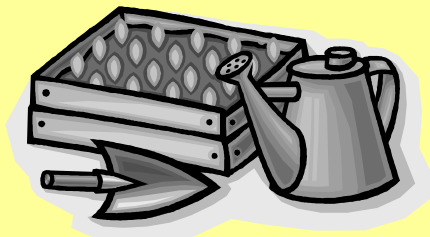


NQF Level: 2 US No: 116079

Learner Guide

Primary Agriculture

Monitor the establishment of a crop



My name:

Company:

Commodity: Date:

Before we start...

Dear Learner - This Learner Guide contains all the information to acquire all the knowledge and skills leading to the unit standard:

Title: Monitor the establishment of a crop
US No: 116079 NQF Level: 2 Credits: 4

The full unit standard will be handed to you by your facilitator. Please read the unit standard at your own time. Whilst reading the unit standard, make a note of your questions and aspects that you do not understand, and discuss it with your facilitator.

This unit standard is one of the building blocks in the qualifications listed below. Please mark the qualification you are currently doing:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Mixed Farming Systems	48977	2	120	<input type="checkbox"/>
National Certificate in Plant Production	48975	2	120	<input type="checkbox"/>

Please mark the learning program you are enrolled in:

Your facilitator should explain the above concepts to you.

Are you enrolled in a:	Y	N
Learnership?	<input type="checkbox"/>	<input type="checkbox"/>
Skills Program?	<input type="checkbox"/>	<input type="checkbox"/>
Short Course?	<input type="checkbox"/>	<input type="checkbox"/>

This Learner Guide contains all the information, and more, as well as the activities that you will be expected to do during the course of your study. Please keep the activities that you have completed and include it in your **Portfolio of Evidence**. Your PoE will be required during your final assessment.

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What is assessment all about?

You will be assessed during the course of your study. This is called *formative assessment*. You will also be assessed on completion of this unit standard. This is called *summative assessment*. Before your assessment, your assessor will discuss the unit standard with you.

Assessment takes place at different intervals of the learning process and includes various activities. Some activities will be done before the commencement of the program whilst others will be done during programme delivery and other after completion of the program.

The assessment experience should be user friendly, transparent and fair. Should you feel that you have been treated unfairly, you have the right to appeal. Please ask your facilitator about the appeals process and make your own notes.

How to use the activity sheets...

Your activities must be handed in from time to time on request of the facilitator for the following purposes:

- ◆ The activities that follow are designed to help you gain the skills, knowledge and attitudes that you need in order to become competent in this learning module.
- ◆ It is important that you complete all the activities and worksheets, as directed in the learner guide and at the time indicated by the facilitator.
- ◆ It is important that you ask questions and participate as much as possible in order to play an active roll in reaching competence.
- ◆ When you have completed all the activities and worksheets, hand this workbook in to the assessor who will mark it and guide you in areas where additional learning might be required.
- ◆ You should not move on to the next step in the assessment process until this step is completed, marked and you have received feedback from the assessor.
- ◆ Sources of information to complete these activities should be identified by your facilitator.
- ◆ **Please note** that all completed activities, tasks and other items on which you were assessed must be kept in good order as it becomes part of your **Portfolio of Evidence** for final assessment.

Enjoy this learning experience!

How to use this guide ...

Throughout this guide, you will come across certain re-occurring “boxes”. These boxes each represent a certain aspect of the learning process, containing information, which would help you with the identification and understanding of these aspects. The following is a list of these boxes and what they represent:



What does it mean? Each learning field is characterized by unique terms and **definitions** – it is important to know and use these terms and definitions correctly. These terms and definitions are highlighted throughout the guide in this manner.



You will be requested to complete **activities**, which could be group activities, or individual activities. Please remember to complete the activities, as the facilitator will assess it and these will become part of your portfolio of evidence. Activities, whether group or individual activities, will be described in this box.



Examples of certain concepts or principles to help you contextualise them easier, will be shown in this box.



The following box indicates a **summary** of concepts that we have covered, and offers you an opportunity to ask questions to your facilitator if you are still feeling unsure of the concepts listed.

My Notes ...

You can use this box to jot down questions you might have, words that you do not understand, instructions given by the facilitator or explanations given by the facilitator or any other remarks that will help you to understand the work better.

