Learner Guide
Primary Agriculture

Repair & Maintain

My name: ..................................................
Company: ..................................................
Commodity: ......................  Date: .....................

The availability of this product is due to the financial support of the National Department of Agriculture and the AgriSETA. Terms and conditions apply.
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: Utilise and perform minor repair and maintenance tasks on implements, equipment and infrastructure |
| US No: 116060 | NQF Level: 2 | Credits: 5 |

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:

<table>
<thead>
<tr>
<th>Title</th>
<th>ID Number</th>
<th>NQF Level</th>
<th>Credits</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Certificate in Animal Production</td>
<td>48976</td>
<td>2</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>National Certificate in Plant Production</td>
<td>48975</td>
<td>2</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

Please mark the learning program you are enrolled in:

Are you enrolled in a:

- Learnership? Y N
- Skills Program? Y N
- Short Course? Y N

Your facilitator should explain the above concepts to you.

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.
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 role 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?

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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:

♦ Select basic equipment and implements that are appropriate to a combination of activities within a single agricultural process.

♦ Operate in a safe and responsible manner.

♦ Gain an understanding of sustainable agricultural practices as applied in the animal, plant and mixed farming sub fields. This unit standard focuses on the application of equipment, technology, implements and infrastructure in primary agriculture.

♦ They will be able to participate in, undertake and plan farming practices with knowledge of their environment. A culture of maintenance and care will be instilled for both the environment as well as towards farming infrastructure and operations.

What do I need to know?

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

♦ Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.

♦ Monitor the good working order and perform minor repairs to the use of tools, implements and/or equipment.

♦ Maintain and store tools, implements, equipment and/or machinery according to specifications.

♦ Explain and apply the necessary safety measures in the use of agricultural tools, equipment and/or implements.

Learning Outcomes

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

♦ The safe handling of tools and equipment.

♦ The basic contents of the NOHSA Act as it relates to safety precautions.

♦ How the relevant tools, equipment and machinery work in order to perform repairs.

♦ The purpose of learning and understanding equipment technology.
After completing this session, you should be able to:

**SO 1:** Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.

As it is impossible to describe every process in animal and plant production, we will focus on the three examples discussed below.

**In this session we explore the following concepts:**
- Erecting a fence.
- Building a contour.
- Milking a cow.

## 1.1 Erecting a fence

### Tools and equipment for erecting a fence

**Fences and trellis systems**

During the erection of fences and trellis systems we might use the following tools:

- Spirit-level
- Pickaxe
- Mattocks
- Spade
- Shovel
- Pliers
- Rake
- Pliers
- Wire cutters
- Fenoe strainer and saw.
Most modern agricultural fences are constructed from different types and sizes of steel wire in combination with wooden posts etc.

Reasons for using the following equipment:

♦ **Spirit level**: Use a spirit level to ensure that all posts and fences are at a 90 degree angle in relation to the surface area. This will ensure that once the fence is erected it will not fall over to one side due to its own weight.

♦ **Rake**: Use a rake to remove leaves and branches and for leveling the earth around posts after they have been erected.

♦ **Pickaxe**: When erecting posts as part of a fence, hard sediments and underground rocks are found when digging the holes for the posts. A Pickaxe can be used to loosen rock and break up sediments. The earth can then be removed with a shovel.

♦ **Mattocks**: When an area is selected for erecting the fence and it’s covered with shrubs and underground roots a mattock can be used to clear the obstacles.

♦ **Jemmy/ Koevoet**: This is a heavy, thick, hard steel shaft used to deepen a hole for breaking up rock and is very useful especially when holes are deep and a pickaxe cannot reach the bottom.

♦ **Spade**: When erecting a fence one must dig holes for the posts to be planted. Spades are used to dig these holes. Workers must take care not to damage spades when digging in hard areas and must first loosen up the earth using a pickaxe.

♦ **Shovel**: Shovels are used to remove earth from holes where posts are being planted

♦ **Saw**: A saw is used to make shallow notches in the posts at the correct height to keep wires from slipping down the post after the fence has been erected. The wire is wound at least twice around the post in the notch and then fastened.

♦ **Pliers**: These are used for gripping and fastening wires to posts and connecting steel, wooden or rubber droppers/spars vertical to the wires to give strength and stability to the fence. The shape of the pliers depends on their use. When connecting steel or galvanized wire to a posts use pliers with a square front that can properly grip the wire.

♦ **Fence-strainer**: There are different types of wire strainers found in the market today. This tool is used to tighten wires within a wire fence by using lever action. Operators must take necessary precaution and ensure that all fellow workers are at a safe distance because if a strained wire snaps it can cause serious injury or death.
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- Wire cutters: When erecting a fence one often uses a wire cutter to cut off access end of wire. Most pliers used for fastening wires can also be used for cutting wires. Take care not to use wire cutters for cutting hard steel as this will cause damage to the cutting edge.

