Republic of Rwanda
Ministry of Education

RTB | RWANDA TVET BOARD

RUMINANT FARMING

ANHRF302

Perform ruminant farming

Competence

RQF Level: 3

Learning Hours 90

Credits: 9

Sector: AGRICULTURE AND FOOD PROCESSING

Trade: ANIMAL HEALTH

Module Type: Specific

Curriculum: AFPANH3002- TVET Certificate 3 in ANIMAL HEALTH

Issue Date: May, 2022

Purpose statement	This module covers the knowledge, skills and attitudes required to properly perform ruminant farming of domestic animals.is intended for learners who have successfully completed nine years' basic education level II in ordinary level or its equivalent and pursuing TVET level III in animal health or other related qualification. Upon completion of this module, the trainee will be able to: Identify ruminant breeds, Perform site and materials selection for ruminant shelters, Design ruminant shelters, Manage ruminant reproduction, Feed ruminants
Learning assumed to be in place	N.A

Delivery modality

Training delivery		**100%**	**Assessment**		**Total 100%**
Theoretical content		30%	Formative assessment	30%	50%
Practical work:		70%		70%	
• Group project and presentation	20%				
• Individual project /Work	50%				
		Summative Assessment			50%

Elements of Competency and Performance Criteria

Elements of competency	**Performance criteria**
1.Identify ruminant breeds	1.1. cattle breeds are properly identified according to the genetic characteristics
	1.2. Goat breeds are properly identified according to the genetic characteristics
	1.3 .Sheep breeds are properly identified according to the genetic characteristics.
2. Perform site and materials selection for ruminant shelters	
	2..1 Sites for ruminants shelters are properly selected according the animal species and topography
	2..2 construction materials for ruminants shelters are properly selected according to their types and availability
	2..3.Ruminant shelter equipment's are properly identified according their types and availability

3.Design ruminant shelters	3.1.Production systems are properly classified according to the ruminants species
	3.2.Ruminants shelter are properly identified according to ruminant species
	3.3.cowshed is correctly designed according to their types and layout
4. Manage ruminant reproduction	4.1 Ruminant breeding stock are properly chosen according to the genetic and purpose.
	4..2 Mating techniques are properly applied according to the ruminant species
	4.3Parturition is assisted properly according to the ruminant species
	4.4.Parturition complications is adequately managed according to the ruminant species.
	4.5Milk is properly collected according to the ruminant species
	4.6Weaning is properly managed according to the ruminant species
5.Feed ruminants	5.1. cattle are appropriately fed as per their farming systems and their nutritional requirement
	5.2.Small ruminants are appropriately fed as per their farming systems and their nutritional requirements
	5.3. Nutritional deficiencies in ruminants are appropriately managed according to their etiologies.

Course content	
Learning outcomes	**At the end of the module the learner will be able to:** 1. Identify ruminant breeds 2. Perform site and materials selection for ruminant shelters 3. Design ruminant shelters 4. Manage ruminant reproduction **5.** Feed ruminants

Learning outcome 1: identify ruminant breeds	**Learning hours: 10**
Indicative content	
• **Identification of cattle breeds** ✓ Introduction to cattle breeds ✓ Socio-economic role of cattle ✓ Main characteristics of Boss Taurus(taurins) ✓ Main characteristics of Boss indicus (zebus): • **Identification of goat breed** ✓ Introduction to goat breedSocio-economic role of goat ✓ Main characteristics of goat breed ✓ Genotypic characteristics and genotypic characteristic • **Identification of sheep breed** ✓ sheep breed ✓ Socio-economic role of sheep ✓ Main characteristics of sheep breeds ✓ Phenotypic and genotypiccharacteristics	
Resources required for the learning outcome	
Equipment	Crush, Audio-visual equipment, Pictures, Posters, Computer, Projector, Chalk, Board, Flip chat
Materials	Beef ,Cattle breeds, sheep, goats

Tools	
Facilitation techniques	Demonstration and simulation, Group discussion Farm visits, Audio-visual presentation, Group discussion, Individual work, Group discussion, Farm visits
Formative assessment methods	Written assessment, Oral presentation, Performance assessment

Learning outcome 2: Perform site and materials selection for ruminant shelters	**Learning hours: 10**
Indicative content	
• Selection of Site for ruminants' shelters ✓ Characteristics of good site for ruminant shelters ✓ Selection criteria of site for ruminant shelter ✓ Environmental and animal welfare considerations • Selection of construction materials for ruminant shelters ✓ Construction materials for ruminant shelters ✓ Wall materials ✓ Floor materials • Identification of ruminant shelter equipment ✓ Roofing materials ✓ basic ruminant shelter equipment ✓ Feeding equipment ✓ Milking equipment ✓ Cooling equipment ✓ Breeding equipment ✓ Lighting equipment	
Resources required for the indicative content	
Materials	Goat breed, Written documents, internet connection, marker, flip chart, Tape measure, Computer
Tools	Ear tag applicator,