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What are we going to learn?

What will I be able to do?	6
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What do I need to know?	6
Introduction	6
Session 1: Select tools, equipment for planting of a specific crop	7
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SAQA Unit standard	

What will I be able to do?

When you have achieved this unit standard, you will be able to:

- ◆ Plant a range of crops and monitor the correct establishment of crops as well as ensuring that planting is placed and spaced as required.
- ◆ Gain specific knowledge and skills in establishing the crop and will be able to operate in a plant production environment implementing sustainable and economically viable production principles.

Learning Outcomes

At the end of this learning module, you must be able to demonstrate a basic knowledge and understanding of:

- ◆ Names and functions of machinery for the planting process.
- ◆ Attributes and characteristics of the planting process.
- ◆ The purpose of monitoring the planting process.
- ◆ The safety procedures related to working with hand-held tools.
- ◆ Plant hygiene principles during planting.
- ◆ Ensuring that the correct procedures are followed during planting.
- ◆ Plant requirements during planting.

What do I need to know?

It is expected of the learner attempting this unit standard to demonstrate competence against the unit standard:

- ◆ NQF 1: Demonstrate an understanding of the basic concept of sustainable farming systems.
- ◆ NQF 1: Propagate plants.
- ◆ NQF 1: Fertilise soil and attend to basic plant nutrition.

An Introduction:

Farmers produce many different types of crops. The activity of cropping makes use of different resources and requires physical labour of people and machinery to be successful. Efficient establishment of crops require basic knowledge and know-how of the tools and their use.

A farmer may have access to tractors and ploughs and specialised planting machinery for this purpose, yet many crops are still established by hand. The correct use of will make establishing a crop easier. The tools used for establishing crops include simple hand held tools and more specialised tractor drawn or self propelled equipment.

Session

1 Select tools, equipment for planting a specific crop

After completing this session, you should be able to:

SO 1: Select, use and care for the appropriate tools and equipment used in the planting of a specific crop.

In this session we explore the following concepts:

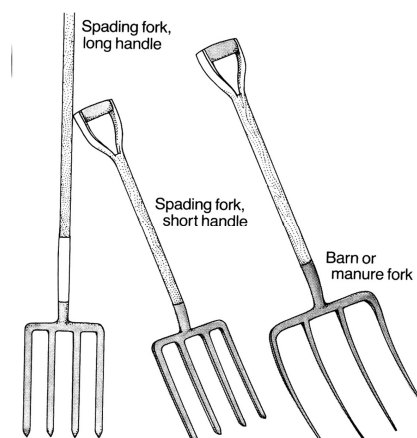
- ◆ The correct tools and equipment to plant a specific crop according to prescribed methods are selected.
- ◆ The reason for selecting specific equipment is explained.
- ◆ Tools and equipment are used correctly.
- ◆ Tools and equipment are cleaned and returned to storage in good order.

1.1 Hand Tools

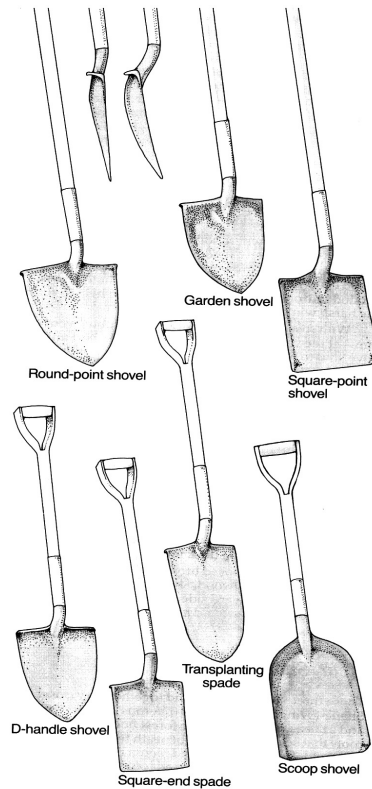
Hand tools used in crop establishment are generally the same as garden tools.

■ Forks:

Forks come in different sizes, small, medium and large. A large fork is similar in size to a large spade and is essentially used to loosen soil and break up clods. A medium fork is used for digging up bulbs and root crops such as potatoes.



Hay or compost forks are used for turning or moving hay and compost. A small hand fork can be used to plant seedlings and bulbs.



