



REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

AGRICULTURE AND EXTENSION TECHNICIAN

LEVEL 5

(CYCLE 3) PROGRAMME CODE: 0811 454A



TVET CDACC
P.O. BOX 15745-00100
NAIROBI

OPERATE FARM MACHINERY

UNIT CODE: 0811451 06 A

TVET CDACC UNIT CODE: AGR/OS/EXT/CR/01/4/MA

UNIT DESCRIPTION

This unit specifies the competencies required by Agriculture and Extension practitioner to operate farm machinery. It involves operate hand tools and equipment, operate tillage machinery, operate planting machinery, operate crop protection machinery, operate harvesting machinery and operate agro-processing machinery.

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>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
3. Operate planting	3.1 Personal protective equipment is worn as per safety

machinery	<p>procedure</p> <p>3.2 <i>Planting machinery</i> 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>
4. Operate crop protection machinery	<p>4.1 <i>Crop protection machinery</i> calibrated as per work requirement</p> <p>4.2 Crop protection machinery is operated as per work requirement</p> <p>4.3 Crop protection machinery is maintained as per work procedure</p> <p>4.4 Crop protection machinery is stored as per work requirement</p>
5. Operate harvesting machinery	<p>5.1 <i>Harvesting machinery</i> is operated as per work procedures</p> <p>5.2 Harvesting machinery is maintained as per work requirement</p> <p>5.3 Harvesting machinery is stored as per work requirement</p>
6. Operate agro-processing machinery	<p>6.1 <i>Agro-processing machinery</i> is operated as per work requirement</p> <p>6.2 Agro-processing machinery is maintained and repaired as per work requirement</p> <p>6.3 Agro-processing machinery is stored as per work requirement</p>

RANGE

Variable	Range
1. PPEs include but not limited to:	<ul style="list-style-type: none">• Eye protection equipment• Hearing protection equipment• Feet protection equipment• Respiratory protection equipment• Gloves• Full body suits
2. Hand tools and equipment include but not limited to:	<ul style="list-style-type: none">• Garden tools and equipment• Workshop tools and equipment• Carpentry tools and equipment• Masonry tools and equipment• Livestock handling tools and equipment
3. Tillage machinery include but not limited to:	<ul style="list-style-type: none">• Ploughs• Harrows• Tillers• Rotavators• Subsoilers
4. Planting machinery include but not limited to:	<ul style="list-style-type: none">• Seed drills• Planters• Ridgers• Fertilizer distributors• Manure spreaders
5. Crop protection machinery include but not limited to:	<ul style="list-style-type: none">• Sprayers• Dusters
6. Harvesting machinery include but not limited to:	<ul style="list-style-type: none">• Balers• Mowers• Combined harvesters• Potato harvester

	<ul style="list-style-type: none"> • Threshers
7. Processing machinery include but not limited to:	<ul style="list-style-type: none"> • Mills • Grinders • Shellers • Dryers • Elevators conveyors

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>Assessment requires evidence that the candidate:</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 Planting machinery calibrated as per work requirement 1.5 Operated Planting machinery as per work procedure 1.6 calibrated Crop protection machinery 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 Agro-processing machinery is as per work requirement
2. Resource Implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Appropriately simulated environment where assessment can take place

	<p>2.2 Access to relevant workplace assessment environment</p> <p>2.3 Resources relevant to the proposed assessment activity or tasks</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.19 Practical assessment</p> <p>3.20 Project</p> <p>3.21 Portfolio of evidence</p> <p>3.22 Third party report</p> <p>3.23 Written assessment</p> <p>3.2 Oral assessment</p>
4. Context of Assessment	<p>This competency may be assessed in a workplace or in a simulated workplace.</p>
5. Guidance information for assessment	<p>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.</p>