

VARIABLE	RANGE
	<ul style="list-style-type: none"> <li>knapsack sprayers</li> </ul>

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.

1. Critical Aspects of Competency	<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"> <li>1.1 Utilized hand tools and equipment</li> <li>1.2 Serviced Hand tools and equipment</li> <li>1.3 Operated Tillage machinery</li> <li>1.4 Calibrated <b>Planting machinery</b> calibrated as per work requirement</li> <li>1.5 Operated Planting machinery as per work procedure</li> <li>1.6 calibrated <b>Crop protection machinery</b> as per work requirement</li> <li>1.7 Operated Crop protection machinery as per work requirement</li> <li>1.8 Operated Harvesting machinery as per work procedures</li> <li>1.9 Wore Personal protective equipment per safety procedures</li> <li>1.10 Operated <b>Agro-processing machinery</b> is as per work requirement</li> </ul>
2. Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> <li>2.1 Tractor engine</li> <li>2.2 Tractor</li> <li>2.3 Hand tools and equipment</li> <li>2.4 Farm machinery</li> </ul>
3. Methods of	Competency may be assessed through:

Assessment	3.1 Observation 3.2 Written tests 3.3 Oral questioning 3.2 Interviewing
4. Context of Assessment	Competency may be assessed: 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.

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## **CORE UNITS OF COMPETENCY**

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## PRODUCE LIVESTOCK FEEDS

UNIT CODE: 0811 351 08A

TVET CDACC UNIT CODE: AGR/CU/AP/CR/01/4/MA

### UNIT DESCRIPTION

This unit specifies competencies required to produce livestock feeds. It involves producing livestock forage, conserving livestock forage, and formulating livestock feed rations.

### ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <i><b>Bold and italicized terms are elaborated in the Range.</b></i>
1. Produce livestock forage	1.1 <i><b>Tools and equipment</b></i> are assembled as per work requirements 1.2 <i><b>Propagation materials</b></i> are sourced as per <i><b>Agro-Ecological Zone (AEZ)</b></i> 1.3 Land is prepared as per planting material requirements 1.4 Propagation materials are prepared according to <i><b>Good Agricultural Practices (GAP)</b></i> 1.5 Propagation materials are established as per good agricultural practices 1.6 <i><b>Forages</b></i> are <i><b>managed</b></i> as per good agricultural practices 1.7 Forages are harvested as per maturity index and height
2. Conserve livestock forage	2.1 Quality of harvested forages is assessed based livestock production manual 2.2 Forages are conserved into silage or hay as per LPM 2.3 Conserved forage is stored based on established storage requirements and conditions 2.4 Forage production records are generated and disseminated as per the workplace requirements 2.5 Waste is managed according to environmental protection regulations

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <b><i>Bold and italicized terms are elaborated in the Range.</i></b>
3. Formulate livestock rations	<p>3.1 Feed formulation tools, equipment and materials are identified and assembled based on feed formulation manual and workplace requirements</p> <p>3.2 <b><i>Animal feeds ingredients</i></b> are identified as per animal feeding standard</p> <p>3.3 Animal feeds ingredient are sourced as per type of feed to be formulated and animal nutritional requirements</p> <p>3.4 Ingredient proportions are weighed as per feed formulation formula</p> <p>3.5 Livestock feed rations are formulated using <b><i>feed formulation methods</i></b> as per animal feeding standard</p> <p>3.6 Formulated feeds are packaged and labeled as per feed manufacturing guidelines</p> <p>3.7 Packaged feeds are stored as per livestock feed manufacturing guidelines</p> <p>1. Waste is managed according to environmental protection regulations</p>

## RANGE OF VARIABLES

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

<b>RANGE</b>	<b>VARIABLE</b>
1. Tools and equipment may include but are not limited to:	<ul style="list-style-type: none"> <li>• Equipment</li> <li>• Grass cutters</li> <li>• Generator</li> </ul>

RANGE	VARIABLE
	<ul style="list-style-type: none"> <li>• Water pump with hose</li> <li>• Tractors (optional)</li> <li>• Draft animals</li> <li>• Plow and harrow</li> <li>• Shovel</li> <li>• Hoe</li> <li>• Water sprinklers</li> <li>• Planter</li> <li>• Wheelborrow</li> <li>• Hole digger</li> <li>• Planting materials</li> <li>• Fertilizer (Organic and inorganic)</li> <li>• Pesticides</li> <li>• Root inoculants</li> <li>• Herbicides</li> <li>• Fencing materials</li> </ul>
2. Propagation materials may include but are not limited to:	<ul style="list-style-type: none"> <li>• Seeds, Seedlings</li> <li>• Cuttings, Splits and</li> <li>• Tubers for propagation</li> </ul>
3. Good Agricultural Practices (GAP) includes but not limited	<ul style="list-style-type: none"> <li>• Liming</li> <li>• Mulching</li> </ul>
4. Forages may include but not limited to;	<ul style="list-style-type: none"> <li>• Pastures</li> <li>• Fodder crops</li> </ul>
5. Animal feeds ingredients may include but not limited to;	<ul style="list-style-type: none"> <li>• Feed additives , Bran</li> <li>• Mineral premixes</li> </ul>
6. Feed formulation methods may include but not limited to;	<ul style="list-style-type: none"> <li>• Person square</li> <li>• Trial and error</li> <li>• Computer method</li> </ul>

## **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:

- Communication skills
- Food safety risk assessment and communication
- Training skills
- Measuring skills
- Agronomic skills
- Communication skills
- Basic mechanical operations
- Maintenance of forage

### **Required knowledge**

The individual needs to demonstrate knowledge of:

- Agro ecological zoning
- Types of planting materials
- Primary and secondary cultivation
- Hazard Analysis Critical Control Point (HACCP) process
- Code of hygienic practice (s)
- Risk assessment
- Mycotoxins
- Water quality
- Safe use of pesticides and herbicides
- Code of practice for the animal feed industry
- Principles of forage establishment and management
  - Methods of planting
  - Weeds, pests and diseases control methods
  - Irrigation methods
- Forage harvesting and conservation methods
- Occupational safety and health Act