■ **Spades and shovels**

Spades and shovels are used for digging holes and trenches, for transplanting trees and shrubs and for scooping, compost, manure and fertiliser. Many styles are available, each designed for a particular purpose.

■ **Rakes**

Rakes are used to level off freshly ploughed soil before planting or sowing of a crop. A rake has a handle like a broom and a cross piece made out of iron or heavy duty plastic teeth.

■ **Hoes**

A hoe is a long handled tool which is used to cultivate between cropping rows and cut through weeds while tilling the soil. A hoe has a sharp blade, which comes in two widths, either narrow or broad.

■ **Wheelbarrows**

A wheelbarrow is essential for carrying important tools, seed and seedlings into the field.



1.2 Machinery and implements for establishing crops

There are a great number of different types of implements and machinery used by commercial farmers to establish crops.

■ Row units

Row units are used for planting seeds in rows at the correct spacing and depth. The discs makes a shallow furrow und covers it up again after the seeds have been planted. Some types have the function of placing fertilizers with the seeds.

■ Box Drills:

Box drills are used for drilling holes and planting seeds in a no tillage production system.



■ Large fields:

In dry-land systems the use of planters that can plant a wide area is popular.



1.3 Care of Tools and Machinery

Good quality crop planting tools can last for 10 years or more if well looked after. All tools should be collected at the end of each working day, cleaned and stored under shelter. All mud must be removed from implements so that they will be clean and ready for use.

Implements must be regularly cleaned and all seed and fertilizer must be removed and stored after use.

Wheelbarrows should be washed out with a hose and left upside down to prevent remaining water from creating rust in the barrow. It is recommended that tools such as spades and shovels be occasionally wiped down with an oily cloth to assist in preserving the finish on the blade and to perform more efficiently.

1.4 Crop Planting Equipment

Crop planting equipment is used in establishing crops.

■ **Planting string**

A planting string consists of string with wooden pegs. The pegs are inserted into the soil, and the string tightened. This provides a straight line on which planting is done. It is used when establishing seeds, bulbs or seedlings, and allows straight line planting, making later maintenance such as weeding, fertilising and harvesting easy.



■ **Sprinklers, pipes and hoses**

Once planted, all seeds, bulbs or plants will require watering. Generally this will be done using an irrigation system. Take care to ensure that the hoses and pipes are not damaged by implements when preparing the soil for planting, and that vehicles do not run over and damage irrigation systems.



Please complete Activity 1 - 4 at the end of this session.

My Notes ...

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Concept SO 1, AC 1 – 4	I understand this concept	Questions that I still would like to ask
The correct tools and equipment to plant a specific crop according to prescribed methods are selected.		
The reason for selecting specific equipment is explained.		
Tools and equipment are used correctly.		
Tools and equipment are cleaned and returned to storage in good order.		



1
SO 1 AC 1-4

Group research: Discussion

My Name:

My Workplace:

My ID Number:

Go to the store and discuss with your facilitator the tools to be used for establishing the following crops:

1.1 Orchard trees (young trees).

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1.2 Open field crops.(seeds, seedlings and potato tubers).

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1.3 Vegetable garden beds (seeds and seedlings).

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1.4 Tunnel crops (seeds seedlings and cuttings).

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1.5 Ornamental plants (seeds, seedlings and cuttings).

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Facilitator comments:

Assessment:



2

SO 1 AC 1-4

Practical exercise

My Name:
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My Workplace:
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My ID Number:
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Select the tools you would need for establishing your specific crop and write a short motivation for each of the selected tools

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Facilitator comments:

Assessment:



3

SO 1 AC 3

Practical demonstration

My Name:
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My Workplace:
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My ID Number:
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Demonstrate to your facilitator that you can use tools selected for your crop correctly and effectively

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Facilitator comments:

Assessment:



4
SO 1 AC 1-4

Practical demonstration

My Name:
My Workplace:
My ID Number:

Clean the tools you have used and return each to its proper place in the store and ask your facilitator to check.

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Facilitator comments:

Assessment:

Session

2 Handle Planting Material

After completing this session, you should be able to:

SO 2: Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.

