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**SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:**

Implement soil fertility and plant nutrition practices

| | | | | |
|--|--|----------------------------------|------------------------------|-----------------------------|
| SAQA US ID | UNIT STANDARD TITLE | | | |
| 116311 | Implement soil fertility and plant nutrition practices | | | |
| ORIGINATOR | | ORIGINATING PROVIDER | | |
| SGB Primary Agriculture | | | | |
| QUALITY ASSURING BODY | | | | |
| - | | | | |
| FIELD | | | SUBFIELD | |
| Field 01 - Agriculture and Nature Conservation | | | Primary Agriculture | |
| ABET BAND | UNIT STANDARD TYPE | OLD NQF LEVEL | NEW NQF LEVEL | CREDITS |
| Undefined | Regular | Level 4 | NQF Level 04 | 3 |
| REGISTRATION STATUS | | REGISTRATION START DATE | REGISTRATION END DATE | SAQA DECISION NUMBER |
| Reregistered | | 2009-07-01 | 2012-06-30 | SAQA 0480/09 |
| LAST DATE FOR ENROLMENT | | LAST DATE FOR ACHIEVEMENT | | |
| 2013-06-30 | | 2016-06-30 | | |

In all of the tables in this document, both the old and the new NQF Levels are shown. In the text (purpose statements, qualification rules, etc), any reference to NQF Levels are to the old levels unless specifically stated otherwise.

This unit standard does not replace any other unit standard and is not replaced by any other unit standard.

PURPOSE OF THE UNIT STANDARD

A learner achieving this unit standard will be able to set up and supervise the implementation of soil preparation and maintain and conserve soil in a safe, effective and responsible manner with consideration to the environment.

Learners will gain specific knowledge and skills in soil and plant nutrition and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

It is assumed that a learner attempting this unit standard will demonstrate competence against unit standard

- NQF 3: Manage Soil Fertility and Plant Nutrition.
- NQF 4: Implement a data collection plan.
- NQF 4: Execute sustainable resource use and quality control.
- NQF 4: Plan and maintain environmentally sound agricultural processes.

UNIT STANDARD RANGE

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Interpret recommendations and set up a nutritional programme based on recommendations.

OUTCOME RANGE

Recommendations may be from an analytical laboratory, and nutritional programmes may include application of agrochemicals, organic material, lime, etc.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

A soil nutrition programme is developed based on a recommendation.

ASSESSMENT CRITERION 2

Stock levels are maintained and orders are placed timeously.

SPECIFIC OUTCOME 2

Implement soil utilization plan for specified crops.

OUTCOME RANGE

Soil depth, drainage, infiltration rate, pH, water holding capacity, field capacity, soil horizons, soil aeration, erosion risks, organic content, texture, clay content, structure, biological content, compaction.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

The ability to select the appropriate soil for various crops is demonstrated.

ASSESSMENT CRITERION 2

The influence of soil characteristics or crop growth is explained.

SPECIFIC OUTCOME 3

Identify and interpret symptoms of nutritional deficiencies, and make full recommendations.

OUTCOME RANGE

Macronutrients may include (among others) Nitrogen, Phosphorous, Potassium, Calcium, Magnesium and Sulphur. Micronutrients may include (among others) Boron, Zinc, Iron, Molybdenum and Manganese.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

Colour changes on plants are interpreted and related to specific nutrient deficiencies.

ASSESSMENT CRITERION 2

Full recommendations for both macro- and micronutrients are proposed and presented.

ASSESSMENT CRITERION 3

Soil and leaf samples for are taken for laboratory analysis.

SPECIFIC OUTCOME 4

Manage soil improvement according to soil properties.

OUTCOME RANGE

Soil improvement methods may include tillage operations (mechanical, non mechanical, organic, minimum and zero tillage).

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

The appropriate soil preparation method is selected.

ASSESSMENT CRITERION 2

Records are maintained over time and changes in soil properties are analysed and used in management programmes

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The specific outcomes must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed in relation to each other. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified critical cross-field outcomes should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not, unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of these values.

- Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

UNIT STANDARD ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- Sampling procedures.
- Chemical, properties of soil - pH, nutrient status and degradation.
- Physical properties of soil - Texture, structure, soil profiles, crust formation, erosion types, compaction, and degradation.
- Biological properties of soil and processes.
- Soil ecology e.g. soil organisms, food webs, role of water and oxygen in soil.
- Soil health and conservation.
- Role of living organisms.
- Conservation practices - Runoff control, contours.
- Tillage operations - mechanical, non mechanical, organic, minimum and zero Tillage and application of nutrients (liquid and solid) Primary and secondary soil preparation methods.
- Soil preparation and fertiliser/ compost application equipment.
- Nutrients - mixtures, limes, calcite and dolomite lime, single nutrients and compost, liquids, etc.
- Calibration of equipment.
- Chemical, physical and biological properties, degradation and rehabilitation.
- Characteristics of the nutrients.
- Role of nutrients in the plant.
- Rules and regulations for storage and handling of agro-chemicals transport.
- Crop requirements.
- Soil water relationships.
- Mulching and ploughing in of mulch layer.
- Pollution prevention.
- Biological processes.
- Mineral cycles e.g. Nitrogen.

UNIT STANDARD DEVELOPMENTAL OUTCOME

N/A

UNIT STANDARD LINKAGES

N/A

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Problem Solving: Relates to all specific outcomes.

UNIT STANDARD CCFO WORKING

Teamwork: Relates to all specific outcomes.

UNIT STANDARD CCFO ORGANISING

Self-management: Relates to all specific outcomes.

UNIT STANDARD CCFO COLLECTING

Interpreting Information: Relates to all specific outcomes.

UNIT STANDARD CCFO COMMUNICATING

Communication: Relates to all specific outcomes.

UNIT STANDARD CCFO SCIENCE

Use Science and Technology: Relates to all specific outcomes.

UNIT STANDARD CCFO DEMONSTRATING

The world as a set of related systems: Relates to all specific outcomes.

UNIT STANDARD CCFO CONTRIBUTING

Self-development: Relates to all specific outcomes.

QUALIFICATIONS UTILISING THIS UNIT STANDARD:

| | ID | QUALIFICATION TITLE | OLD LEVEL | NEW LEVEL | STATUS | END DATE | QUALITY ASSURING BODY |
|------|-----------------------|---|------------------|----------------------------------|---------------|-----------------|------------------------------|
| Core | 49009 | National Certificate: Plant Production | Level 4 | New Level Assignment Pend. | Reregistered | 2012- 06-30 | AgriSETA |

PROVIDERS CURRENTLY ACCREDITED TO OFFER THIS UNIT STANDARD:

This information shows the current accreditations (i.e. those not past their accreditation end dates), and is the most complete record available to SAQA as of today. Some Quality Assuring Bodies have a lag in their recording systems for provider accreditation, in turn leading to a lag in notifying SAQA of all the providers that they have accredited to offer qualifications and unit standards, as well as any extensions to accreditation end dates. The relevant Quality Assuring Body should be notified if a record appears to be missing from here.

NONE

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