



**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**

## **ANIMAL PRODUCTION**

**ISCED UNIT CODE:** 0811 551 11A

**TVETCDACC UNIT CODE:** AQ/CU/PN/CR/04/6/MA

### **Relationship to Occupational Standards**

This unit addresses the Unit of Competency: **Apply principles of animal production**

**Duration of Unit:** 320 hours

### **Unit Description**

This unit specifies the competencies required by Agripreneurship technologist to apply principles of ruminant production, non-ruminant production, emerging livestock bee keeping and fish farming

### **Summary of learning outcomes**

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

| <b>S/No</b>  | <b>Learning Outcomes</b>      | <b>Duration (Hours)</b> |
|--------------|-------------------------------|-------------------------|
| 1.           | Produce ruminant animals      | 80                      |
| 2.           | Produce non- ruminant animals | 80                      |
| 3.           | Produce emerging- livestock   | 60                      |
| 4.           | Conduct fish farming          | 50                      |
| 5.           | Conduct bee keeping           | 50                      |
| <b>Total</b> |                               | <b>320</b>              |

### **Learning Outcomes, Content and Suggested Assessment Methods**

| <b>Learning Outcome</b>     | <b>Content</b>  | <b>Suggested Assessment Methods</b>   |
|-----------------------------|---|---|
| 1. Produce ruminant animals | 1.1 Introduction to ruminant animals<br>1.1.1 Cattle<br>1.1.2 Goats<br>1.1.3 Camel<br>1.1.4 Sheep<br>1.1.5 Donkey | <ul style="list-style-type: none"><li>• Practical</li><li>• Project</li><li>• Third party report</li><li>• Portfolio of</li></ul> |

|  |   |   |
|--|---|---|
|  | <p>1.2 Ruminant animal breeding stock selection methods</p> <p>1.2.1 Tandem method</p> <p>1.2.2 Progeny testing</p> <p>1.2.3 Random selection</p> <p>1.2.4 Contemporary comparison</p> <p>1.3 Breeding methods and systems</p> <p>1.3.1 Natural mating</p> <p>1.3.2 Artificial insemination</p> <p>1.3.3 Embryo transplant</p> <p>1.4 Animals feeding practices</p> <p>1.4.1 Steaming up</p> <p>1.4.2 Creep feeding</p> <p>1.4.3 Flushing</p> <p>1.5 Animals' routine management practices</p> <p>1.5.1 Closed castration</p> <p>1.5.2 Docking</p> <p>1.5.3 Hoof trimming</p> <p>1.5.4 Shearing</p> <p>1.5.5 Disbudding</p> <p>1.5.6 Identification</p> <p>1.5.7 Cleaning animal houses</p> <p>1.5.8 Vaccination</p> <p>1.6 Classification and identification of Animal parasites</p> <p>1.6.1 External parasites – keds, tsetse fly, fleas, lice, tick</p> <p>1.6.2 Internal parasites- roundworm, tapeworm, liver fluke, hookworm</p> <p>1.7 Identify disease and parasite Control methods</p> <p>1.7.1 Quarantine</p> <p>1.7.2 Vaccination</p> <p>1.7.3 Isolation</p> <p>1.7.4 Proper breeding and selection</p> | <p>evidence</p> <ul style="list-style-type: none"> <li>• Written tests</li> <li>• Oral questioning</li> </ul> |
|--|---|---|

|                                 |  |  |
|---------------------------------|--|--|
|                                 | <p>1.7.5 Proper feeding and nutrition</p> <p>1.7.6 Proper hygiene</p> <p>1.7.7 Use of prophylactic drugs</p> <p>1.7.8 Use of antiseptics</p>   |  |
| 2. Produce non-ruminant animals | <p>2.1 Introduction to non-ruminant animals</p> <p>2.1.1 Poultry</p> <p>2.1.2 Rabbit</p> <p>2.1.3 Pigs</p> <p>2.2 Non -Ruminant animal breeding stock selection</p> <p>2.3 Breeding methods</p> <ul style="list-style-type: none"> <li>-traditional breeding</li> <li>- inbreeding</li> <li>- crossbreeding</li> <li>- controlled breeding</li> <li>- biotechnology &amp;assisted reproductive technique</li> <li>- genetic selection and genomics</li> <li>-conservation breeding</li> </ul> <p>2.4 Animals feeding</p> <p>2.5 Animals' routine management practices</p> <p>2.6 Animal parasites control methods</p> <ul style="list-style-type: none"> <li>- Physical</li> <li>- Biological</li> <li>- chemical</li> </ul> <p>2.7 Animal disease control methods</p> <ul style="list-style-type: none"> <li>- Biological/cultural</li> <li>- Physical</li> <li>- chemical</li> </ul> | <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. Produce emerging-livestock   | <p>3.1 Introduction to emerging- livestock</p> <p>3.1.1 Crocodiles</p> <p>3.1.2 Ostrich</p> <p>3.1.3 Snakes</p> <p>3.1.4 Maggots</p> <p>3.1.5 Earthworms</p> <p>3.2 Importance of emerging livestock</p> <p>3.3 Breeding methods</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> </ul>                             |