In this session we explore the following concepts:

- ◆ Healthy plants suitable for optimal growth.
- ◆ The preparation of planting areas is monitored to suit the requirements of the selected planting material.
- ◆ Planting at the correct time of day to ensure optimal growth.
- ◆ The safekeeping of plant material.
- ◆ The watering of newly planted material.
- ◆ The replacement of weak, diseased and dying plants.
- ◆ Basic hygiene standards

2.1 Handling of planting materials

Planting material differs for different crops. Crops are propagated through seeds, seedlings, bulbs, tubers, plant cuttings, grafting or budding and plating of nursery reared grafted trees. There are a number of handling requirements that are necessary to ensure maximum survival and optimal growth of the established crop.

■ Seeds and bulbs

Seeds and bulbs must be stored in a cool, dark and dry area until such time that they are to be sown or planted. Seed of some crops such as maize, wheat sunflower, selected vegetable seeds (onions and beetroot). The same principal applies to propagation materials such as potato tubers. Other seeds such as tobacco, cabbage and tomatoes are established in seed beds from which they are transplanted into the open soil. More expensive or very small seeds like some vegetable and flower seeds are planted in seed trays kept in a controlled environment where the seed germinate and seedlings are kept until they are strong enough to be transplanted.

Irrespective of the kind or type of planting material used in propagation, the preparation of the soil or seed bed prior to establishment is critical. Planting material, especially seeds, must be in close contact with the soil to enable them to absorb water for germination.

The soil should therefore be well prepared before planting. Soil can be prepared using a shovel or a fork, and in the case of larger scale plantings, a tractor, plough, disc plough or other mechanical equipment can be used. Soil preparation generally includes the application of the appropriate amounts of fertiliser. Seedling and cuttings should be irrigated directly after planting.

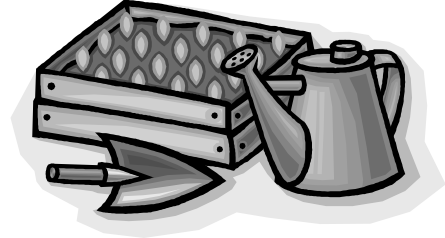
■ **Remember:**

- ◆ Use certified seed of recommended cultivars for your area.
- ◆ Obtain planting material from reputable companies.
- ◆ Follow planting recommendations regarding planting time, planting depth and plant spacing
- ◆ Consider weather conditions before planting.
- ◆ Plant in straight rows.
- ◆ Fertilise according to fertilisation recommendations from soil fertility analysis.
- ◆ The main reasons for germination failure are poor quality planting material, sowing too deeply, too dry or too wet seed bed and temperatures outside the norm.

■ **When establishing seedlings or cuttings, the following should be noted:**

- ◆ Seedlings are grown from seed. A week before transplanting, seedlings should be 'hardened off' by exposing them to full sunlight for a few hours per day. This will assist in the seedlings adjusting to field conditions where no shade will be available.
- ◆ Before planting, remove any dead or dying seedlings.
- ◆ Water the seedlings before planting.
- ◆ Pre-prepare the planting area
- ◆ Try to plant on an overcast day, and never plant in the heat of the day. Aim at planting late afternoons allowing seedlings and cuttings a night to recover. Seedlings will not tolerate full sunshine before or after planting. Poor pre-planting care will lead to seedling losses.
- ◆ Once planted, seedlings and cuttings should be watered immediately. A fine mist spray is most effective. This should not be done during the heat of the day.
- ◆ Watering must be conducted carefully ensuring that the water does not wash away the freshly prepared soil and expose the roots of the seedling.
- ◆ Ensure that the seedlings or cuttings that have not been planted are protected from direct sunlight and have adequate water, as they will dry out and die very quickly if poorly treated.

- ◆ All newly planted crops should be monitored by for overall survival rate, weak and diseased plants. If dead or damaged seedlings are removed, they should be replaced with fresh seedlings. It would be useful to carry a wheelbarrow full of replacement seedlings to replace those that have died in the crop as you do the inspection. Don't forget to water the seedlings before and after planting.



2.2 Hygiene standards

All equipment and tools should be clean and properly sterilized before starting with the propagation. Disinfectants on the market are, household 'Jik', chlorine used for swimming pools, 'Sporekill' and 'Prasin'. Apart from personal hygiene, workers must wash their hands and preferably wear sterilized rubber gloves when working with growing media and propagation material. The reason for this is that the equipment and propagation material can be infected with fungi, bacteria or viruses that can cause diseases and eventually affect the production of the crop.

