

PRINCIPLES OF LIVESTOCK NUTRITION

ISCED UNIT CODE: 0811 341 01A

TVETCDACC UNIT CODE: AGR/CU/LFP/CC/01/4/MA

UNIT DURATION: 100 Hours

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Apply principles of livestock nutrition

Unit Description

This unit equips trainees with competencies required to apply principles of livestock nutrition. It involves demonstrating knowledge of livestock digestive processes and systems, nutritional knowledge, feed types, and evaluating livestock dietary needs.

Summary of Learning Outcomes

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

SN	Learning Outcome	Duration (Hours)
1.	Apply knowledge of livestock digestive processes and systems	25
2.	Apply knowledge of nutritional principles	25
3.	Apply knowledge of livestock feed types	25
4.	Evaluate livestock dietary needs	25

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcomes	Content	Suggested Assessment Methods
1. Apply knowledge of livestock digestive processes and systems	1.1. Livestock identification 1.1.1 Sheep 1.1.2 Cattle 1.1.3 Poultry 1.1.4 Goats 1.1.5 Pigs 1.1.6 Rabbits	<ul style="list-style-type: none">PracticalThird party reportProjectsPortfolio of evidenceWritten testsOral questions

	<p>1.1.7 Fish</p> <p>1.2. Parts of the digestive tract of livestock identification.</p> <p>1.3. Livestock digestive processes and systems</p> <ul style="list-style-type: none"> 1.3.1. Terms definition 1.3.2. Digestion 1.3.3. Ingestion 1.3.4. Excretion 1.3.5. Eruption 1.3.6. Assimilation 1.3.7. Mastication <p>1.4. Types of digestive systems</p> <ul style="list-style-type: none"> 1.4.1. Ruminant digestive system <ul style="list-style-type: none"> 1.4.1.1.Rumen 1.4.1.2.Reticulum 1.4.1.3.Omasum 1.4.1.4.Aomasum. 1.4.2. Non ruminant digestive system <ul style="list-style-type: none"> 1.4.2.1.Mouth 1.4.2.2.Oesophagus 1.4.2.3.Stomach 1.4.2.4.Duodenum 1.4.2.5.Ileum 1.4.2.6.Colon 1.4.2.7.Caecum <p>1.5. Digestion process</p> <ul style="list-style-type: none"> 1.5.1. Ingestion 1.5.2. Mastication 1.5.3. Digestion 1.5.4. Absorption 1.5.5. Excretion. <p>1.6. Digestive structural disorders</p> <ul style="list-style-type: none"> 1.6.1. Displaced abomasum 1.6.2. Traumatic reticulo-peritonitis 1.6.3. Gizzard impaction 	
. 2. Apply knowledge of nutritional principles	<p>2.1 Nutritional principles</p> <ul style="list-style-type: none"> 2.1.1. Definition of terms <ul style="list-style-type: none"> 2.1.1.1.Nutrients 2.1.1.2.Dry matter 	<ul style="list-style-type: none"> • Practical • Third party report • Projects • Portfolio of evidence

	<p>2.1.1.3.Fodder</p> <p>2.1.1.4.Feedstuff</p> <p>2.1.1.5.Roughages</p> <p>2.1.1.6.Concentrates</p> <p>2.2. Feed composition</p> <p>2.2.1. Energy</p> <p>2.2.2. Protein</p> <p>2.2.3. Lipids</p> <p>2.2.4. Vitamins</p> <p>2.2.5. Minerals</p> <p>2.2.6. Water.</p> <p>2.3. Golden triangle principle</p> <p>2.3.1. Housing</p> <p>2.3.2. Feed</p> <p>2.3.3. Livestock</p> <p>2.4. Feed conversion efficiency</p>	<ul style="list-style-type: none"> • Written tests • Oral questions
3. Apply knowledge of livestock feed types	<p>3.1. Sources of <i>feed nutrients</i></p> <p>3.1.1. Plant-Based Sources</p> <p>3.1.2. Animal-Based Sources</p> <p>3.1.3. Mineral-Based Sources</p> <p>3.2. Livestock feed types</p> <p>3.2.1. Roughages</p> <p>3.2.2. Concentrates</p> <p>3.2.3. Feed additives</p> <p>3.3. Functions of Feed nutrients.</p> <p>3.3.1. .1 Water</p> <p>3.3.2. 4.2 Carbohydrates</p> <p>3.3.3. 4.3 Fats</p> <p>3.3.4. 4.4 Vitamins</p> <p>3.3.5. 4.5 Mineral</p> <p>3.3.6. Proteins</p> <p>3.4. Livestock feeds classification.</p> <p>3.3.1 Concentrates</p> <p>3.3.2 Roughages</p> <p>3.5. Effects of feed deficiencies and toxicities.</p> <p>3.5.1. Mineral deficiencies</p> <p>3.5.2. Carbohydrates deficiencies</p> <p>3.5.3. Vitamins deficiencies</p> <p>3.5.4. Hypervitaminosis</p>	<ul style="list-style-type: none"> • Practical • Third party report • Projects • Portfolio of evidence • Written tests • Oral questions

		3.5.5. Mineral toxicities	
4.	Evaluate livestock dietary needs	4.1. Livestock dietary needs <ul style="list-style-type: none"> 4.1.1. Factors influencing feed intake <ul style="list-style-type: none"> 4.1.1.1.Age 4.1.1.2.Level of production 4.1.1.3.Physiological status 4.1.1.4.Ambient temperature 4.1.1.5.Type of feed 4.2.1. Livestock feed requirement <ul style="list-style-type: none"> 4.1.1.6.Kenya Agricultural and Livestock Research Organization (KALRO) feeding standards 4.1.1.7.National feeding standards 4.3.1. Animal performance 	<ul style="list-style-type: none"> • Practical • Third party report • Projects • Portfolio of evidence • Written tests • Oral questions

Suggested Methods of Instruction

- Practical
- Role playing
- Demonstration
- Group discussion
- Case studies
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Recommended Resources for 25 trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	Learning Materials			
1.	Textbooks		5 pcs	1:5
2.	Charts	Livestock digestive parts	Per identified animals	-
3.	Power point presentations	For trainer's use		
B	Learning Facilities & infrastructure			
1.	Lecture/theory room		1	1:25

2.	Workshop		1	1:25
3.	Laboratory		1	1:25
4.	Site		1	1:25
C	Consumable materials			
1.	Khaki bags		25 pcs	1:1
D	Tools and Equipment			
2.	Soil Auger		25 pcs	1:1
3.	Buckets		25 pcs	1:1
4.	Hoes		25 pcs	1:1
5.	Machetes		25 pcs	1:1
6.	Secateurs		25 pcs	1:1
7.	Shovels		5 pcs	1:5
8.	Digestion block		5 pcs	1:5
9.	Kjeldahl apparatus		5 pcs	1:5
10.	UV-VIS Spectrophotometer		1	1:25
11.	Atomic absorption spectrophotometer (AAS)	easyvet.com	1	1:25
12.	Flame photometer		1	1:25