

### **Suggested Methods of Instruction**

- Presentations and practical demonstrations by trainer;
- Guided learner activities and research to develop underpinning knowledge;
- Supervised activities and projects in a workshop;
- Visiting lecturer/trainer from the Agricultural Machinery service and repair sector;
- Industrial visits.

### **Recommended Resources for 25 Trainees**

- A fully equipped agricultural machinery and equipment maintenance workshop;
- Fully operational tractor
- Internet access to manufacturers' technical information;
- Personal protective equipment (PPE) and suitable coverings to protect vehicles;
- Facilities for the disposal of waste oil and used parts;
- Customer database and systems for recording maintenance records.
- Lubricants
- Fluids
- Replacement parts
- Cleaning materials
- Scientific Calculators

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## **FARM MACHINERY AND EQUIPMENT OPERATION**

**ISCED UNIT CODE:** 0716 351 02A

**TVETCDACC UNIT CODE:** ENG/CU/AME/CR/02/4/MA

### **Relationship to Occupational Standards**

This unit addresses the unit of Learning: operate farm machinery and equipment

**Duration of Unit:** 150 hours

### Unit Description

This unit specifies the competencies required by a Farm Machinery and Equipment Operator Level 4 to operate farm machinery and equipment. It involves operating tillage, planting, crop protection and harvesting equipment and machinery.

### Summary of Learning Outcomes

By the end of this unit, the learner should be able to:

S/No	Learning Outcomes	Duration (Hours)
1.	Operate tillage equipment and machinery	40
2.	Operate planting equipment and machinery	40
3.	Operate crop protection equipment and machinery	40
4	Operate crop harvesting equipment and machinery	50
<b>Total</b>		<b>150</b>

### Learning Outcomes, Content and Suggested Assessment Methods

Learning outcome	Content	Methods of Assessment
1. Operate tillage equipment and machinery	1.1.Wear personal protective equipment (PPE) appropriately. 1.2.Assemble farm tillage equipment and machinery 1.2.1.Disc plough 1.2.2.Mouldboard plough 1.2.3.Subsoiler 1.2.4.Chisel plough 1.2.5.Cultivators 1.2.6.Rotavator 1.2.7.Power plough	<ul style="list-style-type: none"><li>• Written tests</li><li>• Oral presentation</li><li>• Observation</li></ul>

	1.2.8.Disc harrow 1.3.Adjust farm tillage and equipment as per work requirements. 1.4.Operate farm tillage equipment and machinery. 1.5.Integrate conservation tillage 1.6.Maintain farm tillage equipment and machinery	
2. Operate planting equipment and machinery	2.1.Wear personal protective equipment (PPE) appropriately. 2.2.Assemble planting equipment and machinery. 2.2.1.Broadcaster 2.2.2.Seed Drills 2.2.3.Row crop planter 2.2.4.Pneumatic planter 2.2.5.Potato planter 2.2.6.Drones 2.3.Calibrate planting equipment and machinery as per work and crop requirement 2.4.Operate planting equipment and machinery. 2.5. Identify precision planting methods. 2.6.Maintain planting equipment and machinery	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral presentation</li> <li>• Observation</li> <li>• Project</li> </ul>
3. Operate crop protection equipment and machinery	1.1 Wear personal protective equipment (PPE) appropriately. 1.2 Assemble crop protection equipment and machinery. 1.2.2.Knapsack sprayer 1.2.3.Boom sprayer 1.2.4.Dusters 1.2.5.Aerial sprayers 1.2.6.Motorised sprayers	<ul style="list-style-type: none"> <li>• Oral questioning</li> <li>• Observation</li> <li>• Project</li> </ul>

	1.3 Calibrate crop protection equipment and machinery. 1.4 Operate crop protection equipment and machinery 1.5 Maintain crop protection equipment and machinery 1.6 Use of drones in identifying and controlling pest and diseases.	
4. Operate crop harvesting equipment and machinery	4.1.Wear personal protective equipment (PPE) appropriately. 4.2.Assemble crop harvesting equipment and machinery. 4.2.1. Mowers 4.2.2. Balers 4.2.3. Conditioners 4.2.4. Forage harvesters 4.2.5. Combine harvesters 4.3.Calibrate crop harvesting equipment and machinery. 4.4.Operate crop harvesting equipment and machinery 4.5.Maintain crop harvesting equipment and machinery	<ul style="list-style-type: none"> <li>• Oral questioning</li> <li>• Observation</li> <li>• Oral presentation</li> <li>• Written report</li> </ul>

### **Suggested Methods of Instruction**

- Presentations and practical demonstrations by trainer;
- Guided learner activities and research to develop underpinning knowledge;
- Supervised activities and projects in a workshop
- Instructor lead facilitation of theory
- Demonstrations
- Simulation/Role play
- Group Discussion
- Projects
- Presentations
- Case studies
- Assignments

## **Recommended Resources for 25 Trainees**

- Computers
- TV sets
- LCD projectors
- Internet access to manufacturers' technical information;
- Personal protective equipment (PPE) and suitable coverings to protect vehicles;
- Facilities for the disposal of waste oil and used parts;
- Customer database and systems for recording maintenance records.
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio set
- Digital multi-meters
- Test lights
- Laptop diagnostic systems
- On-board diagnostic systems
- Batteries
- Sensors
- Regulators
- Heaters
- LED
- Printed circuit boards
- Communication plugs
- Circuit tests
- Component tests
- Service code diagnostics

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## **OPERATION OF COMPUTERIZED AGRICULTURAL EQUIPMENT**

**ISCED UNIT CODE:** 0716 351 03A

**TVETCDACC UNIT CODE:** ENG/CU/AME/CR/03/4/MA

### **Relationship to Occupational Standards**

This unit addresses the unit of Learning: utilize computerized agricultural equipment