

Unit ID: 1322	
Domain	PLANT HUSBANDRY
Title:	Demonstrate knowledge of the structure, functions and nutrition of crop plants
Level: 3	Credits: 3

Purpose

This unit standard specifies the competencies required to demonstrate practical knowledge of crop plant structure, functions and nutrition. It is intended for those who work in agriculture as well as people in other occupations that work with plants. It includes:

- Demonstrate knowledge of crop plant anatomy
- Demonstrate introductory knowledge of plant and crop growth and physiology
- Demonstrate knowledge of plant and crop nutrition.

Special Notes

1. Entry information

Prerequisites:

- *Unit 1309 - Demonstrate knowledge of crop agriculture in Namibia*
- *Unit 1308 - Demonstrate introductory knowledge of soil, water, nutrient and plant interactions*
- *Unit 1307 - Apply soil sampling techniques and soil fertility and conditioning amendments and practices*

2. This unit standard is to be delivered and assessed in the context of agricultural operations and can be assessed in conjunction with other relevant technical unit standards.
3. The evidence required to demonstrate competency in this unit must be relevant to workplace operations
4. Assessment evidence may be collected from a real workplace or an appropriate simulated environment in which agricultural operations are carried out.
5. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' guidelines and instructions.
6. Glossary of terms
 - 'Crop plants' may include, but are not be limited to, fodder crops, dryland and irrigated field crops, ornamental plants and fruit and vegetables grown in Namibia.
7. Regulations and legislation relevant to this unit standard include the following:
 - Labour Act, No. 11, 2007
 - Regulations relating to the Health and Safety of employees at work, 1997
 - National Agricultural Policy, 1995
 - Standards Act, 2005, Standards Regulations: Standards Act, 2005 and relevant Namibian Standards as established

and all subsequent amendments to any of the above

- All current sets of *Good Agricultural Practices* to which Namibia subscribes and that regulate agricultural products entering a country to which Namibian producers may export.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority on www.namqa.org and the Namibia Training Authority on www.nta.com.na

Elements and Performance Criteria

Element 1. Demonstrate knowledge of crop plant anatomy

Range

Plant Organs may include, but are not limited to, roots, stems, buds, growing points, root tubers, stem tubers, leaves, flowers, fruit, seeds, and their component parts.

'Plant cells may include, but are not limited to, root hair cells, xylem cells (tracheids and vessels), phloem cells (sieve tube cells and companion cells), guard cells, palisade and spongy mesophyll cells.

Cell components may include, but are not limited to, cell walls, cell membrane, cytosol, nucleus, nuclear membrane, mitochondria, chromosomes, ribosomes, vacuoles, chloroplasts, amyloplasts, chromoplasts, DNA, and nucleolus.

Tissues may include, but are not limited to, xylem, phloem, vascular cambium, epidermis, leaf epidermis, leaf palisade tissue, cellulose, lignin and cuticle.

Edible or useful part classifications may include, but are not limited to, fruits, and fruit, leafy, root, seed and stem vegetables and cruciferous, rosaceous and leguminous vegetables or crops, cereals, forages, nuts, fibre, ornamental and wild edible plants.

Performance Criteria

- 1.1 Above ground and below ground crop plant organs are described at introductory level.
- 1.2 Plant tissues are described at introductory level.
- 1.3 Plant cells and cell components are described at introductory level.
- 1.4 Plant products are classified according to their edible or useful parts.

Element 2. Demonstrate introductory knowledge of plant and crop growth and physiology

Range

Key functions of cells may include, but are not limited to, respiration, osmosis, diffusion, cell division and cell differentiation.

Performance Criteria

- 2.1 The roles of (sun)light and photosynthesis are described at introductory level.
- 2.2 The transformation of fixed carbon into starches, proteins, enzymes, plant growth hormones and other plant substances is described at introductory level.
- 2.3 Plant gas exchange and respiration are described.
- 2.4 Key functions of cells are described.
- 2.5 Key functions of plant organs, tissues and cells are explained at introductory level in relation to external gross morphology and internal anatomy and reproduction, and sexual and asexual propagation, transport, storage.

Element 3. Demonstrate knowledge of plant and crop nutrition

Performance Criteria

- 3.1 The role of plant nutrients in plants and crops is described.
- 3.2 The chemical forms of nutrients available to plants are listed.
- 3.3 The chemical forms from which available forms of nutrients are derived are recalled.
- 3.4 The uptake of water and nutrients from the soil is described.

Registration Data

Subfield:	Agronomy and Horticulture
Date first registered:	25 November 2015
Date this version registered:	25 November 2015
Anticipated review:	2020
Body responsible for review:	Namibia Training Authority