



**REPUBLIC OF KENYA**

**COMPETENCY- BASED MODULAR CURRICULUM**

**FOR**

**AGRIPRENEURSHIP**

**KNQF LEVEL 6  
(CYCLE 3)**

**ISCED PROGRAMME CODE: 0811 554A**



**TVET CDACC  
P.O. BOX 15745-00100 NAIROBI**

## FARM MACHINERY OPERATION

**ISCED UNIT CODE:** 0811 551 07A

**TVETCDACC UNIT CODE:** AG/CU/PN/CC/04/6/MA

### Relationship to occupational standards

This unit addresses the unit of competency: Operate farm machinery

**Duration of Unit:** 220 HOURS

### UNIT DESCRIPTION

The unit specifies the competences required to operate farm machinery. It includes, operating hand tool and equipment, tillage machinery, planting machinery, crop protection machinery, harvesting machinery and Agro-processing machinery.

### Summary of learning outcomes

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

| S/No         | Learning Outcomes                 | Duration (Hours) |
|--------------|-----------------------------------|------------------|
| 1.           | Operate hand tools and equipment  | 40               |
| 2.           | Operate tillage machinery         | 40               |
| 3.           | Operate planting machinery        | 40               |
| 4.           | Operate crop protection machinery | 40               |
| 5.           | Operate harvesting machinery      | 30               |
| 6.           | Operate agro-processing machinery | 30               |
| <b>Total</b> |                                   | <b>220</b>       |

### Learning Outcomes, Content and Suggested Assessment Methods

| Learning outcome                    | content  | Suggested assessment method  |
|-------------------------------------|--|--|
| 1. Operate hand tools and equipment | 1.1 Hand tools and equipment<br>1.1.1 Garden Tools and equipment | <ul style="list-style-type: none"><li>Practical</li><li>Project</li><li>Third party report</li></ul> |

|                               |  |  |
|-------------------------------|--|--|
| equipment                     | <p>1.1.2 Livestock handling tools and equipment</p> <p>1.1.3 Cultivation tools and equipment</p> <p>1.1.4 Harvesting tools and equipment</p> <p>1.1.5 Crop protection tools and equipment</p> <p>1.2 Utilizing of hand tools and equipment</p> <p>1.3 Servicing of hand tools and equipment</p> <p>1.4 Storage of the hand tools and equipment</p> <p><b>Practices</b></p> <ul style="list-style-type: none"> <li>-Tool identification</li> <li>-Maintenance of hand tools...</li> </ul>       | <ul style="list-style-type: none"> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questioning</li> </ul>   |
| 2. Operate tillage machinery  | <p>2.1 Personal protective equipment</p> <p>2.1.1 Eye protection equipment</p> <p>2.1.2 Hearing protection equipment</p> <p>2.1.3 Feet protection equipment</p> <p>2.1.4 Respiratory protection equipment</p> <p>2.1.5 Gloves</p> <p>2.1.6 Full body suits</p> <p>2.2 Tillage machinery</p> <p>2.2.1 Ploughs</p> <p>2.2.2 Harrows</p> <p>2.2.3 Tillers</p> <p>2.2.4 Rotavators</p> <p>2.2.5 Subsoilers</p> <p>2.3 Maintenance of tillage machinery</p> <p>2.4 Storage of tillage machinery</p> | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Project</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questioning</li> </ul> |
| 3. Operate planting machinery | <p>3.1 Personal protective equipment</p> <ul style="list-style-type: none"> <li>• Types</li> <li>• Uses</li> </ul>   | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Project</li> <li>• Third party report</li> </ul>   |