- **Combinations of tools used for erecting a fence**
  - Pickaxe, Jemmy / Koevoet, shovel, spade, mattock and rake
    
    The above combination of equipment is used for digging a hole when a fence is erected. The pickaxe, mattock and jemmy/koevoet are used to loosen obstacles like roots, rocks and hard sediments. The shovel and spade are used for deepening the hole and removing loose earth out of the hole. Rakes are used for clearing the site where posts must be planted and for leveling the area around the posts after the posts have been planted.
  
  - Pliers, Fence-Strainers, Saws and Wire cutters
    
    When all the posts in a section of fence have been planted the process of straining must begin. The notches in posts are made with a saw to keep wires from slipping down the posts and ensuring the correct spacing in-between wires. Wire pliers are used to fasten wires around posts after the fence-strainer has tightened the wire to the correct tension. Wire cutters are used to cut away access wire. Pliers are also used to attach droppers to the tightened wires using thinner more pliable types of wire.

- **Agricultural fencing**
  
  - In agriculture, fences are used to keep animals in or out of an area.

  [Image of fences used to divide paddocks]
• History

  • Timber agricultural fence. *Photo taken in 1938*

  ![Timber agricultural fence](image)

  • Barbed wire. *Photo taken in 1938*

  ![Barbed wire](image)

**My Notes ...**
1.2 Building a contour

- Tools, equipment and machinery used for building a contour.
  - Tractors
  - Ploughs
  - Graders
  - Bulldozers
  - Dumpy levels

- The process of building a contour.

  Contours are imaginary lines on a slope connecting areas on the same level. In agriculture contours refer to terraces or plough furrows that are created when ploughing in the same direction as the imaginary contour.

  - Dumpy level.

  A dumpy level, Builders auto level, leveling instrument or automatic level is an instrument used in surveying and building to transfer, measure, or set horizontal levels.

  It is an instrument that is set up on a tripod and, depending on the type, either roughly or accurately set to a leveled condition. One operator looks through the sight while the other holds a tape measure or graduated staff at the position to be measured.
They are used to gather and/or transfer elevations (or levels) during site surveys or building construction. They generally start from a reference point known as a benchmark, this may be a value from a known survey point, or an arbitrary point used as a once off.

![Dumpy level in use on a construction site](image)

- Depending on the size of the operation and the characteristics of the site different machinery is then used to create the contours by ploughing, grading or bulldozing the earth to form ridges and lines.

In agriculture, a **terrace** is a leveled section of a hilly cultivated area, designed as a method of soil conservation to slow or prevent the rapid surface runoff of irrigation water. Often such land is formed into multiple terraces, giving a stepped appearance.

This form of land use is prevalent in many countries, and is used for crops requiring a lot of water, such as rice. Terraces are also easier for both mechanical and manual sowing and harvesting than a steep slope would be.
Modern grader

A **grader**, also commonly referred to as a **blade**, is an engineering vehicle with a large blade used to create a flat surface. Typical models have three axles, with the engine and cab situated above the rear axles at one end of the vehicle and a third axle at the front end of the vehicle, with the blade in between.

Modern tractor
Soil erosion

One negative effect of plowing is to dramatically increase the rate of soil erosion, both by wind and water, where soil is moved elsewhere on land or deposited in bodies of water, such as the oceans. Plowing is thought to be a contributing factor to the Dust Bowl in the United States in the 1930's. Alternatives to plowing, such as the no till method, have the potential to limit damage while still allowing farming.

1.3 Milking a cow

Tools, equipment and machinery used for milking a cow

Milking machine: The milking machine is a system consisting out of varies parts that work in combination with each other to milk a number of cows at the same time. The following parts form the basic framework of the milking machine.

- Claw;
- Teatcups;
- Milk tubes (many different shapes and sizes);
- Pulsator;
- Bulk tank

Milking machines are used to extract milk from cows when the herd is larger than about 4 cows. The milking unit is the portion of a milking machine for removing milk from an udder. It is made up of a claw, four teatcups, long milk tube, long pulsator tube, and pulsator.
The claw is manifold which connects the short pulse tubes and short milk tubes from the teatcups to the long pulse tubes and long milk tubes. Claws are commonly made of stainless steel or plastic. Teatcups are composed of a rigid outer shell (stainless steel or plastic), which holds a soft inner liner or inflation. Transparent sections in the shell may allow viewing of liner collapse and milk flow. The annular space between the shell and liner is referred to as the pulsation chamber.

Milking machines work in a way that is different from hand milking or calf suckling. Continuous vacuum is applied inside the soft liner to withdraw milk from the teat by creating a pressure difference across the teat canal (or opening at the end of the teat). Vacuum also helps keep the machine attached to the cow. The vacuum applied to the teat causes congestion of teat tissues (accumulation of blood and other fluids). Atmospheric air is admitted into the pulsation chamber about once per second (the pulsation rate), to allow the liner to collapse around the end of teat and relieve congestion in the teat tissue. The ratio of the time that the liner is open (milking) and closed (massaging or resting) is called the pulsation ratio.