When using seed as propagation material, the seed can be sterilized or treated with fungicides.



Please complete Activity 5 at the end of this session.

My Notes ...

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Concept (SO 2, AC 1 -7)	I understand this concept	Questions that I still would like to ask
Healthy plants suitable for optimal growth are identified and selected.		
The preparation of planting areas is monitored to suit the requirements of the selected planting material		
The planting at the correct time of day to ensure optimal growth of plants is monitored (e.g. not during the hottest time of the day).		
The safekeeping of plant material that is on hand for planting (i.e. keeping them moist and sheltered) is monitored.		
The watering of newly planted material is monitored		
The replacement of weak, diseased and dying plants among the newly planted material is monitored.		
Basic hygiene standards are monitored to prevent cross-contamination		

My Notes ...

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5
SO 2 AC 1-7

Practical assignment

My Name:

My Workplace:

My ID Number:

1.1 Monitor the area that was prepared for planting your specific crop, making sure that it complies with all requirements’.

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1.2 Check the planting material supplied, making sure that the quality is to standard. Remove dead and diseased material. Make sure the planting material is kept safely (dry in the case of seed, moist in the case of seedlings and cuttings).

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1.3 In the case of seedlings and cuttings, decide when would be the best time of the day to transplant the seedlings and rooted the cuttings, also considering weather conditions.

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1.4 Monitor the establishment of your specific crop and take appropriate steps if poor establishment is experienced.

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Facilitator comments:

Assessment:

Session

3 Impacts of environmental conditions on crops

After completing this session, you should be able to:

SO 3: Understand the impact of environmental conditions on the successful establishment of crops.

In this session we explore the following concepts:

- ◆ The effects of temperature and humidity on seedlings.
- ◆ The effects of root shock.
- ◆ Favourable soil conditions for transplanting seedlings.
- ◆ The impact of heavy rain showers on seedlings.

3.1 Environmental conditions

Different crops require different environmental conditions for optimal growth. An example of this is beans and onions are sown between autumn and early winter (cool to cold period) whereas tomatoes and cucumbers are sown in spring after the last frosts of winter (warmer months).

It is therefore important to select the correct crop and cultivar for the particular time of year, and also the one best suited to your environment. You can consult with an extension officer or crop specialist or read about the crops and its various cultivars before you decide on the planting stock you buy. Planting the wrong crops or during the wrong time of the year is a common cause of crop failure. In addition, also consider the market you intend for the specific crop.

Excessive humidity can cause the development of a fungal disease known as 'damping off'. Similarly cold conditions may lead to germination failure or cold damage to seedlings.

Mixtures of fertiliser can also be used to provide different nutrients for specific crops. The farmer will be aware of the requirements for such plants. The planting site for the crop should be watered once or twice before planting to allow the fertiliser and soil to settle. Seedlings should be transplanted with as much soil as possible from the original site surrounding the roots. Remember that in a natural situation plant roots are never exposed to the wind, so it is important that as much of the original soil is kept with the seedling. This exposure is commonly called root shock, and will kill young seedlings very quickly.

The planting area should be watered thoroughly a day before transplanting seedlings into the soil and the soil should be moist and not wet.

Avoid planting seedlings on windy days, as the wind will dry out young seedling plants, exacerbating the effects of wind shock. You should also avoid planting seedlings before heavy rainfall. Heavy rain not only increases the likelihood of damping off fungus developing, but also causes erosion of freshly prepared soils. Heavy rain can destroy the seedling habitat and wash away the newly planted seeds or plants.

Long term crops such fruit trees and vines are established towards the end of winter. These are planted in holes at least one meter wide 60 cm deep.

The bottom of the hole is layered with manure and well decomposed compost. The tree should be planted, carefully and no deeper than it was at the nursery, with the hole forming a small dam for the collection of water. Each plant will require 15 - 20 litres of water immediately upon planting.



Please complete Activity 6 at the end of this session.

My Notes ...

