

OPERATE FARM MACHINERY

UNIT CODE: 0716 551 05A

TVET CDACC UNIT CODE: AGR/OS/AP/CC/01/5/MA

UNIT DESCRIPTION

This unit equips trainees with knowledge and skills to operate farm power and machinery. The unit entails description of the types and sources of farm power, demonstration of the working principles of the internal combustion engine and tractor systems and maintenance of the tractor and tractor systems. It also involves operation and maintenance of farm tools, equipment and machinery.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function .	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the range.</i>
1. Operate hand tools and equipment	1.1 <i>Hand tools</i> and <i>equipment</i> are assembled as per work requirement 1.2 Hand tools and equipment are utilized as per work procedure 1.3 Hand tools and equipment are serviced as per work procedure 1.4 Hand tools and equipment are stored as per work procedure
2. Operate tillage machinery	2.1 <i>Personal protective equipment</i> is worn as per safety procedures 2.2 <i>Tillage machinery</i> is operated as per work procedures 2.3 Tillage machinery is maintained as per work procedure 2.4 Tillage machinery is stored as per work procedure

<p>3. Operate planting machinery</p>	<p>3.1 Personal protective equipment is worn as per safety procedure</p> <p>3.2 Planting machinery is calibrated as per work requirement</p> <p>3.3 Planting machinery is operated as per work procedure</p> <p>3.4 Planting machinery is maintained as per work procedure</p> <p>3.5 Planting machinery is stored as per work procedure</p>
<p>4. Operate crop protection machinery</p>	<p>4.1 Personal protective equipment is worn as per safety procedure</p> <p>4.2 Crop protection machinery calibrated as per work requirement</p> <p>4.3 Crop protection machinery is operated as per work requirement</p> <p>4.4 Crop protection machinery is maintained as per work procedure</p> <p>4.5 Crop protection machinery is stored as per work requirement</p>
<p>5. Operate harvesting machinery</p>	<p>5.1 Personal protective equipment is worn as per safety procedures</p> <p>5.2 Harvesting machinery is operated as per work procedures</p> <p>5.3 Harvesting machinery is maintained as per work requirement</p> <p>5.4 Harvesting machinery is stored as per work requirement</p>
<p>6. Operate Agro-processing machinery</p>	<p>6.1 Personal protective equipment is worn as per safety procedures</p> <p>6.2 Agro-processing machinery is operated as per work requirement</p> <p>6.3 Agro-processing machinery is maintained and repaired as per work requirement</p>

	6.4 Agro-processing machinery is stored as per work requirement
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RANGE

VARIABLE	RANGE
1. PPEs include but not limited to:	<ul style="list-style-type: none"> • Googles • Ear muffs • Safety boots • Nose mask • Gloves • Overall • Dust coat
2. Hand tools and equipment include but not limited to:	<ul style="list-style-type: none"> • Garden tools and equipment <ul style="list-style-type: none"> Panga Slasher Spade Rake Secateurs Fork Jembe Dibber • Workshop tools and equipment <ul style="list-style-type: none"> Jack plane Hand saw Hammer Hand drill Tape measure Files • Carpentry tools and equipment <ul style="list-style-type: none"> Hand saw Hammer Chisel

VARIABLE	RANGE
	<p>Try square Coping saw</p> <ul style="list-style-type: none"> • Masonry tools and equipment <ul style="list-style-type: none"> Plumb line Brick hammer Cold chisel Masons level Wheelbarrow Masonry saw Masonry tape measure • Livestock handling tools and equipment <ul style="list-style-type: none"> Burdizzo Tooth clipper Ear notcher Hoof trimmer Elastrator Shears Halter
<p>3. Tillage machinery include but not limited to:</p>	<p>1 Ploughs</p> <ul style="list-style-type: none"> • Disc plough • Mouldboard plough • Ox- plough <p>2.2.2 Harrows</p> <ul style="list-style-type: none"> • Disc harrow • Spring tine harrow <p>2.2.3 Tillers</p> <ul style="list-style-type: none"> • Chisel plough • Subsoilers

VARIABLE	RANGE
4. Hand tools and equipment	<ul style="list-style-type: none"> • Cultivation tools and equipment • Harvesting tools and equipment • Crop protection tools and equipment
5. Planting machinery include but not limited to:	<ul style="list-style-type: none"> • Seed drills • Planters • Ridgers • Fertilizer distributors • Manure spreaders
6. Crop protection machinery include but not limited to:	<ul style="list-style-type: none"> • Sprayers • Dusters
7. Harvesting machinery include but not limited to:	<ul style="list-style-type: none"> • Balers • Mowers • Combined harvesters • Potato harvester • Threshers
8. Processing machinery include but not limited to:	<ul style="list-style-type: none"> • Mills • Grinders • Shellers • Dryers • Elevator conveyors
9. Secondary tillage machinery	<ul style="list-style-type: none"> • Harrows • rotary tillers
10. Sowing machinery	<ul style="list-style-type: none"> • seed drill • planters • potato planter
11. Crop protection	<ul style="list-style-type: none"> • boom sprayer • dusters • knapsack sprayers

This section provides work environments and conditions to which the

performance criteria apply. It allows for different work environment and situations that will affect performance.

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Identification
- Drawing
- Communication
- Demonstration
- Interpersonal
- Calculation
- Analytical
- Observation
- Problem solving
- First aid
- Innovation
 - Creativity

Required Knowledge

The individual needs to demonstrate knowledge of:

- Types and sources of farm power
- Tractor engine
- Tractor systems and their principles of operation
- Power transmission in a tractor
- Tractor components, controls and features and operational functions
- Tractor steering systems and features
- Attached equipment, features and operational functions and procedures
- Operating principles and operating of farm machinery
- Maintenance of tractors
- Maintenance of farm tools, equipment and machinery

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

<p>1. Critical Aspects of Competency</p>	<p>The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy holistically all of the requirements of the performance criteria and required skills and knowledge and include evidence of the following</p> <ul style="list-style-type: none"> 1.1 Utilized hand tools and equipment 1.2 Serviced Hand tools and equipment 1.3 Operated Tillage machinery 1.4 Calibrated <i>Planting machinery</i> calibrated as per work requirement 1.5 Operated Planting machinery as per work procedure 1.6 calibrated <i>Crop protection machinery</i> as per work requirement 1.7 Operated Crop protection machinery as per work requirement 1.8 Operated Harvesting machinery as per work procedures 1.9 Wore Personal protective equipment per safety procedures 1.10 Operated <i>Agro-processing machinery</i> is as per work requirement
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place 2.3 Resources relevant to the proposed activity or tasks.
<p>3. Methods of Assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Observation 3.2 Written tests 3.3 Oral questioning 3.2 Interviewing
<p>4. Context of Assessment</p>	<p>Competency may be assessed:</p> <ul style="list-style-type: none"> 4.1 Competency may be assessed in workplace or in a simulated workplace setting

	4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed operation of farm power and machinery.