The four streams of milk from the teatcups are usually combined in the claw and transported to the milk line or collection bucket (usually sized to the output of one cow) in a single milk hose. Milk is then transported (manually in buckets) or with a mechanical pump to a central storage vat or bulk tank. Milk is refrigerated on the farm in most countries either by passing through a heat-exchanger or in the bulk tank.

In the photo above is of a bucket milking system with the stainless steel bucket visible on the far side of the cow. The two rigid, stainless steel teatcup shells applied to the front two quarters of the cow are visible. The top of the flexible liner is visible at the top of the shells as are the short milk tubes and short pulsation tubes extending from the bottom of the shells to the claw. The bottom of the claw is transparent to allow visualization of milk flow. When milking is completed the vacuum to the milking unit is shut off and the teatcups are removed.
Milking machines keep the milk enclosed and safe from external contamination. The interior 'milk contact' surfaces of the machine are kept clean by a manual or automated washing procedure implemented after milking is completed twice or three times per day.

Milk contact surfaces must comply with regulations ensuring that they are food grade materials (typically stainless steel and special plastics and rubber compounds) and are easily cleaned.

Most milking machines are powered by electricity but, in case of electrical failure, there can be an alternative means of motive power, often an internal combustion engine, for the vacuum and milk pumps because milking cows cannot tolerate delays in their scheduled milking without suffering serious milk production reductions.

Please complete Activity 1 at the end of this session

My Notes ...

<table>
<thead>
<tr>
<th>Concept (SO 1, AC 1 - 3)</th>
<th>I understand this concept</th>
<th>Questions that I still would like to ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>The appropriate tools, implements and/or equipment are selected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The reasons for the selection of tools, implements and/or equipment are given.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possible combinations of tools, implements and/or equipment to execute a specific task are explained</td>
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</tbody>
</table>
Go to the farm where you are doing your practical, select a process like the examples in this session and describe it in relation to the following criteria:

1 a) The tools, equipment and machinery involved.

1 b) Features of each tool making it efficient for its purpose.

1 c) Describe the possible combinations of use of these tools to achieve the best results of the process.
Monitor the good working order of tools, implements & machinery

After completing this session, you should be able to:

SO 2: Monitor the good working order and perform minor repairs to the use of tools, implements and/or equipment.

In this session we explore the following concepts:

- The malfunction of tool, implements and machinery are recognised.
- The cause of the malfunction is correctly identified.
- The appropriate actions to prevent further damage is taken.
- The appropriate action to restore good working order is identified.
- Tools, equipment and/or implements are used correctly.
- Measures to prevent damage to tools, equipment and/or implements are explained.
- Repair and maintenance requirements are reported to the right person.

2.1 The malfunction of tool, implements and machinery are recognised

Recognition of a malfunction in a machine by the operator using his senses

- **Touch:** When a machine or tool works at a higher temperature than normal and heat is felt by the operator he may assume a malfunction.

- **Smell:** The smell of burning rubber or oil is normally one of the first signs of a defective machine.
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- **Hearing**: Operators are normally very aware of the noise the equipment he/she is working with makes. Loose bolts and screws may cause rattles that is audible and can help with the identification of a defective implement etc.

- **Sight**: Operators doing prescribed maintenance checks on their equipment may spot loose screws or leaks well before any damage may occur and may rectify the problem immediately. While operating a machine like a tractor the driver often see smoke or flames from under the bonnet and can switch off the machine instantly.

- **Input vs. output**: When machines and equipment do not run cost effectively e.g. when fuel or oil consumption increases but production rate stays the same one may assume the equipment is malfunctioning.

## 2.2 The cause of the malfunction is correctly identified

- Correct use of equipment.
- Repair and maintenance requirements are reported to the appropriate person.

### Definition

**Malfunction**: A fault in the way a machine or equipment operates.

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My Notes ...

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The reasons why tractors malfunction are the following:

- **Operators:** In most cases the cause of malfunction in tractors is negligence or mistakes made by the driver or operator, (human error). **Insufficient maintenance** or no maintenance is probably the most common cause of malfunction. Often a driver or operator is in charge of a tractor without being **properly trained** for this task and this may lead to mistakes causing malfunction. If a tractor is not used for its intended purpose by its operator it may lead to **misuse** and cause malfunction.

- **Faulty Machinery:** On very few occasions the cause of malfunction is faulty machinery. Normally such a malfunction will be apparent in the first period after purchase and will be covered by the supplier's warranty.

### 2.3 Appropriate action to prevent further damage

The following procedure will help operators to prevent further damage to their machinery in the case of a malfunction.

- **Stop:** Make sure you come to a standstill and then switch off the motor of your machine/ equipment.

- **Assess:** Do an inspection of your machine to ascertain the cause of the malfunction.

- **Get help:** If you are unsure regarding the cause of the malfunction, get a technician or your direct manager to help you.

- **Report:** Make sure you report the incident to the person responsible for maintenance and see to it that your report is recorded.

