

APPLY KNOWLEDGE OF KNOWLEDGE OF SOIL SCIENCE

UNIT CODE: 0811 541 06A

TVET CDACC UNIT CODE: HE/OS/AHP/CC/12/6/MA

UNIT DESCRIPTION

This unit specifies the competencies required by an animal health technologist to demonstrate knowledge of soil science. It involves applying knowledge of principles of soil science, identifying properties of soil, identifying soil organisms and organic matter, and applying knowledge of soil fertility in fodder production.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements, which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the range.</i>
1. Apply principles of soil science	1.1 Soil formation knowledge is applied as per work requirement 1.2 Factors influencing soil formation are managed as per work procedure 1.3 Soil sampling methods are applied as per work procedure
2. Apply knowledge soil organisms and organic matter	1.1 Types of soil organisms are identified as per work procedure 1.2 Effects of soil organisms on soil are managed as per work procedure 1.3 Organic matter knowledge is applied as per work requirement
3. Apply knowledge of soil fertility in fodder production	3.1 Organic farming knowledge is applied as per work procedure 3.2 Fertilizers are applied as per soil nutrient requirement 3.3 Soil fertility knowledge is applied as per work requirement

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. Soil physical properties includes but not limited to:	• Soil texture • Soil aggregation • Soil consistency • Soil colour • Soil moisture • Soil air • Soil bulk density • Water holding capacity
2. Soil chemical properties includes but not limited to:	• Soil pH • Soil EC • Cation exchange capacity • Percent base saturation • Salt index
3. Soil biological properties includes but not limited to:	• Microbial activity • CN ratio

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
- Nutrients deficiency scouting
- Equipment calibration
- Technical Report writing
- Soil sampling
- Soil testing
- Plant tissue analysis
- Fertilizer recommendation
- Computation of lime requirement
- Observation
- Digital literacy

Required knowledge

The individual needs to demonstrate knowledge of:

- Essential plant nutrients
- Soil-plant relationship
- Types of fertilizers and their nutrition content
- Sources of soil acidity
- Management of soil acidity
- Types of tools and equipment used in soil sampling and soil testing
- Soil degradation
- Soil conservation
- Standard operating procedures
- Good Agricultural Practices manual
- Accounting principles
- Production records and reports
- Waste Management
- Occupational Safety and Health Procedures

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 Applied soil formation knowledge as per work requirement 1.2 Managed factors influencing soil formation as per work procedure 1.3 Applied soil sampling methods as per work procedure 1.4 Identified types of soil organisms as per work procedure 1.5 Managed effects of soil organisms on soil as per work procedure 1.6 Applied organic matter knowledge as per work requirement
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	1.7 Applied organic farming knowledge as per work procedure 1.8 Applied fertilizers as per soil nutrient requirement 1.9 Applied soil fertility knowledge as per work requirement
2. Resource Implications (required for assessment)	The following resources must be provided: 2.1 Appropriately simulated environment where assessment can take place 2.2 Access to relevant work environment 2.3 Resources relevant to the proposed activities or tasks
3. Methods of Assessment	Competency may be assessed through: 3.1. Observation 3.2. Practical report 3.3. Written tests 3.4. Oral questioning 3.5. Interviews
4. Context of Assessment	Competency may be assessed: Workplace or simulated workplace
5. Guidance information for assessment	What can be assessed in holistic assessment (with other units relevant to the industry sector, workplace and job roles) is recommended.