

IMPROVE SOIL FERTILITY

ISCED UNIT CODE: 0812 451 07A

TVETCDACC UNIT CODE: HO/CU/HP/CR/04/5/MA

UNIT DESCRIPTION

This unit specifies the competencies required to improve soil fertility. It includes competencies for performing soil sampling, preparing organic manure and applying soil amendments.

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. Perform soil sampling	1.1 Personal protective equipment's are worn as per work requirement 1.2 Soil sampling tools, equipment and materials are assembled as per work requirement 1.3 Soil samples are obtained as per sampling procedures 1.4 Composite soil samples are prepared, recorded and sent for analysis as per work requirement
2. Prepare organic manure	2.1 Personal protective equipment's are worn as per work requirement 2.2 Tools, equipment and materials are assembled as per work requirement 2.3 Organic manures are prepared as per work procedure
3. Apply soil amendments	3.1 Personal protective equipment's are worn as per work requirement 3.2 Tools, equipment and materials are assembled as per work requirement 3.3 Soil amendments are applied as per soil analysis report

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. Personal protective equipment may include but are not limited to:	<ul style="list-style-type: none">• Gloves• Safety goggles• Safety boots• Overalls• Dust coat• Ear muffs• Face masks
2. Soil sampling tools, equipment and materials may include but are not limited to:	<ul style="list-style-type: none">• Hoes• Machetes• Secateurs• Shovels• Soil augur• Panga• Hammer• Saw• Bucket• Shears• Dibbler• Pegs• Weighing balance• Sampling bags• Labels• Marker pens
3. Sampling procedures may include but are not limited to:	<ul style="list-style-type: none">• Field layout• Sample collection• Compositing• Packaging

	<ul style="list-style-type: none"> • Processing • Storage
4. Organic manures may include but are not limited to:	<ul style="list-style-type: none"> • Green manure • Farmyard manure • Compost manure
5. Soil amendments may include but are not limited to:	<ul style="list-style-type: none"> • Fertilizers • Agricultural lime • Gypsum

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
- Nutrient's deficiency scouting
- Equipment calibration
- Technical Report writing
- Soil sampling
- Computation of lime requirement
- Observation
- Digital literacy

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Required knowledge

The individual needs to demonstrate knowledge of:

- Essential plant nutrients
- Soil-plant relationship
- Types of fertilizers and their nutrition content
- Fertilizer formulation and use
- Sources of soil acidity and alkalinity
- Management of soil acidity and alkalinity
- Types of tools and equipment used in soil sampling
- Soil sampling procedures

- Causes of soil degradation
- Soil and water conservation measures
- Waste management practices
- Occupational safety and health procedure

EVIDENCE GUIDE

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

6. Critical Aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.10 Used personal protective equipment as per work requirement</p> <p>1.11 Collected soil samples as per soil sampling procedures</p> <p>1.12 Prepared organic manure as per work procedure</p> <p>1.13 Applied soil amendments as per soil analysis report</p> <p>1.14 Applied soil conservation measures as per work requirement</p>
7. Resource Implications (required for assessment)	<p>The following resources should be provided during assessment:</p> <p>2.1 Appropriately simulated environment where assessment can take place</p> <p>2.2 Access to relevant work environment</p> <p>2.3 Resources relevant to the proper activities or tasks</p>
8. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.5 Written tests</p> <p>3.6 Practical tests</p> <p>3.7 Oral questioning</p> <p>3.8 Interviews</p>
9. Context of Assessment	<p>Competency may be assessed:</p> <p>9.1 Workplace</p> <p>9.2 Simulated workplace environment</p>
10. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector and workplace job role is recommended</p>