- **Repair:** Make sure the problem is repaired fully before using the tractor etc. again.
2.4 Appropriate actions to restore good working order

The best ways to ensure good working order is to ensure **routine maintenance, repair** malfunction equipment and to use the **correct operating procedures**. The most important aspect to take note of is that activities on a farm are an ongoing process and therefore maintenance and repair must also be seen from this point of view.

All the **different kinds of infrastructure** found on a farm require **routine maintenance** to ensure that the farming activities that they service can continue without hold ups. For example, a **drip irrigation system** is designed to supply water to each individual vine in a vineyard. If one of the drippers become blocked, the result is that the vine being fed water by that dripper will become stressed and potentially die. Therefore, one of the routine maintenance checks on a drip irrigation system would be to check that all drippers are working.

Please complete Activity 2 & 3 at the end of this session

<table>
<thead>
<tr>
<th>Concept (SO 2, AC 1 - 7)</th>
<th>I understand this concept</th>
<th>Questions that I still would like to ask</th>
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<tbody>
<tr>
<td>The malfunction of tools, implements and/or equipment is recognised</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The cause of the malfunction is correctly identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The appropriate action to prevent further damage (e.g. switching off a machine) is taken.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The appropriate action to restore good working order is identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tools, equipment and/or implements are used correctly.</td>
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<tr>
<td>Repair and maintenance requirements are reported to the appropriate person</td>
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</tbody>
</table>

My Notes ...
In order to complete the exercise you will need pens and at least one blank A 4 size summary table on which to record the information. You will require the appropriate tools necessary to fix recorded infrastructure problems.

For this task, you are to go into the field and conduct a condition survey of farm infrastructure. Alongside the facilitator, you are to conduct an assessment of the condition and state of repair of farm infrastructure such as fences, sheds, taps, vehicles etc.

2 a) **Your task is to assess** any farm infrastructure documenting the condition of each component using the table format provided below. Any faulty components, (e.g. blocked dripper, leaking pipe, hole in the roof), must be recorded. Depending on the complexity of the problem you will then be required to fix the problem under the supervision of your facilitator. You should present an overall infrastructure condition report back to the class, outlining your summary of the well-being or otherwise of the farm infrastructure.

<table>
<thead>
<tr>
<th>Item</th>
<th>Location</th>
<th>Condition</th>
<th>Score (1 – 10)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tap</td>
<td>West side of tool shed</td>
<td>Poor</td>
<td>2</td>
<td>Leaking water, needing urgent attention</td>
</tr>
<tr>
<td>Tractor</td>
<td>Equipment shed</td>
<td>OK</td>
<td>6</td>
<td>Needs wash</td>
</tr>
<tr>
<td>Chicken coop</td>
<td>Back garden</td>
<td>Very poor</td>
<td>1</td>
<td>Broken frame, wire damaged, door fallen off</td>
</tr>
<tr>
<td>Fence line</td>
<td>Eastern boundary of main property</td>
<td>Average</td>
<td>6</td>
<td>Needs repair @42 m and 45 m from eastern boundary corner</td>
</tr>
</tbody>
</table>

Your scoring system will allow you to judge the seriousness of the problem with judged infrastructure. A score of 10 would mean in perfect order, whilst a score of 1 would mean completely unusable. A score of 5 would mean ‘just’ working adequately.

**You will watch your facilitator repair the following items on the farm**

- A leaky tap
- A broken pipe or blocked dripper in an irrigation system, a broken fence line
- A car tyre

On completion you will conduct a similar activity under the supervision of the facilitator. It is important that you ask questions during the demonstration to make sure that you understand how to conduct these maintenance activities.
3 a) Describe the correct procedure to follow when the tool, equipment or implement malfunctions. This answer needs to cover all the steps up to the point where the tool, equipment or machine is back in excellent working order.

3 b) The learner must demonstrate the ability to monitor the good working order and conduct minor repairs to equipment of their choice.
Overview

A modern farm must function as a business unit with an integrated plan for maintenance and servicing of all equipment necessary for operation. This plan needs to be established as part of a total management plan and integrated from top level management down to the operator’s level.

♦ The importance of an effective maintenance plan:

Planning and control is vital if an effective maintenance plan is to be implemented. The management must, in conjunction with the person who will be responsible for the maintenance procedure, establish from the outset a plan that is practical and functional (It is important that this person be in a senior position). This plan must allow for unforeseen deviations, but only under extreme conditions.

At this point it is important to establish a plan for the storage of equipment; this storage will determine the value that management places on the maintenance level of the equipment. It must include a demarcated area that is specific to the cleaning of equipment. This area must conform to the farm’s conservation and environmental policy and plan that would take into account the use of strong cleaning materials that will be most detrimental to the environment.

Once the five year production plan for the farm is established, then planning for maintenance of equipment and machinery within the production plan can begin.

The routine maintenance and scheduling plan needs to be broken into two major sections and that is detailing the scheduled times that coincide with non-production peaks for major maintenance and the frequent inspections, either daily / weekly / monthly checks that are carried out on the equipment.