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Concept (SO 3, AC 1 -4)	I understand this concept	Questions that I still would like to ask
The impact of heavy rain showers on seedlings is explained.		
Favourable soil conditions for transplanting seedlings are identified and explained.		
The effects of root shock are explained.		
The effects of temperature and humidity on seedlings are explained		



6
SO 3 AC 1-4

**Individual assignment:
write a report.**

My Name:
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My Workplace:
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My ID Number:
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Write a short report on the prevailing environmental conditions that might have an effect on the establishment of your crop, considering the following points:

- Temperature during and after establishment.
- Humidity during and after establishment.
- Heavy rain during or after planting.
- Strong winds during or after planting.
- Can transplanting shock be a factor? If so, how can it be alleviated?

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Facilitator comments:

Assessment:

Session

4 Spacing requirements for planting of crops

After completing this session, you should be able to:

SO 4: The correct spacing requirements for planting of crops.

In this session we explore the following concepts:

- ◆ The correct spacing requirement of a specific crop is identified.
- ◆ The optimal depth required for planting a specific crop is identified.
- ◆ Plants are planted at the correct spacing between rows and between individual plants.
- ◆ Plants are planted at the correct depth.

4.1 Spacing between rows and individual plants

Plant spacing between rows and between individual plants is critical when establishing crops. Before ploughing the soil and planting, the farmer must plan for the particular crop being sown or planted. Plants that grow too close together will be stunted, whilst plants that grow too far apart will decrease crop productivity. Therefore, spacing needs to be calculated between rows, and between individual plants. A planting line is a useful guide to spacing, as are the instructions on seed packets and advice from the nursery or grower of the seedlings.

The depth of planting can vary, and should be a little deeper when conditions are dry and hot, or if only rainfall is depended on. If water is freely available and the ground can be kept moist after sowing, then a slightly shallower seed planting can take place. Seeds should be planted no deeper than 2-3 times their size into the soil. Each crop will have its own specific requirements for depth of planting, it is important to research and consult with commodity experts over the ideal depth for your particular crop.

When planting a vineyard or fruit orchard it is very important to carefully plan spacing between trees in a row and spacing between different rows to provide access to tractors and other implements. Remember that there is a break-even point between the number of trees in a row and to allow adequate growing space for each tree. E.g. it is not better to plant a hundred trees in a row if there is only space for fifty trees.



Please complete Activity 7 at the end of this session.

My Notes ...

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Concept (SO 4, AC 1 -4)	I understand this concept	Questions that I still would like to ask
The correct spacing requirement of a specific crop is identified.		
The optimal depth required for planting a specific crop is identified.		
Plants are planted at the correct spacing between rows and between individual plants.		
Plants are planted at the correct depth.		

My Notes ...

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7
SO 4 AC 1-4

Individual assignment

My Name:

My Workplace:

My ID Number:

Draw up a scale model of a field of crop, a vineyard or a fruit orchard showing the spacing between each individual plant.

Write a report discussing the reasons for the spacing.

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Facilitator comments:

Assessment:

Glossary

Term	Description
Cultivars	This is a term used when referring to different varieties of plants within a species. E.g. one can have grapes from different cultivars.
Cuttings	A stem or leaf that is cut from a plant and put in soil or water to grow into a new plant.
Erosion	The process of gradually destroying soil etc. by continuous wind or water.
Fertilizer	An additive to soil that releases nutrients for crops to grow.
Germination	Refers to the process when a seed forms its first roots and stems and leaves after planting it in medium such as soil.
"Hardening off"	Before planting cutting or seedlings that has been in a greenhouse or nursery, they are gradually exposed to the harsher environment that they will be eventually be growing in.
Planting material	Refers to seedlings, cuttings, bulbs etc that is being used for propagation.
Seedlings	A young plant grown from seed.

Am I ready for my test?

- ◆ Check your plan carefully to make sure that you **prepare in good time**.
- ◆ You have to be found **competent** by a qualified **assessor** to be declared competent.
- ◆ Inform the assessor if you have any **special needs** or requirements **before** the agreed date for the test to be completed. You might, for example, require an interpreter to translate the questions to your mother tongue, or you might need to take this test orally.
- ◆ Use this worksheet to help you prepare for the test. These are **examples of possible questions** that might appear in the test. All the information you need was taught in the classroom and can be found in the learner guide that you received.
 1. **I am sure** of this and understand it well
 2. **I am unsure** of this and need to ask the Facilitator or Assessor to explain what it means

