

Domain POST-HARVEST STORAGE AND HANDLING
Title: Handle horticultural produce after harvest
Level: 2

Credits: 4

Purpose

This unit standard specifies the competencies required to handle horticultural produce after harvest. It is intended for those who work as small- or large-scale producers, agricultural employers or employees as well as people in other occupations that work with fresh produce. It includes:

- Prepare for postharvest operations
- Process produce
- Place produce in a storage facility.

Special Notes

1. Entry information:

Prerequisite:

- *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 post-harvest handling of at least five horticultural crops – one from three different vegetable categories, one fruit and one other crop – as listed in '*Fruit and vegetable Crops*' of Section 7 below
- The application of one post-harvest treatment.

7. Glossary of terms

- '*Materials, tools, equipment and machinery*' may include, but are not limited to, materials and consumables such as cleaning agents, containers, gases, labels and adhesives, packaging materials, preservatives and chemicals. Basic tools may include, but are not limited to, labelling devices, packing tools, scales, snips and knives. Equipment and machinery such as, chemical applicators, forklifts, gassing chambers, grading machinery, hand trolleys and lifting aids, light trucks, pallets, tractors and trailers, washers, brushes and dryers.

- '*Horticultural produce*' may include, but is not limited to, cultivated fruits, vegetables, flowers and foliage, bulbs, herbs, mushrooms, nuts and harvested plants from the wild.
- '*Safety requirements*' may include, but are not limited to, safe systems and procedures for safe use of machinery, tools and equipment, hazard and risk control, manual handling, handling, application and storage of hazardous substances, outdoor work and the use of personal protective equipment.
- '*Workplace procedures*' may include, but are not limited to, industry best practice guidelines on quality, food safety and hygiene, productivity rates required by the workplace, work notes, plans, product labels, manufacturer's specifications, operator's manuals, safety plans, fire control, waste disposal, recycling, re-use guidelines and supervisors oral or written instructions.
- '*Hazards*' may include, but are not limited to, noise, fumes, hazardous substances, confined spaces, manual handling, sharp tools, slippery or uneven surfaces, soil born micro-organisms, electricity, solar radiation, dusts, adverse weather conditions, moving machinery and machinery parts.
- '*Personal Protective Equipment (PPE)*' may include, but are not limited to, boots, hat, overalls, gloves, eye and hearing protection, respirator or face mask, waterproof clothing, jackets (for coolroom use), high visibility clothing and sun protection.

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
- National Agricultural Policy, 1995
- 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. Prepare for postharvest operations

Range

Client specifications may include, but are not limited to, process specifications such as preferred packaging materials/containers and filling techniques, labelling and storage requirements from field to client, quality, grading and plant produce specifications and variables subject to seasonal and market forces such as bud count and health, colour, maturity and ripeness, moisture content and texture, shape and size, skin condition and blemishes, variety, weight, size and length.

Personal Protective Equipment (PPE) may include but not limited to boots, hat, overalls, gloves, eye and hearing protection, respirator or face mask, waterproof clothing, jackets (for coolroom use), high visibility clothing and sun protection.

Performance Criteria

- 1.1 Post-harvest operations are performed according to grades and client specifications and workplace procedures.
- 1.2 Safety requirements are followed in accordance with safety plans and policies.
- 1.3 Materials, tools, equipment and machinery appropriate to the task being undertaken are selected.
- 1.4 Quantity of packaging materials for the required tasks is determined according to workplace procedures.
- 1.5 Pre-operational and safety checks are carried out on tools, equipment and machinery according to manufacturers' specifications and workplace procedures.
- 1.6 Hazards are identified and risks are assessed and reported to the supervisor.
- 1.7 Suitable Personal Protective Equipment (PPE) is selected, used and maintained.
- 1.8 Site quarantine protocols and farm and personal hygiene requirements are applied and followed as required by workplace procedures and supervisor instructions.

Element 2. Process produce

Range

Horticultural produce or produce may be graded by checking with supervisor, hand or mechanical techniques, removing out-of-type plants or physically damaged, unhealthy, rotten or immature produce. *Selection characteristics* are influenced by seasonal and market forces such as: bud count, colour, health, maturity, moisture content, ripeness, shape, size, weight and length, variety, texture, skin condition and blemishes.

Post-harvest treatments may include, but are not limited to, applying fungicides and insecticides by spraying or dipping, applying preservatives, brushing, drying, observing quarantine requirements, removing dirt and foreign material, ripening, storing in a controlled environment, stripping excess leaves and/or trimming, washing, waxing and polishing.

Minimising damage to produce may include, but are not limited to, arranging produce and following packing instructions for containers, correctly stacking containers on transport, cutting fingernails, maintaining sharp tools, observing fill heights, placing rather than dropping produce into containers and wearing gloves.

Containers may include, but are not limited to, boxes and cartons, bulk bins, plastic bags, customised packaging, net bags, pre-packs, trays and crates.

Labelling may include, but is not limited to, container number, packing and use by date, produce details such as grade, number, origin, variety, weight, producer details, quality assurance and handling instructions.

Work details recorded may include, but are not limited to, written reports to the supervisor or work pro-forma documents. Post-harvest practices are economical, methodical, meet established workplace schedules and minimise damage to produce.

Performance Criteria

- 2.1 Harvested produce is graded and labelled according to client specifications and workplace procedures.
- 2.2 Rejected produce is disposed of according to workplace procedures.
- 2.3 Post-harvest treatments are applied to produce according to workplace procedures and industry best practice.
- 2.4 Tools, equipment and machinery are cleaned and maintained according to workplace procedures.
- 2.5 Quality parameters of produce and specifications for packaging, filling techniques and labelling of packed produce are identified and confirmed according to workplace procedures.
- 2.6 Correct packaging materials and containers for specific produce are selected.
- 2.7 Correct filling techniques for specific containers and produce are used to fill and arrange produce within containers according to client specifications, workplace procedures, prevention of contamination and industry best practice.
- 2.8 Filled containers are weighed, weight recorded and repacked to correct weight, if required.
- 2.9 Wraps and lids are applied where required and containers are labelled according to client specifications, workplace procedures and industry best practice.
- 2.10 Work is completed and details recorded in accordance with workplace procedures.

Element 3. Place produce in a storage facility

Range

Storage facility may include but not limited to cool rooms and storage sheds.

Cleaning of storage facilities may include but is not limited to dusting, fumigating, sterilizing, sweeping and washing techniques to ensure a level of hygiene that protects the quality and health status of stored produce.

Performance Criteria

- 3.1 Containers are placed to ensure stability and optimum airflow in storage area.
- 3.2 Storage facilities are monitored and gauges are read accurately and efficiently with abnormal readings reported to supervisor.
- 3.3 Condition of stored produce is checked.
- 3.4 Damaged, infested or diseased produce and affected containers are removed from storage facility according to workplace procedures.

3.5 Storage facility and packing containers are cleaned and maintained to a level of hygiene acceptable to workplace and industry standards.

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