

## ANIMAL NUTRITION IN FEEDING

**ISCED UNIT CODE:** 0811 541 11A

**TVET CDACC UNIT CODE:** HE/CU/AHP/CC/11/6/MA

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Apply knowledge of animal nutrition in animal feeding.

**UNIT DURATION:** 50 Hours

### Unit Description

This unit specifies the competencies required by an animal health and production technologist to apply knowledge of animal nutrition in animal feeding. It involves applying principles of nutrition, knowledge of types of digestive systems, animal feed requirements, and formulate animal feed.

### Summary of Learning Outcomes

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

| S/No  | Learning Outcomes                            | Duration (Hours) |
|-------|----------------------------------------------|------------------|
| 1.    | Apply knowledge of principles of nutrition   | 10               |
| 2.    | Apply knowledge of types of digestive system | 20               |
| 3.    | Apply knowledge of animal feed requirements  | 10               |
| 4.    | Formulate animal feed                        | 10               |
| Total |                                              | 50               |

### Learning Outcomes, Content and Suggested Assessment Methods

| Learning Outcomes                             | Content                                                                                     | Suggested Assessment Methods                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 1. Apply knowledge of principles of nutrition | 1.1.Composition of animal feeds<br>1.1.1. Carbohydrates<br>1.1.2. Lipids<br>1.1.3. Proteins | <ul style="list-style-type: none"><li>• Written tests</li><li>• Third party report</li><li>• Projects</li></ul> |

|                                                  |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                     |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                  | 1.1.4. Vitamins<br>1.1.5. Minerals<br>1.1.6. Water<br>1.2.Types of animal feed<br>1.2.1. Pastures<br>1.2.2. Forages<br>1.2.3. Concentrates<br>1.3.Functions of feed components                                                                                                               | <ul style="list-style-type: none"> <li>• Interviews/ Oral questions</li> <li>• Case Studies</li> <li>• Practical</li> </ul>                                                                                                         |
| 2. Apply knowledge of types of digestive systems | 2.1.Ruminant digestive systems<br>2.1.1. Cattle<br>2.1.2. Sheep<br>2.1.3. Goats<br>2.2.Non-ruminant digestive systems<br>2.2.1. Pigs<br>2.2.2. Poultry<br>2.2.3. Donkeys<br>2.2.4. Camels.<br>2.3.Factors that affect digestibility of feed<br>2.4.Factors affecting bioavailability of feed | <ul style="list-style-type: none"> <li>• Written tests</li> <li>• Third party report</li> <li>• Reflection papers</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Case Studies</li> <li>• Practical</li> </ul> |
| 3. Apply knowledge of animal feed requirements   | 3.1.Feed intake is evaluation<br>3.2.Factors affecting animal feed requirements<br>3.3.Feed conversion efficiency                                                                                                                                                                            | <ul style="list-style-type: none"> <li>• Written tests</li> <li>• Third party report</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Case Studies</li> <li>• Practical</li> </ul>                              |
| 4. Formulate animal feed                         | 4.1.Principles of ration formulation<br>4.2.Ration formulation techniques<br>4.2.1. Pearson's square<br>4.2.2. Trial and error<br>4.2.3. Algebraic                                                                                                                                           | <ul style="list-style-type: none"> <li>• Written tests</li> <li>• Third party report</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> </ul>                                                                           |

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|  | 4.2.4. Linear programming<br>4.2.5. Least Cost formulation<br>4.2.6. Computerized feed formulation<br>4.3.Feed presentation | <ul style="list-style-type: none"> <li>• Case Studies</li> <li>• Practical</li> </ul> |
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### Suggested Methods of delivery

- Practical
- Projects
- Demonstrations
- Group discussion
- Direct instructions

### Training resources for 25 trainees

| S/No. | Category/Item             | Description/ Specification             | Quantity | Recommended Ratio (Item: Trainee) |
|-------|---------------------------|----------------------------------------|----------|-----------------------------------|
|       | <b>Learning materials</b> |                                        |          |                                   |
| 1.    | Projector                 |                                        | 1        | 1:25                              |
| 2.    | Whiteboard/Smart board    |                                        | 1        | 1:25                              |
| 3.    | Desktop/computer          |                                        | 1        | 1:25                              |
| 4.    | Lecture/Theory room       |                                        | 1        | 1:25                              |
| 5.    | Laboratory                | As guided by Kenya bureau of standard. | 1        | 1:25                              |
| 6.    | Animal farm               |                                        | 1        | 1:25                              |
| 7.    | Library                   |                                        | 1        | 1:25                              |
| 8.    | E-Library                 |                                        | 1        | 1:25                              |
| 9.    | Pasture and fodder land   |                                        | 1        | 1:25                              |