A farm maintenance budget needs to be practical and consists of two sections:

- **Frequent routine maintenance costs**: These costs are budgeted for in general but not planned for. For example a tractor might get a puncture and this would come out of this cost centre.
• **Major maintenance work** - in the plan it would be budgeted that after one year the tractor would require a major service and after five years the engine would require a total overhaul.

**Frequent inspections** would identify the need to replace or repair faulty items. **Major maintenance** work involves complete rework of equipment or an engine that has had considerable service time. This sort of maintenance is planned and budgeted for and would be scheduled to occur during a non productive period on the farm.

In the planning stage the managers would have to decide if they are going to have the **infrastructure available** to **do major maintenance work** on engines and equipment or are they going to out source this work. If they decide to keep the work **in-house** they must plan to have all the **tools and equipment available** to carry out major repair work. The costs involved in the maintenance of a tractor are substantial. For example, over the lifetime of a normal tractor, a farmer will spend the value again on keeping the tractor running in a condition that is compliant with the **Occupational Health and Safety Act**.

Often all **major maintenance** is carried out by **specialists** as it works out to be **more economical** in the long run.

The farm store would normally have a list of the **suppliers** of all equipment operating on the farm and if a new part is required to carry out work identified during a frequent inspection then the **stores can order the part** if they do not carry it as a stock item.

Part of the **planning process** would be to identify how much **capital** would be **invested in stock items** for maintenance and what would be acceptable down time if the maintenance team has to wait for the supplier to deliver. A balance needs to be planned for, as it is very costly to keep stock in the store and it can be costly to production not to have it immediately available.

A vital part of the **maintenance plan** is the training of staff that is responsible for given machines and equipment. The manager concerned with implementing the maintenance programme needs to establish a team that will assist to work out the finer details in the planning for implementation.

♦ **The Training team:**
  - Shop steward or union representative.
  - Maintenance manager.
  - Person responsible for training.
  - Industry specialist.
It is vital that the people responsible for maintenance of specific machinery and tools are trained to maintain and repair them. The industry specialist will often conduct the operational and field maintenance training. After training the specialist will issue a certificate of competency to the trainee. This will ensure that the operators are confident of their ability to operate and run the necessary maintenance checks on the equipment.

For example if the operator has been trained on a new chemical sprayer then they will understand that they are allowed to clean the air filter and the spark plug on a daily basis but they are not allowed to take the engine apart.

A maintenance schedule would involve the operator cleaning the air filter and spark plug and the outside of the machine for physical dirt on a daily basis. If the operator notices that there is an oil leak on the engine then the operator must go and notify their supervisor who will authorize the operator to book the machine in at the workshop.

The operator conducts a daily routine service at the end of the day and on a monthly basis takes the machine in to the workshop for a minor service. During down time when there is no need for spraying, the machine will be booked in for a major overhaul. In the case of brush cutters this often involves the replacing of guards and engine parts.

The workshop employee must be flexible and cater for equipment being brought in for minor essential repairs out of the set schedule, a sprayer that has an oil leak needs immediate attention as the lack of oil would cause major damage to the machine with further use.

Part of the plan for maintenance needs to be the availability of a replacement machine that can allow the operator to continue with the spraying while the machine is being fixed. There needs to be an agreed upon time for faulty equipment to be taken to the workshop, machines must be booked in and a job card issued for the work that needs to be conducted.

For every type of equipment operating on the farm there must be the necessary specific or generic equipment available to carry out maintenance on the machines or equipment. Most engine sprayers or brush cutters come with a set of spanners that is specific to that machine. It is best for the workshop to have a set and for the operator to have a set to take into the field.
No machine must be operated on unless the correct equipment is available. Using improvised tools on specific equipment can be costly and dangerous in the long run. A chain saw, brush cutter and sprayer usually have a specific sparkplug spanner and it is important to use the correct one.

On a farm the equipment is designed for hard and rugged use but it is important that on a daily basis that the machines be cleaned and stored appropriately.

During this cleaning process it is important for the operator to check for stress fractures. Dirt often conceals these fractures and damage occurs before the fracture is identified if daily maintenance is not carried out on the machine.

On a monthly basis the equipment needs to go into the workshop to be serviced and minor repairs made.

Agricultural equipment such as tractors and implements are incredibly expensive. It is cost effective to plan and build sheds to house tractors and equipment for the following reasons:

- The equipment is kept together and can be accounted for.
- The condition of the equipment can be checked and compared
- Equipment is accessible for inspection.
- Protected from the environment and theft.
- A policy of total quality management requires that all equipment is maintained and stored in a manner that complements this management strategy.
Please complete Activity 4 & 5 at the end of this session

<table>
<thead>
<tr>
<th>Concept (SO 3, AC 1 - 4)</th>
<th>I understand this concept</th>
<th>Questions that I still would like to ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools, implements and equipment are stored according to specifications.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The purpose of a maintenance schedule is described.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The requirements for applying a maintenance schedule are identified.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explain and apply the necessary safety measures in the use of agricultural tools, equipment and/or implements.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

My Notes ...
4. Describe correct storage of the tool, implement or machine that you are responsible for and describe the purpose of the maintenance schedule and the requirements for applying a maintenance schedule.
5. The learner must demonstrate the ability to maintain and store equipment according to specifications.
Session 4

Explain and apply necessary safety measures.