Facilitation techniques	Demonstration and simulation, Individual and group work, Practical exercise, Individualized, Trainer guided, Group discussion Site visits, Farm visits, Audio-visual presentation, Individual search, Group discussion
Formative assessment methods	Written assessment, Oral presentation, Performance assessment

Learning outcome 3: Design ruminant shelters	**Learning hours: 10**
Indicative content	
• Classification of ruminant production systems ✓ Traditional system Pastoral system Agro-pastoral system ✓ Non-traditional system Ranching Rotational system ✓ Advantages of production systems • Identification of ruminant shelter ✓ Free/Cubicles stalls shelters ✓ Tie stalls shelters • Correction of designingcowshed ✓ Types of cow shed shelter ✓ Cow shed lay out • Correction of designing Small ruminant shelters ✓ Tips to Design cow shed Characteristics	
Resources required for the indicative content	
Equipment	PPE,gumboots,
Materials	Goat breed, Written documents, internet connection,, marker, flip chart, Tape measure, Computer
Tools	Ear tag applicator,machete,hammer,nail,
Facilitation techniques	

	Demonstration and simulation, Individual and group work, Practical exercise, Group discussion Site visits, Farm visits, Audio-visual presentation, Individual search, Group discussion
Formative assessment methods	Written assessment, Oral presentation, Performance assessment

Learning outcome 4: Manage ruminant reproduction	**Learning hours: 40**
Indicative content	

- Choosing ruminant breeding stock
  - ✓ Control zootechnical parameters
  - ✓ Perform selection
  - ✓ Perform cross breeding
- Ruminants Mating techniques
  - ✓ Anatomical and physiological characteristics of the reproductive organs of a non-gravid and pregnant female
  - ✓ Post mating follow-up
- Assisting ruminant's parturition
  - ✓ Parturition preparation
  - ✓ Normal parturition
  - ✓ Normal parturition assistance techniques
  - ✓ Post parturition cares for new born
  - ✓ Post parturition care for dam
- Managing ruminants Parturition complications
  - ✓ Parturition complications of ruminants:
  - ✓ Correction of parturition complications
  - ✓ Correction of parturition complications
  - ✓ Post parturition complications
  - ✓ Management of post parturition complications
- Collecting ruminant milk
  - ✓ Preparation of milk collection materials
  - ✓ Milk collection techniques
  - ✓ Udder health care
- Management of ruminant weaning

	✓ Weaning proces
Equipment	PPE,Farms,Audio-visual equipment,Computer,Posters and photos Projector,Board,Chalk,Marker,Flipchart,Internet connection
Materials	Exotic breeds of ruminantsCross breeds of ruminants,Written documents,Production record,Reproduction record cards, Internet connection
Tools	Ear tag applicator
Facilitation techniques	Demonstration and simulation, Individual and group work, Practical exercise, Trainer guided, Group discussion, Brainstorming on types of cross breeding, Visiting of breeding farm, Observation on selection methods, Audio-visual presentation on male and female selection, Individual internet search, Group discussion on reproductive performance
Formative assessment methods	Written assessment, Oral presentation, Performance assessment

Learning outcome 5: feed ruminants	**Learning hours: 20**
Indicative content	
• cattle feeding ✓ Dairy cattle feeding ✓ Beef cattle feeding ✓ Farming system • Small ruminants feeding ✓ Goat and Sheep feeding ✓ Farming systems • Manage nutritional deficiencies in ruminant ✓ Common clinical signs of: mineral deficiency carbohydrates deficiency protein deficiency	

- fats and lipids deficiency
- vitamins deficiency

- Management of mineral deficiency
- Management of carbohydrates deficiency:
- Management of protein deficiency
- Management of fats and lipids deficiency
- Management of vitamin deficiency

Resources required for the indicative content	
Equipment	Farms,Audio visual equipment, Computer, Projector, Chalk, Flip chart Board, Buckets, Farm record,PPE
Materials	Water troughs, Feed troughs,Animal feeds,Animals,milk,Feeds
Tools	Machete,Mat,Shovel ,Scale
Facilitation techniques	Demonstration and simulation, Individual and group work , Trainer guided, Group discussion, Brainstorming , Visiting dairy cattle farm, Observation, Audio-visual presentation, Demonstration, Individual and group work, Group discussion
Formative assessment methods	Written assessment, Oral presentation, Performance assessment

Integrated/Summative assessment (For specific module)

Integrated situation

You are animal care technician of MINAGRI farm located in Karangazi sector of Nyagatare district; MINAGRI has imported exotic diary breeds of 15 cows from Denmark, 50 goats from Netherlands and 60 sheep from Australia. In this farm they want to increase milk production.
As Animal care technician of MINAGRI Farm you are called upon to perform the following tasks:

Identification of ruminant breeds:
Identification of cattle breeds
Identification of Goat breeds
Identification of Sheep breeds
Construct the shelter for goats and sheep
Feed the beef cattle and ruminants
Feed the sheep and goats
Note:

You are required to do the assigned tasks within 3 hours.
This work can be done in 3 groups of each group can work on one sub-question.

