical's3.5 Projects

4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Simulated workplace environment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.