After completing this session, you should be able to:
SO 4 Explain and apply the necessary safety measures in the use of agricultural tools, equipment and/or implements.

4.1 The appropriate protective clothing to use and wear

♦ Protective clothing for general hand tools

Hand tools are often used without any protective clothing. Spades and forks do not normally require protective clothing. A common exception is when working in muddy conditions when rubber boots must be worn. When using picks or hammers on material like rock, protective eyewear is recommended as rocks splinters can damage eyes. When working with cement or rough material like rocks or barbed wire leather gloves must be worn.

When using power tools like angle grinders, eye protection should be mandatory. Welding equipment has its specialised headgear to protect eyes from the very intense light during the operation. A leather apron must also be worn during welding. The farm manager should be aware of the safety needs of his/her workers and respond to that before it develops into a problem.

♦ Handling Chemicals

Chemicals on the farm are generally dangerous and protective clothing and equipment for it is necessary according to its hazard level. Refer to the operating manual for specific and appropriate safety gear. The following should be followed in general:
When mixing with pesticides

**WEAR:**
- eye protection
- rubber gloves
- rubber boots

When applying pesticides

**WEAR:**
- mouth protection
- rubber gloves
- rubber boots

<table>
<thead>
<tr>
<th>STORAGE</th>
<th>ADVICE</th>
<th>ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>Keep locked away so that children and animals cannot reach it</td>
<td>Dangerous/harmful to animals</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>Wash after use</td>
<td></td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td></td>
<td>Dangerous/harmful to fish — do not contaminate rivers and dams</td>
</tr>
</tbody>
</table>
DO NOT store food in empty pesticide containers

DO NOT store pesticide in food containers

RINSE empty pesticide containers and DESTROY them

Follow these steps to wash your hands after working with pesticides or any other chemical:

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Step 1" /></td>
<td><img src="image2" alt="Step 2" /></td>
<td><img src="image3" alt="Step 3" /></td>
</tr>
<tr>
<td>Wet hands thoroughly with warm water.</td>
<td>Apply antibacterial soap generously.</td>
<td>Scrub under nails with a clean nailbrush.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 4</th>
<th>Step 5</th>
<th>Step 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4" alt="Step 4" /></td>
<td><img src="image5" alt="Step 5" /></td>
<td><img src="image6" alt="Step 6" /></td>
</tr>
<tr>
<td>Rub hands vigorously for at least 20 seconds.</td>
<td>Rinse hands thoroughly with warm water.</td>
<td>Dry hands using a single-use towel.</td>
</tr>
</tbody>
</table>
Protective equipment that must be available

These include:

- Overalls.
- Face shields.
- Rubber boots.
- Rubber gloves or leather gloves.
- Goggles.

Checklist for brush-cutters...

The following checklist has been drawn up for brush cutters but this list can act as a guide to other forms of equipment. A good rule is to get the supplier always to do training with you before you take on a piece of equipment:

- Conduct a pre-cut inspection for metal obstacles or large stones as these blades will shatter if you hit a hard surface.
- Wear all the correct safety equipment as suggested by the directions for the machine.
- Monitor a radius in which it is safe to work and make sure that nobody comes into this safe area.
- Make sure that the safety guard is correctly fitted.
- Check that only blades recommended by the supplier are used.
- Check that the blade is correctly fitted according to instructions and your training.
- Make sure that when you stop work that the machine is switched off and you clean the blade, using the correct equipment sharpen the blade.
- If the blade is blunt it can heat up and shatter.

There are two elements that require extra attention and these are the guards and the required safety equipment.
Characteristics of a good guard

♦ Provide maximum protection.
♦ Allow no access during operation.
♦ Strong and resistant and easy to replace.
♦ Must have factory set points to be mounted
♦ Must comply with the requirements of the department of labour.
♦ It must be a permanent part of the machine.
♦ Efficient operation of the machine should not be affected by the guard.
♦ It must withstand normal wear and tear.

Protective clothing required by the operator

♦ Head – helmet with a strong plastic visor that protects the eyes.
♦ Ears - industrial ear muffs need to be worn to protect the operator’s level of hearing.
♦ Body - apron and overalls.
♦ Hands – gloves.
♦ Feet – safety boots.

Lastly the operator needs to constantly stop and consume a lot of liquids to stop dehydration.

The operator must be aware that within the health and safety act is a section called NOSA. This stands for the National Occupational and Safety Act. This act governs how a workplace should be run and is graded accordingly.