Resources

Tools	Ear tag applicator,nail,hammer,cement, Bricks ,Stone, Buildingbricks, Vitrified paving bricks, Glazed bricks, Granite,Whinstones, Sand stones,Timber,Nails,Poles,Limestone, Floor materials: Cement concrete floor,Vitrified paving bricks, Stones Building bricks ,Gravel,Spade,
Equipment	Crush, Paper, Pencils ,Pen ,Flip chart, PPE, Audio-visual equipment, Projector, Computer, Chalk, Pictures, Posters, Farm records, ear tag
Materials/ Consumables	Farm animals,Internet connection

Assessable outcomes	Assessment criteria (Based on performance criteria)	Indicator	Observation		Marks allocation
			Yes	No	
Learning outcome 1:1.Identify ruminant breeds **(35%)**	1.1. cattle breeds are properly identified according to the genetic characteristics	Ind.1:cattle breed are identified			5
		Ind.2:Main characteristic of boss Taurus are identified			5
		Ind.3:Main characteristic of boss indicus are identified			5
	1.2. Goat breeds are properly identified according to the genetic characteristics	Ind.1.Main characteristics of goat breed are identified.			5
		Ind.2phenotypic characteristics of local breeds			5

		Ind.3 identification of goat breed are identified.			1
	1.3.Sheep breeds are properly identified according to the genetic characteristics.	Ind.1Main characteristics of sheep breed are identified			1
		Ind.2.phenotypic characteristics of local breeds			1
		Ind.3.genotypic characteristic of sheep breed are identified.			2
Learning outcome2:Perform site and materials selection for ruminant shelters **(32%)**	2.1. Sites for ruminants shelters are properly selected according the animal species and topography	Ind.1.good site for construction of ruminants shelter are selected.			4
		Ind.2. site for ruminant shelter are selected			5
		Ind.3.good environmental and animal welfare conditions are selected.			6
	2.2.construction materials for ruminants shelters are properly selected according to their types and availability	Ind.1.foundation materials are selected.			3
		Ind.2.wall materials are selected.			7
		Ind.3.roofing materials are selected.			5
	2.3Ruminant shelter equipment's are properly identified according their types and availability	Ind1. Ruminant shelter are identified			1
		Ind2Feeding equipment. Are identified			1

		Ind3.watering equipment are identified.			1
Learning outcome 3: Design ruminant shelters(10%)	3.1 Sites for ruminants shelters are properly selected according the animal species and topography	Ind1:sites for ruminants are selected			4
	3.2.Ruminants shelter are properly identified according to ruminant species	Ind2:ruminants shelters are identified			4
	3.3cowshed is correctly designed according to their types and layout	Ind3:cowshed is designed			2
Learning outcome4: Manage ruminant reproduction (10%)	4.1 Ruminant breeding stock are properly chosen according to the genetic and purpose.	Ind1:ruminant breeding are identified			1
	4..2 Mating techniques are properly applied according to the ruminant species	Ind2:mating techniques are applied			1
	4.3Parturition is assisted properly according to the ruminant species	Ind3:parturition is assisted.			1
	4.4.Parturition complications is adequately managed according to the ruminant species.	Ind1:parturition complications are managed			1
		Ind2:Normal parturition assistance techniques are done			1
	4.5Milk is properly collected according to the ruminant species	Ind1.milk is collected			1

	4.6Weaning is properly managed according to the ruminant species	Ind2: weaning process is well managed			5
Learning unit5:Feed ruminants (13%)	5..1. cattle are appropriately fed as per their farming systems and their nutritional requirement 5.2Small ruminants are appropriately fed as per their farming systems and their nutritional requirements	Ind:1.cattle are fed			2
		Ind2:dairy cattle are fed			2
		Ind3: Beef cattle are fed			1
		Ind4:farming system are applied			1
		Ind1;Small ruminants are fed			1
		Ind2:Farming systems are applied			1
	5.3 Nutritional deficiencies in ruminants are appropriately managed according to their etiologies.	Ind1:mineral deficiency are managed			1
		Ind2:carbohydrate deficiencyare managed			1
		Ind3: fats and lipids deficiency are managed			1
		Ind4:protein deficiency are managed			1
		Ind5:vitamin deficiency are managed			1
Total marks					**100**
Percentage Weightage					**100%**
Minimum Passing line % (Aggregate): 70%					

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