|                         |   |  |
|-------------------------|---|--|
|                         | 3.4 Animal feeding practices<br>3.5 Animal routine management practices<br>3.6 Animal parasite control methods<br>3.7 Animal disease control method   | <ul style="list-style-type: none"> <li>• Oral questioning</li> </ul>   |
| 4. Conduct fish farming | 4.1 Fish species identification <ul style="list-style-type: none"> <li>4.2.1 Marine fish</li> <li>4.2.2 Fresh water fish</li> </ul> 4.2 Fish farm site selection <ul style="list-style-type: none"> <li>4.3.1 Security</li> <li>4.3.2 Species of fish to be reared</li> <li>4.3.3 Type of soil</li> <li>4.3.4 Availability of water</li> <li>4.3.5 Market availability</li> <li>4.3.6 Source of reputable fingerlings</li> <li>4.3.7 Management skills</li> </ul> 4.3 Construction of fish pond <ul style="list-style-type: none"> <li>-fish pond construction procedures</li> </ul> 4.4 Fish and fish Pond maintenance and management practice <ul style="list-style-type: none"> <li>4.1.1 Aeration</li> <li>4.1.2 Water flow rate control</li> <li>4.1.3 Water quality monitoring</li> <li>4.1.4 Predator control</li> <li>4.1.5 Sludge removal</li> <li>4.1.6 Declogging of drainage system</li> <li>4.1.7 Cleaning of filters</li> <li>4.1.8 Fingerling/fry grading</li> <li>4.1.9 Marketing of hatchery products</li> <li>4.1.10 Fish health monitoring</li> <li>4.1.11 Fish propagation</li> <li>4.1.12 Fish stocking</li> <li>4.1.13 Fingerling packaging and transport</li> <li>4.1.14 De-siltation</li> <li>4.1.15 Fertilization</li> </ul> | <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 instruction</li> </ul> |

|                        |   |  |
|------------------------|---|--|
|                        | <p>4.1.16 Harvesting</p> <p>4.5 Control of fish pond waste and predators</p> <p>4.6 Causes of fish disease</p> <p>4.6.1 Environmental/water quality causes</p> <p>4.6.2 Hereditary/genetic causes</p> <p>4.6.3 Microbial/pathogenic causes</p> <p>4.6.4 Nutritional causes</p> <p>4.6.5 Physical injury</p> <p>4.7 Fish pond stocking</p>   |  |
| 5. Conduct bee keeping | <p>5.1 Apiary site identification</p> <p>5.2 Types and Construction of bee hives</p> <p>5.2.1 Langstroth</p> <p>5.2.2 Kenya top bar hive</p> <p>5.2.3 Box hive</p> <p>5.3 Bee hives installation</p> <p>5.4 Bee hive stocking procedure</p> <p>5.5 Bee products harvesting</p> <p>5.5.1 Honey</p> <p>5.5.2 Propolis</p> <p>5.5.3 Bee venom</p> <p>5.5.4 Creamed honey</p> <p>5.5.5 Manuka honey</p> <p>5.5.6 Comb honey</p> <p>5.5.7 Honeycomb</p> <p>5.5.8 Beeswax</p> <p>5.5.9 Bee pollen</p> <p>5.5.10 Royal jelly</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> |

### **Suggested methods of delivery for 25 trainees**

- Project
- Demonstration
- Practicals
- Discussions
- Direct instruction

## Recommended Resource for 25 trainees

| S/No | Item/Category                                   | Description/Specification                              | Quantity | Recommended Ratio<br>(Item: Trainee) |
|------|---|--|----------|--------------------------------------|
| A    | <b>Learning Materials</b>                       |  |          |                                      |
|      | Text books                                      | Livestock production books                             | 5        | 1:5                                  |
| B    | <b>Learning Facilities &amp; infrastructure</b> |  |          |                                      |
|      | classroom                                       |  | 1        | 1:25                                 |
| C    | <b>Consumable materials</b>                     |  |          |                                      |
|      | notebooks                                       | A4 SIZE  | 25       | 1:1                                  |
|      | Flip chart                                      |  | 1        | 1:25                                 |
| D    | <b>Tools and Equipment</b>                      |  |          |                                      |
|      | Projectors                                      | EPSON 2788 LUMEN or any brand                          | 1        | 1:25                                 |
|      | Computers                                       | Any brand-5 <sup>th</sup> generation and above Core i5 | 5        | 1:5                                  |
|      | internet  | Reliable and fast                                      |          |                                      |
|      | GPS device                                      |  | 5        | 1:5                                  |
| E    | <b>Biological assets</b>                        |  |          |                                      |
|      | Non ruminant livestock                          | rabbit   | 2        | 1:5                                  |
|      | Ruminant animals                                | cow  | 2        | 1:5                                  |
|      | Emerging livestock                              | ostrich  | 1        | 1:25                                 |
|      | Bees  | Honey bee  | 1        | 1:25                                 |
|      | Fish pond                                       | Tilapia fish   | 10       | 1:3                                  |