Briefly NOSA covers the following:

- Premises and house keeping.
- Mechanical, electrical and personal safeguarding.
- Fire protection and prevention.
- Accident recording and investigation.
- Safety organisations.
### Please complete Activity 6 & 7 at the end of this session

### My Notes …

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</tr>
<tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Write a summary on the content of key aspects in the NOSA Act.
Describe the safe use of machinery.

Facilitator comments:

Assessment:
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contour</td>
<td>Contours are imaginary lines on a slope connecting areas on the same level. In agriculture contours refer to terraces or plough furrows that are created when ploughing in the same direction as the imaginary contour.</td>
</tr>
<tr>
<td>Dumpy level</td>
<td>A dumpy level, builder’s auto level, leveling instrument or automatic level is an instrument used in surveying and building to transfer, measure, or set horizontal levels.</td>
</tr>
<tr>
<td>Misuse</td>
<td>To use something in the wrong way or for the wrong purpose.</td>
</tr>
<tr>
<td>Operator</td>
<td>Someone who operates a machine or a piece of equipment.</td>
</tr>
<tr>
<td>Ploughing</td>
<td>To turn over the earth using a plough so that seeds can be planted.</td>
</tr>
<tr>
<td>Pulsator</td>
<td>Forms part of a milking machine and is responsible for switching vacuum on and off causing milk to floe from the teats of a cow.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Questions</th>
<th>1. I am sure</th>
<th>2. I am unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Name the tools you will select for erecting a fence?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Why do you use these and not other tools?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) What will be affected if one of the selected tools goes missing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) How will you know if equipment is malfunctioning?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Name the main causes of malfunction in equipment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) How will you protect a machine or implement from further damage if it has had a malfunction?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) How will you ensure good working order in a machine that has had a malfunction?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) What is the meaning of the term misuse?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) Describe a maintenance schedule and its main benefits.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10) What are the benefits of correct storage conditions for tools, implements and machinery?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11) Name the safety procedures for handling of agri-chemicals and fuel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12) In short what does the national occupational health and safety act refer to?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 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.

<table>
<thead>
<tr>
<th>Observations</th>
<th>Answer</th>
<th>Motivate your Answer (Give examples, reasons, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you identify problems and deficiencies correctly?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to work well in a team?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you work in an organised and systematic way while performing all tasks and tests?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to collect the correct and appropriate information and / or samples as per the instructions and procedures that you were taught?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to communicate your knowledge orally and in writing, in such a way that you show what knowledge you have gained?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you base your tasks and answers on scientific knowledge that you have learnt?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to show and perform the tasks required correctly?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 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.

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

- **World Wide Web:**
  - "http://en.wikipedia.org

Terms & Conditions

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  - Ms P Prinsloo
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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED UNIT STANDARD:

Utilise and perform minor repair and maintenance tasks on implements, equipment and infrastructure

<table>
<thead>
<tr>
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<th>UNIT STANDARD TITLE</th>
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<tr>
<td>116060</td>
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<th>SGB NAME</th>
<th>NSB</th>
<th>PROVIDER NAME</th>
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<td>NSB 01-Agriculture and Nature Conservation</td>
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<th>SUBFIELD</th>
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<td>Agriculture and Nature Conservation</td>
<td>Primary Agriculture</td>
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<tr>
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<th>NQF LEVEL</th>
<th>CREDITS</th>
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<td>2007-10-13</td>
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PURPOSE OF THE UNIT STANDARD

A learner achieving this unit standard will be able to select basic equipment and implements that are appropriate to a combination of activities within a single agricultural process. S/he will be able to operate in a safe and responsible manner.

In addition learners will be well positioned to extend their learning and practice into other areas of agriculture or to strive towards professional standards and practices at higher levels.

Competent learners will be fully conversant with agricultural regulations and aspects of safety to ensure the application of quality practices and thus strengthen agricultural practices in general.

Learners will gain an understanding of sustainable agricultural practices as applied in the animal, plant and mixed farming sub fields. This unit standard focuses on the application of equipment, technology, implements and infrastructure in primary agriculture.

They will be able to participate in, undertake and plan farming practices with knowledge of their environment. A culture of maintenance and care will be instilled for both the environment as well as towards farming infrastructure and operations.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

It is assumed that a learner attempting this unit standard will show competence against the following unit standard, or equivalent:

- NQF 1: Select, care for and use hand tools and basic equipment and infrastructure.

UNIT STANDARD RANGE
Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

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.

**Specific Outcomes and Assessment Criteria:**

**SPECIFIC OUTCOME 1**
Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.

**OUTCOME RANGE**
Agricultural process refers to the application of a range of tasks that form a specific function. For example, it may refer to the erection of a fence, the building of contours in a field, the milking of cows or the ploughing of a field. The tools, implements and equipment may include any of the following: hand tools, power tools, hand operated machinery, tractors, vehicles, and graders, as determined by the context in which the learner is working.

**ASSESSMENT CRITERIA**

**ASSESSMENT CRITERION 1**
The appropriate tools, implements and/or equipment are selected.

**ASSESSMENT CRITERION 2**
The reasons for the selection of tools, implements and/or equipment are given.

**ASSESSMENT CRITERION 3**
Possible combinations of tools, implements and/or equipment to execute a specific task are explained.

