

Domain: REPAIRS AND MAINTENANCE
Title: Manage farm infrastructure through maintenance and improvements

Level: 4**Credits: 15****Purpose**

This unit standard specifies the competencies required manage farm maintenance and improvements. People credited with this unit standard are able to demonstrate an understanding of relevant technical terms; understand specifications of materials, tools and equipment; facilitate the availability of tools and equipment required for the farming operation; conduct stock control; maintain health and safety standards; manage maintenance and repair activities; plan for projects on improvements of farm infrastructure; plan for major repairs and upgrades; manage repair and maintenance records.

This unit standard is intended for those who manage agricultural enterprises as well as people in other occupations that work in managerial positions in agricultural institutions.

Special Notes**1. Entry information**

Prerequisites:

- *None*

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. Assessment evidence may be collected from a real workplace or a simulated work environment in which agricultural operations are carried out.

4. Demonstration of competence, at a minimum, requires evidence in compiling a detailed –proposal on the envisaged construction and maintenance of farm infrastructure (example: building, irrigation system or livestock handling facility)

5. 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
- Namibia Agriculture Policy, 2015
- Water Resources Management Act, No. 24, 2004
- Environmental Management Act, No. 7, 2007
- Pollution Control and Waste Management Bill, 2003
- 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 an understanding of relevant technical terms

Range

- **Technical terms** may include but not limited to speed measures, rotation measures, length measures, area measures, volume measures, weight measures, pressure measures, flow measures, electric & electronic measures, tension measures, temperature measures, climatic measures, engine performance measures, material classification measures.
- Chemical reactions and equations; Balancing chemical equations; Stoichiometry; Acids and bases; pH & buffers; Solutions and Solubility; Structure and properties of water; Ionisation of water; Laws of motion, force, energy, work. Kinetic theory of gases; Gas laws, pressure; Basic electricity; Voltage, current, power, conductors, insulators. Thermodynamics and heat; conduction, radiation and convection.

Performance criteria

- 1.1 Common technical terms and terminology are described.
- 1.2 Technical terms and terminology are correctly interpreted in context.

Element 2: Understand specifications of materials, tools and equipment

Range

- **Materials** may include but not limited to wire, poles, metal, pipes, cement, paint, lubricants, spare parts, gas, fuel, welding rods, grinder blades, bolts, screws.
- **Tools** may include but not limited to hand and power tools used for farm maintenance and improvements.
- **Equipment** may include but not limited to workshop equipment, irrigation equipment processing equipment, livestock handling equipment and any other agricultural equipment.

Performance criteria

- 2.1 Specification for materials, tools and equipment are described.
- 2.2 Product certifications and specifications are described.
- 2.3 Manufacturer specifications and user guides and manuals are studied, interpreted and described.
- 2.4 Materials are selected based on appropriate product specification and certification.

Element 3: Facilitate the availability of tools and equipment required for the farming operation

Range

Needs assessment includes but not limited to a structured approach of determining the requirements of suitable tools and equipment required by the farming operation or specific projects.

Performance criteria

- 3.1 A needs assessment for tools and equipment is conducted.
- 3.2 Tools not available are sourced.
- 3.3 Maintenance, repair and replacement of tools is coordinated.

Element 4: Conduct stock control

Range

Safe storage includes but not limited to requirements as per manufacturer specifications, industry standards, legal requirements and best practices.

Performance criteria

- 4.1 An inventory list for materials, tools, equipment and machinery is compiled.
- 4.2 Safe storage of materials, tools, equipment and machinery is practiced.
- 4.3 Stock availability is secured and appropriate stock levels are maintained.
- 4.4 Regular stock control (stock take) is coordinated.
- 4.5 Disposal of unsuitable materials, tools and equipment is attended to.

Element 5: Maintain health and safety standards

Range

Health and safety protocol includes but not limited to first aid, the safe use of tools, equipment and materials, appropriate storage and disposal, the use of Personal

Protective Equipment, warning signs, demarcation of work area, controlled access of people.

Performance criteria

- 5.1 Health and safety protocol is implemented and maintained.
- 5.2 Health and safety requirements of workshop and work area are met.
- 5.3 Personal Protective Equipment required is available and in good order.
- 5.4 Competence requirements of staff is met.

Element 6: Manage maintenance and repair activities

Range

Inspection includes but not limited to routine inspection and inspection upon reported situations.

Performance criteria

- 5.1 Regular inspection of all infrastructure, equipment and farm machinery is coordinated.
- 5.2 Maintenance of all infrastructure, machinery and equipment by ensuring that they are in good order at all times is coordinated.
- 5.3 Maintenance schedules of farm machinery and equipment are attended to.

Element 7: Plan for projects on improvements of farm infrastructure

Range

- **Technical drawings** include sketches, diagrams, manual designs, computer model designs.
- **Infrastructure** includes but not limited to livestock handling facilities, fences, irrigation systems, water supply, water and feed troughs, buildings, structures, equipment, vehicle and machinery attachments (trellises, farm made implements).
- **MAWF** refers to Ministry of Agriculture, Water and Forestry.
- **DAPEES** refers to Directorate of Agricultural Production, Extension and Engineering Services.

Performance criteria

- 7.1 Technical drawings of infrastructure are made.
- 7.2 Technical drawings are sourced (MAWF/DAPEES, internet, service providers).
- 7.3 Technical drawings of infrastructure are interpreted and analysed.

- 7.4 Quantities of materials required for selected projects are determined.
- 7.5 Tools and equipment required for selected projects are determined.
- 7.6 Human resources and capacities required for selected projects are determined.
- 7.7 Cost of selected project is determined and budgeted for.

Element 8: Plan for major repairs and upgrades

Range

- **Repairs** may include but not limited to overhauls of engines, gear boxes, differentials and gear boxes, rectification of defect water pumps and power sources, renovations of buildings and storage facilities, restoring dysfunctional water distribution systems, restoration of livestock handling facilities, farm fences and farm roads.
- **Upgrades** may include but not limited to the improvement of livestock handling facilities, water distribution network, buildings, fences, and livestock handling facilities.

Performance criteria

- 8.1 Required repairs and upgrades are identified and determined.
- 8.2 Materials required for repair and upgrade are determined.
- 8.3 Tools and equipment requirements are determined.
- 8.4 Human resources and capacities required are determined.
- 8.5 Cost of repair or upgrade is budgeted for.
- 8.6 Records are maintained.

Element 9: Manage repair and maintenance records

Range

- **Records** may include but not limited to log books, maintenance schedules, asset registers, stock control forms, order forms.
- **Reports** may include but not limited to claims, annual reports, incident reports and project reports.

Performance criteria

- 9.1 Records are maintained.
- 9.2 Reports are compiled.

Registration Data

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