|                                      |   |  |
|--------------------------------------|---|--|
|                                      | <p>3.2 Calibration of planting</p> <p>3.2.1 machinery</p> <p>3.2.2 Seed drills</p> <p>3.2.3 Planters</p> <p>3.2.4 Ridgers</p> <p>3.2.5 Fertilizer distributors</p> <p>3.2.6 Manure spreaders</p> <p>3.3 Operation of planting machinery</p> <p>3.4 Maintenance of planting machinery</p> <p>3.5 Storage of planting machinery</p> | <ul style="list-style-type: none"> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questioning</li> </ul>   |
| 4. Operate crop protection machinery | <p>4.1 Personal protective equipment is worn</p> <p>4.2 Calibration of crop protection machinery</p> <p>4.2.1 Sprayers</p> <p>4.2.2 Dusters</p> <p>4.3 Operation of crop protection machinery</p> <p>4.4 Maintenance of crop protection machinery</p> <p>4.5 Storage of crop protection machinery</p>                             | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Project</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questioning</li> </ul> |
| 5. Operate harvesting machinery      | <p>5.1 Personal protective equipment is worn</p> <p>5.2 Operation of harvesting machinery</p> <p>5.3 Maintenance of harvesting machinery</p> <p>5.4 Storage of harvesting machinery</p>   | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Project</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questioning</li> </ul> |
| 6. Operate Agro-processing machinery | <p>6.1 Personal protective equipment is worn</p> <p>6.2 Operation of Agro-processing machinery</p> <p>6.2.1 Mills</p> <p>6.2.2 Grinders</p> <p>6.2.3 Shellers</p> <p>6.2.4 Dryers</p> <p>6.2.5 Elevators conveyers</p> <p>6.3 Maintenance of Agro-processing machinery</p>  | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Project</li> <li>• Third party report</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questioning</li> </ul> |

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|  | 6.4 Storage of Agro-processing machinery |  |
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### Suggested methods

- Project
- Demonstration
- Practicals
- Discussions
- Direct instruction

### Recommended resources for 25 trainees

| S/No | Item/Category                                   | Description/Specification                    | Quantity | Recommended Ratio<br>(Item: Trainee) |
|------|---|--|----------|--------------------------------------|
| A    | <b>Learning Materials</b>                       |  |          |                                      |
|      | Text books and E-Learning materials             | Agricultural engineering book-Farm machinery | 5        | 1:5                                  |
| B    | <b>Learning Facilities &amp; infrastructure</b> |  |          |                                      |
|      | Classroom/computer lab                          | Desktops, internet and printers              | 1        | 1:25                                 |
|      | workshop  |  | 1        | 1:25                                 |
| C    | <b>Consumable materials</b>                     |  |          |                                      |
|      | Printing papers                                 | A4 SIZE                                      | 5 reams  | 1:5                                  |
|      | Assorted whiteboard markers                     | Erasable                                     | 1        | 1:25                                 |
|      | Note books                                      | A4   | 25       | 1:1                                  |
|      | Flip charts                                     |  | 1        | 1:25                                 |
| D    | <b>Tools and Equipment</b>                      |  |          |                                      |
|      | Tractor   |  | 1        | 1:25                                 |
|      | Googles   |  | 25       | 1:1                                  |
|      | Earmuffs  |  | 25       | 1:1                                  |
|      | Gumboots  |  | 25       | 1:1                                  |
|      | Face Mask                                       |  | 25       | 1:1                                  |
|      | Gloves 25 pairs                                 |  | 25       | 1:1                                  |
|      | Apron   |  | 25       | 1:1                                  |
|      | Panga   |  | 5        | 1:5                                  |
|      | Jembes  |  | 5        | 1:5                                  |
|      | Ploughs   | Disc plough                                  | 1        | 1:25                                 |

|  |                         |              |   |      |
|--|-------------------------|--------------|---|------|
|  | Harrows                 | Disc harrow  | 1 | 1:25 |
|  | Tillers                 |              | 1 | 1:25 |
|  | Rotavators              |              | 1 | 1:12 |
|  | Subsoilers              |              | 1 | 1:12 |
|  | Seed drills             |              | 1 | 1:12 |
|  | Planters                | Seed planter | 1 | 1:12 |
|  | Ridgers                 |              | 1 | 1:12 |
|  | Fertilizer distributors |              | 2 | 1:12 |
|  | Manure spreaders        |              | 2 | 1:12 |
|  | Sprayers                |              | 2 | 1:12 |