

Domain	PLANT HUSBANDRY	Unit ID:	1306
Title:	Apply pest, disease, disorder and weed treatments		
Level: 2			Credits: 4

Purpose

This unit standard specifies the competencies required to apply remedies. It is intended for those who work in agriculture as well as people in other occupations that work with plants. It includes:

- Apply cultural methods of pest, disease and disorder management
- Check application and personal protective equipment
- Prepare equipment
- Apply weed management measures mechanically and by hand
- Transport and handle chemicals
- Apply chemicals
- Finalise work.

Special Notes

1. Entry information:

Prerequisite:

- *Unit 1314 - Report pests, diseases, disorders and weeds in crops*
- *Unit 1379 - Operate simple farm machinery*

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. Demonstration of competence, at a minimum, requires evidence in the application of the elements of this unit standard to:

- four cultural methods of pest, disease and disorder management
- correct preparation, handling and storage of two chemicals and filling of application equipment – one of low toxicity and one of high toxicity
- correct application of prepared chemical, including target coverage, by two types of hand application equipment to soil, crop plants and weeds
- correct use and handling of hand tools and two pieces of simple equipment for the management of weeds

7. Glossary of Terms

- '*Application equipment*' may include, but is not limited to, backpack sprayers, hand held sprayers, granular dispensers, simple herbicide applicators (e.g. weed wipes and spray hoods) and paint brushes.
- '*Simple equipment*' signifies tractor or other drawn weeding equipment without engines and other moving parts.
- '*Chemicals*' may include, but are not limited to, insecticides, fungicides, herbicides, nematicides, rodenticides, nutrient and micro-nutrient compounds and growth promoters and regulators.
- '*Hazards*' may include, but are not limited to, flammable chemicals, toxicity, fumes, health hazards, damage to non-target organisms, environmental damage, residues in food or feedstuffs, uneven surfaces, manual handling, solar radiation, tools and equipment, dusts and noise.
- '*Personal Protective Equipment*' (PPE) may include, but are not limited to, boots, rubber boots, hat, overalls, chemical resistant gloves, eye and hearing protection, respirator, face mask and sun protection.
- '*Safety requirements*' may include, but are not limited to, safe systems and procedures for handling, transporting and storing chemicals, safe operation of machinery, tools and equipment, safe procedures for applying chemicals and following manufacturer's instructions, hazard and risk control, manual handling, maintaining personal hygiene, safety procedures for protecting others, outdoor work and the use of personal protective equipment.
- '*Workplace procedures*' may include, but are not limited to; work notes, plans, product labels, manufacturer's specifications, operator's manuals, safety plans, fire control, waste disposal, recycling, re-use guidelines, workplace productivity standards and supervisor's oral or written instructions.

8. 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
- Road Traffic and Transport Regulations No. 268, 2000
- Occupational Health and Safety Regulations No. 18, 1997
- National Agricultural Policy, 1995
- Fertilisers, farm feeds and agriculture and stock remedies Act, No. 46, 1998
- Water Resources Management Act, No. 24, 2004
- Environmental Management Act, No. 7, 2007
- Pollution Control and Waste Management Bill, 2003 3rd draft
- Agronomic Industry Act, 20, 1992
- 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. Apply cultural methods of pest, disease and disorder management

Range

Cultural methods may include but are not limited to resistant and tolerant cultivars, traps (pheromones, sticky bands and boards, bait traps, light traps), companion and repellent plants, sanitary measures (removal and/or destruction of infected material, tool disinfection, hot water treatment of seeds), biological agents and beneficial organisms, habitat interventions (hedge plantings, companion planting, removal of alternative hosts, growing of trap plants), crop rotations and physical and mechanical protection (e.g. wrapping or enclosing fruit).

Performance Criteria

- 1.1 Instructions for using or establishing cultural methods of pest, disease and disorder management are confirmed.
- 1.2 Materials and inputs are selected.
- 1.3 Materials and inputs are prepared.
- 1.4 Materials and inputs are handled to minimise damage and maximise viability.
- 1.5 Personal protective and preparation equipment are selected and used in accordance with safety requirements.
- 1.6 Cultural methods are applied.
- 1.7 Tools and equipment are cleaned and stored in accordance with workplace procedures.

Element 2. Check application and personal protective equipment

Range

Pre-operational checks may include, but are not limited to, nozzles, hoses, regulators/gauges, filters, respirator cartridges, protective clothing and equipment.

Performance Criteria

- 2.1 Pre-operational checks of application equipment are carried out in accordance with manufacturer's specification and workplace procedures.
- 2.2 Damaged or worn components are identified and replaced.
- 2.3 Personal protective equipment (PPE) is checked in accordance with manufacturers' specifications and safety requirements.
- 2.4 Hazards are identified and risks are assessed and reported to the supervisor.

Element 3. Prepare equipment

Performance Criteria

- 3.1 Safety requirements are followed in accordance with safety plans and policies.
- 3.2 Label information regarding precautions for the chemical mix/substance being used is applied.
- 3.3 Personal protective and mixing equipment are selected and used in accordance with safety requirements and chemical labels.
- 3.4 Checks are undertaken that output of application equipment is correct and in accordance with workplace procedures.
- 3.5 Chemicals or substances are measured, mixed and loaded in accordance with directions on chemical label and supervisor's instructions.

Element 4. Apply weed management measures mechanically and by hand

Range

Preventative methods to reduce weed pressure may include but are not limited to crop rotations, mulching, use of crop residues, maintaining weed free conditions, controlling weeds in adjacent non-crop areas, composting of manure to kill weed seeds, removal and disposal of weeds, under sowing - and cover cropping.

Performance Criteria

- 4.1 The effects of weeds in crops are described.
- 4.2 Optimal weeding times with respect to crop and weed growth are explained.
- 4.3 Preventative methods to reduce weed pressure are described.
- 4.4 Instructions for weed management are confirmed.
- 4.5 Tools and simple equipment are selected and prepared for the task being undertaken.
- 4.6 Safety requirements are followed in accordance with safety plans and policies.
- 4.7 Weeds are managed.
- 4.8 Tools are cleaned and stored in accordance with workplace procedures and instructions.

Element 5. Transport and handle chemicals

Performance Criteria

- 5.1 Precautions for the transport and handling of chemicals are confirmed.
- 5.2 Chemicals are transported and handled in accordance with workplace procedures.

Element 6. Apply chemicals

Range

Meteorological conditions may include, but are not limited to, rain, wind, temperature, relative humidity and inversion or stable air conditions.

Performance Criteria

- 6.1 Meteorological conditions and forecasts are assessed and recorded prior to and during application.
- 6.2 Safety requirements are followed in accordance with safety plans and policies.
- 6.3 Personal protective equipment are selected and used in accordance with safety requirements and the chemical label.
- 6.4 Chemicals are applied in accordance with the chemical label and supervisor's instructions.
- 6.5 Risks to others and the environment are assessed and minimised prior to and during application.

Element 7. Finalise work

Range

Application records may include, but are not limited to, time, date, quantity and type of chemical, weather conditions, application equipment, host and pest.

Withdrawal periods may include, but are not limited to, re-entry to grazing areas and period before the crop can be harvested.

Performance Criteria

- 7.1 Personal Protective Equipment (PPE) and application tools and equipment are cleaned and stored in accordance with manufacturer's specification and workplace procedures.
- 7.2 Excess chemicals are disposed of and containers are treated in accordance with label requirements.
- 7.3 Application records are completed.
- 7.4 Unused chemical/products are stored in accordance with safety and chemical label requirements.
- 7.5 All re-entry and withdrawal periods are adhered to.

Registration Data

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