



## **COMPETENCY-BASED MODULAR CURRICULUM**

### **FOR AGRICULTURE AND EXTENSION LEVEL 5 (CYCLE 3)**

**PROGRAMME CODE: 0811 454A**



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

## **RUMINANT ANIMAL PRODUCTION**

**UNIT CODE: 0811 451 05A**

**TVET CDACC UNIT CODE: AGR/CU/EXT/CR/05/4/MA**

**UNIT DURATION: 120 HOURS**

### **Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Produce ruminant animals

### **Unit Description**

This unit specifies competencies required to produce ruminant animals. It entails breeding ruminant animals, feeding ruminant animals, managing ruminant animal parasites and diseases, carrying out ruminant animals' routine management practices and marketing ruminant products.

### **Summary of Learning Outcomes**

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

<b>S/No</b>	<b>Learning Outcomes</b>	<b>Duration (Hours)</b>
1.	Breed Ruminant animals	10
2.	Feed Ruminant animals	30
3.	Manage Ruminant parasites	20
4.	Manage ruminant diseases	20
5.	Carry out ruminant routine management practices	30
6.	Market ruminant products	10
<b>Total</b>		<b>120</b>

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

Learning Outcomes	Content	Suggested Assessment Methods
1. Breed Ruminant animals	<p><b>Theory</b></p> <p>1.1 Breeding of ruminant animals</p> <p>1. Definition of terms</p> <p>2. Importance of breeding Ruminant animals</p> <p>3. Types of ruminant animals</p> <p>    1.1.3.1 Sheep</p> <p>    1.1.3.2 Goats</p> <p>    1.1.3.3 Cattle</p> <p>    1.1.3.4 Camels</p> <p>1.2 Breeding methods</p> <p>    1.2.2. Cross breeding</p> <p>    1.2.3. Close breeding</p> <p>    1.2.4. Line breeding</p> <p>    1.2.5. Inbreeding</p> <p>    1.2.6. Upgrading</p> <p>1.3 Breeding tools and equipment's</p> <p>    1.3.1. Animal pregnancy testing kit</p> <p>    1.3.2. Hormone testing kit</p> <p>    1.3.3. Semen collection kit</p> <p>    1.3.4. Ovulation prediction monitors</p> <p>    1.3.5. Artificial insemination kit</p> <p>    1.3.6. Uses of breeding tools and equipment</p> <p>    1.3.7. Maintenance of breeding tools and equipment's</p> <p>1.4 Selection of breeding stock in Ruminant animals</p> <p>    1.4.1. Definition of terms</p> <p>    1.4.2. Importance of selecting breeding</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Practicals</li> </ul>

	<p>stock in Ruminant animals</p> <p>1.4.3. Factors to consider when selecting breeding stock</p> <p>1.5 Methods of mating</p> <p>1.5.1. Definition of terms</p> <p>1.5.2. Types of mating</p> <p>1.5.1.1 Natural mating</p> <p>1.5.1.2 Artificial insemination</p> <p>1.5.1.3 Advantages and disadvantages of mating</p> <p>1.6 Preparing breeding records</p> <p><b>Practice</b></p> <p>Collect semen from a superior bull using Artificial insemination</p>	
2. Feed Ruminant animals	<p><b>Theory</b></p> <p>2.1 Ruminant feeds</p> <p>2.1.1. Definition of terms</p> <p>2.1.2. Importance of Ruminant feeds</p> <p>2.1.3. Types of Ruminant feeds</p> <p>2.1.1.1 Concentrates</p> <p>2.1.1.2 Forage</p> <p>2.1.1.3 Pastures</p> <p>2.2 Feed formulation</p> <p>2.2.1. Pearson's square method</p> <p>2.2.2. Trial and error method</p> <p>2.3 Factors determining animal nutritional requirement.</p> <p>2.4 Preparing feeding records</p> <p><b>Practice</b></p> <p>2.5 Formulate feed ration of Ruminant animals.</p> <p>2.6 Feed Ruminant animals.</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Practical</li> </ul>

	2.7 Prepare feeding records of Ruminant animals.	
3. Manage Ruminant parasites	<p><b>Theory</b></p> <p>3.1 Ruminant parasites</p> <ol style="list-style-type: none"> <li>1. Definition of terms</li> <li>2. Types of ruminant parasites           <ol style="list-style-type: none"> <li>3.1.2.1 Internal parasites</li> <li>3.1.2.2 External parasites</li> </ol> </li> <li>3.2 Sign and symptoms of Ruminant parasites           <ol style="list-style-type: none"> <li>1. Loss of appetite</li> <li>2. Emaciation</li> <li>3. Staring coat</li> <li>4. Dullness</li> </ol> </li> <li>3.3 Parasite control measures           <ol style="list-style-type: none"> <li>1. Deworming</li> <li>2. Spraying</li> <li>3. Dipping</li> </ol> </li> <li>3.4 Preparing parasite control records</li> <li>3.5 Managing parasite control waste</li> </ol> <p><b>Practice</b></p> <p>3.6 Carry out identification of external parasites in Ruminant's animals.</p> <p>3.7 Carry out parasite control measures using different methods.</p> <p>3.8 Carry out parasite control waste management.</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Practical</li> </ul>
4. Manage ruminant diseases	<p><b>Theory</b></p> <p>4.1 Ruminant diseases</p> <ol style="list-style-type: none"> <li>1. Definition of terms</li> <li>2. Types of ruminant diseases           <ol style="list-style-type: none"> <li>4.1.2.1 Bacterial disease</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group</li> </ul>