Questions	1. I am sure	2. I am unsure
1. Name the different hand tools that can be used for establishing a crop using the following planting material and explain why: <ul style="list-style-type: none"> • Seed • Seedlings • Rooted cuttings • Unrooted cuttings (like sweet potatoes) Tubers (potatoes and sweet potatoes) and bulbs (garlic, onion bulblets, flower bulbs) Orchard trees.		
2. Why is it necessary to clean (and repair if required) tools after use and to store them correctly		
3. Give reasons why planting material should be checked before planting		
4. Explain the effects of environmental factors during the establishment of a crop		
5. Explain the Hygiene procedures you applied during the establishment of your crop		
6. Explain how you stored and prepared the propagation material before you started with the experiment.		
7. Explain the effects of wrong spacing (plant density) of plants and planting depth on the performance of the plants after establishing your crop		

Checklist for practical assessment ...

Use the **checklist** below to help you prepare for the part of the practical assessment when you are observed on the **attitudes** and **attributes** that you need to have to be found competent for this learning module.

Observations	Answer Yes or No	Motivate your Answer (Give examples, reasons, etc.)
Can you identify problems and deficiencies correctly?		
Are you able to work well in a team?		
Do you work in an organised and systematic way while performing all tasks and tests?		
Are you able to collect the correct and appropriate information and / or samples as per the instructions and procedures that you were taught?		
Are you able to communicate your knowledge orally and in writing, in such a way that you show what knowledge you have gained?		
Can you base your tasks and answers on scientific knowledge that you have learnt?		
Are you able to show and perform the tasks required correctly?		
Are you able to link the knowledge, skills and attitudes that you have learnt in this module of learning to specific duties in your job or in the community where you live?		

- ◆ The assessor will complete a checklist that gives details of the points that are checked and assessed by the assessor.
- ◆ The assessor will write commentary and feedback on that checklist. They will discuss all commentary and feedback with you.
- ◆ You will be asked to give your own feedback and to sign this document.
- ◆ **It will be placed together with this completed guide in a file as part of you portfolio of evidence.**
- ◆ The assessor will give you feedback on the test and guide you if there are areas in which you still need further development.

Paperwork to be done ...

Please assist the assessor by filling in this form and then sign as instructed.

Learner Information Form			
Unit Standard	116079		
Program Date(s)			
Assessment Date(s)			
Surname			
First Name			
Learner ID / SETA Registration Number			
Job / Role Title			
Home Language			
Gender:	Male:	Female:	
Race:	African:	Coloured:	Indian/Asian: White:
Employment:	Permanent:	Non-permanent:	
Disabled	Yes:	No:	
Date of Birth			
ID Number			
Contact Telephone Numbers			
Email Address			
Postal Address			Signature:

Bibliography

■ World Wide Web:

deere.com/en_US/deerecom/usa_canada.html

Terms & Conditions

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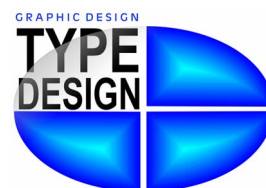
Didacsa Design SA (Pty) Ltd



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

Monitor the establishment of a crop

SAQA US ID	UNIT STANDARD TITLE		
116079	Monitor the establishment of a crop		
SGB NAME	NSB	PROVIDER NAME	
SGB Primary Agriculture	NSB 01-Agriculture and Nature Conservation		
FIELD		SUBFIELD	
Agriculture and Nature Conservation		Primary Agriculture	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4
REGISTRATION STATUS	REGISTRATION START DATE	REGISTRATION END DATE	SAQA DECISION NUMBER
Registered	2004-10-13	2007-10-13	SAQA 0156/04

PURPOSE OF THE UNIT STANDARD

A learner achieving this unit standard will be able to plant a range of crops and monitor the correct establishment of crops as well as ensuring that planting is placed and spaced as required. This Unit Standard forms part of the prior learning required in the areas of plant manipulation and plant propagation.

Learners will gain specific knowledge and skills in establishing the crop 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 the following unit standards or equivalent:

- NQF 1: Demonstrate an understanding of the basic concept of sustainable farming systems.
- NQF 1: Propagate plants.
- NQF 1: Fertilise soil and attend to basic plant nutrition.

UNIT STANDARD RANGE

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.