**SPECIFIC OUTCOME 2**
Monitor the good working order and perform minor repairs to the use of tools, implements and/or equipment.

**OUTCOME RANGE**
The good working order of tools, equipment and/or implements refers to the efficiency and optimum operating standards. Minor repairs may include the cleaning, sharpening or replacement of appropriate components to restore good working order.

**ASSESSMENT CRITERIA**

**ASSESSMENT CRITERION 1**
The malfunction of tools, implements and/or equipment is recognised.

**ASSESSMENT CRITERION 2**
The cause of the malfunction is correctly identified.

**ASSESSMENT CRITERION 3**
The appropriate action to prevent further damage (e.g. switching off a machine) is taken.

**ASSESSMENT CRITERION 4**
The appropriate action to restore good working order is identified.

**ASSESSMENT CRITERION 5**
Tools, equipment and/or implements are used correctly.

**ASSESSMENT CRITERION 6**
Measures to prevent damage to tools, equipment and/or implements are explained.

**ASSESSMENT CRITERION 7**
Repair and maintenance requirements are reported to the appropriate person.

**SPECIFIC OUTCOME 3**
Maintain and store tools, implements, equipment and/or machinery according to specifications.

**OUTCOME RANGE**
Specifications refer to the manufacturer's recommendations as well as the maintenance policy of the workplace. Maintenance can refer to basic infrastructure (pipes) as well as machinery and vehicles.

**ASSESSMENT CRITERIA**

**ASSESSMENT CRITERION 1**
Tools, implements and equipment are stored according to specifications.

**ASSESSMENT CRITERION 2**
The purpose of a maintenance schedule is described.

**ASSESSMENT CRITERION 3**
The requirements for applying a maintenance schedule are identified.

**SPECIFIC OUTCOME 4**
Explain and apply the necessary safety measures in the use of agricultural tools, equipment and/or implements.

**OUTCOME RANGE**
Safety refers to the application of measures referred to in the National Occupation and Safety Act (NOSA).

**ASSESSMENT CRITERIA**

**ASSESSMENT CRITERION 1**
Tools, implements and/or equipment are used safely.

**ASSESSMENT CRITERION 2**
The safety procedures applicable to the use and handling of fuel, agro-chemicals, equipment and implements are described.

**ASSESSMENT CRITERION 3**
The safe use of machinery is described. The contents of the NOSA Act are summarised.

**ASSESSMENT CRITERION 4**
The appropriate protective clothing required for the safe use of equipment are selected and used.

**ASSESSMENT CRITERION 5**
The safe use of machinery is described.

**ASSESSMENT CRITERION 6**
The contents of the NOSA Act are summarized.

**ASSESSMENT CRITERION 7**
The appropriate protective clothing required for the safe use of equipment are selected and used.

**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:
The safe handling of tools and equipment.
The basic contents of the NOHSA Act as it relates to safety precautions.
How the relevant tools, equipment and machinery work in order to perform repairs.
The purpose of learning and understanding equipment technology.
Sensory cues related to the safety and maintenance of tools, systems and equipment.
All relevant legislation pertaining to the handling and operation of tools.
All relevant procedures related to the handling and maintenance of tools.
All relevant nomenclature related to tools and technology.

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:
- Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.
- Identify malfunctioning tools and equipment and perform minor repairs related to the use of equipment in an agricultural environment.
- Adhere to and understand the necessary safety measures in the use of agricultural equipment and implements.

UNIT STANDARD CCFO WORKING
Teamwork relates to specific outcomes:
- Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.
- Adhere to and understand the necessary safety measures in the use of agricultural equipment and implements.

UNIT STANDARD CCFO ORGANIZING
Self-organisation and management relates to all specific outcomes.

UNIT STANDARD CCFO COLLECTING
Information evaluation relates to specific outcomes:
- Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.
- Identify malfunctioning tools and equipment and perform minor repairs related to the use of equipment in an agricultural environment.

UNIT STANDARD CCFO COMMUNICATING
Communication relates to specific outcomes:
- Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.
- Identify malfunctioning tools and equipment and perform minor repairs related to the use of equipment in an agricultural environment.

UNIT STANDARD CCFO SCIENCE
Use science and technology relates to all specific outcomes.
UNIT STANDARD CCFO DEMONSTRATING
Inter-relatedness of systems relates to specific outcomes:
• Select the appropriate tools, implements and/or equipment, from a limited range, to use in a specified combination of activities within a single agricultural process.
• Adhere to and understand the necessary safety measures in the use of agricultural equipment and implements.

UNIT STANDARD CCFO CONTRIBUTING
Self-development relates to specific outcome:
• Adhere to and understand the necessary safety measures in the use of agricultural equipment and implements.

UNIT STANDARD ASSESSOR CRITERIA
N/A

UNIT STANDARD NOTES
N/A

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