	<p>4.1.2.2 Fungal diseases</p> <p>4.1.2.3 Protozoan diseases</p> <p>4.1.2.4 Rickettsial diseases</p> <p>4.1.2.5 Nutritional diseases</p> <p>4.2 Sign and symptoms of Ruminant diseases</p> <ol style="list-style-type: none"> <li>1. Loss of appetite</li> <li>2. Emaciation</li> <li>3. Staring coat</li> <li>4. Dullness</li> </ol> <p>4.3 Diseases control measures</p> <ol style="list-style-type: none"> <li>1. Deworming</li> <li>2. Spraying</li> <li>3. Dipping</li> </ol> <p>4.4 Preparing diseases control records</p> <p>4.5 Managing diseases control waste</p> <p><b>Practice</b></p> <p>4.6 Carry out identification of diseases in Ruminant's animals.</p> <p>4.7 Carry out diseases control measures using different methods.</p> <p>4.8 Carry out diseases control waste management.</p>	<p>assignments</p> <ul style="list-style-type: none"> <li>• Practical</li> </ul>
<p>5. Carry out ruminant routine management practices</p>	<p><b>Theory</b></p> <p>5.1 Routine management practices of Ruminant animals</p> <ol style="list-style-type: none"> <li>1. Definition of terms</li> <li>2. Importance of routine management practices of Ruminant animals</li> <li>3. Types of management practices in Ruminant animals</li> </ol> <p>5.1.3.1 Feeding</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Practical</li> </ul>

	<p>5.1.3.2 Vaccination</p> <p>5.1.3.3 Deworming</p> <p>5.1.3.4 Housing</p> <p>5.1.3.5 Identification</p> <p>5.1.3.6 Docking</p> <p>5.1.3.7 Shearing</p> <p><b>Practice</b></p> <p>5.2 Carry out routine management practices in ruminant animals</p>	
6. Market ruminant products	<p><b>Theory</b></p> <p>6.1 Ruminant products</p> <p>6.1.1. Definition of terms</p> <p>6.1.2. Importance of ruminant products</p> <p>6.1.3. Types of Ruminant products</p> <p>6.1.3.1. Milk</p> <p>6.1.3.2. Meat</p> <p>6.1.3.3. Mutton</p> <p>6.1.3.4. Wool</p> <p>6.1.3.5. Skin</p> <p>6.1.3.6. Hides</p> <p>6.2 Preservation of Ruminant products</p> <p>6.2.1. Cooling</p> <p>6.2.2. Refrigeration</p> <p>6.2.3. Freezing</p> <p>6.2.4. Smoking</p> <p>6.2.5. Drying</p> <p>6.2.6. Fermentation</p> <p>6.3 Distribution of ruminant products</p> <p>6.4 Preparation of ruminant product records</p> <p><b>Practice</b></p> <p>6.5 Carry out processing of ruminant products using various methods</p>	<ul style="list-style-type: none"> <li>• Written tests</li> <li>• Projects</li> <li>• Interviews/ Oral questions</li> <li>• Individual/group assignments</li> <li>• Practical</li> </ul>

	6.6 Carry out preservation of ruminant products using various methods	
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### **Suggested Methods of Instruction**

- Role playing
- Group discussion
- Direct instruction

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

S/No.	Category/Item	Description/Specifications	Quantity	Recommended Ratio (Item: Trainee)
<b>A</b>	<b>Learning Materials</b>			
1.	Business Journals		5 pcs	1:5
2.	writing materials		50	2:1
3.	Charts		1	1:25
4.	PowerPoint presentations	For trainer's use		
5.	Whiteboard		1	1:25
6.	Assorted color of whiteboard markers	For trainer's use		
7.	Printers		1	1:25
8.	Projector		1	1:25
<b>B</b>	<b>Learning Facilities &amp; infrastructure</b>			
1.	Lecture/theory room		1	1:25
2.	Agriculture lab		1	1:25
<b>C</b>	<b>Tools and Equipment</b>			
1.	Animal pregnancy testing kit		5	1:5
2.	Hormone testing kit		5	1:5

3.	Semen collection kit		5	1:5
4.	Ovulation prediction monitors		5	1:5
5.	Artificial insemination kit		5	1:5
6.	breeding tools and equipment	set	5	1:5