UNIT STANDARD OUTCOME HEADER

N/A

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Select, use and care for the appropriate tools and equipment used in the planting of a specific crop.

OUTCOME RANGE

Tools may include but is not limited to spades and forks. Equipment may include, but is not limited to planting lines.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

The correct tools and equipment to plant a specific crop according to prescribed methods are selected.

ASSESSMENT CRITERION 2

The reason for selecting specific equipment is explained.

ASSESSMENT CRITERION 3

Tools and equipment are used correctly.

ASSESSMENT CRITERION 4

Tools and equipment are cleaned and returned to storage in good order.

SPECIFIC OUTCOME 2

Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.

OUTCOME RANGE

Planting material may include, but is not restricted to, long term crops and cash crops. The handling of plants include, but are not limited to, the safe storage of plants before planting, the prevention of damage to plant material, ensuring that the planting material has sufficient moisture, and that sanitary precautions are adhered to. Planting methods include, but are not restricted to planting by hand and planting with use of hand-held tools.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

Healthy plants suitable for optimal growth are identified and selected.

ASSESSMENT CRITERION 2

The preparation of planting areas is monitored to suit the requirements of the selected planting material.

ASSESSMENT CRITERION 3

The planting at the correct time of day to ensure optimal growth of plants is monitored (e.g. not during the hottest time of the day).

ASSESSMENT CRITERION 4

The safekeeping of plant material that is on hand for planting (i.e. keeping them moist and sheltered) is monitored.

ASSESSMENT CRITERION 5

The watering of newly planted material is monitored.

ASSESSMENT CRITERION 6

The replacement of weak, diseased and dying plants among the newly planted material is monitored.

ASSESSMENT CRITERION 7

Basic hygiene standards are monitored to prevent cross-contamination.

SPECIFIC OUTCOME 3

Understand the impact of environmental conditions on the successful establishment of crops.

OUTCOME RANGE

Environmental effects include, but are not restricted to temperature, wind, humidity, rain, soil, etc.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

The effects of temperature and humidity on seedlings are explained.

ASSESSMENT CRITERION 2

The effects of root shock are explained.

ASSESSMENT CRITERION 3

Favourable soil conditions for transplanting seedlings are identified and explained.

ASSESSMENT CRITERION 4

The impact of heavy rain showers on seedlings is explained.

SPECIFIC OUTCOME 4

Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species.

OUTCOME RANGE

Spacing, depth and distance include, but are not limited to the distance indicated on plant line, measurements as prescribed, etc.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

The correct spacing requirement of a specific crop is identified.

ASSESSMENT CRITERION 2

The optimal depth required for planting a specific crop is identified.

ASSESSMENT CRITERION 3

Plants are planted at the correct spacing between rows and between individual plants.

ASSESSMENT CRITERION 4

Plants are planted at the correct depth.

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:

- Names and functions of machinery for the planting process.
- Attributes and characteristics of the planting process.
- The purpose of monitoring the planting process.
- The safety procedures related to working with hand-held tools.
- Plant hygiene principles during planting.
- Ensuring that the correct procedures are followed during planting.
- Plant requirements during planting.

UNIT STANDARD DEVELOPMENTAL OUTCOME

N/A

UNIT STANDARD LINKAGES

N/A

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Problem Solving: relates to specific outcomes:

- Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.
- Understand the impact of environmental conditions on the successful establishment of crops.
- Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the

correct depth for specific plant species.

UNIT STANDARD CCFO WORKING

Teamwork: relates to all specific outcomes.

UNIT STANDARD CCFO ORGANIZING

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 specific outcomes:

- Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.
- Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species.

UNIT STANDARD CCFO SCIENCE

Use Science and Technology: relates to specific outcomes:

- Monitor the handling of planting material for successful establishment according to required procedures for a specific crop.
- Understand the impact of environmental conditions on the successful establishment of crops.
- Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species.

UNIT STANDARD CCFO DEMONSTRATING

The world as a set of related systems: relates to specific outcome:

- Monitor the planting of plant material at correct spacing between rows, and individual plants, and at the correct depth for specific plant species.

UNIT STANDARD CCFO CONTRIBUTING

Self-development: relates to all specific outcomes.

UNIT STANDARD ASSESSOR CRITERIA

N/A

UNIT STANDARD NOTES

N/A

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