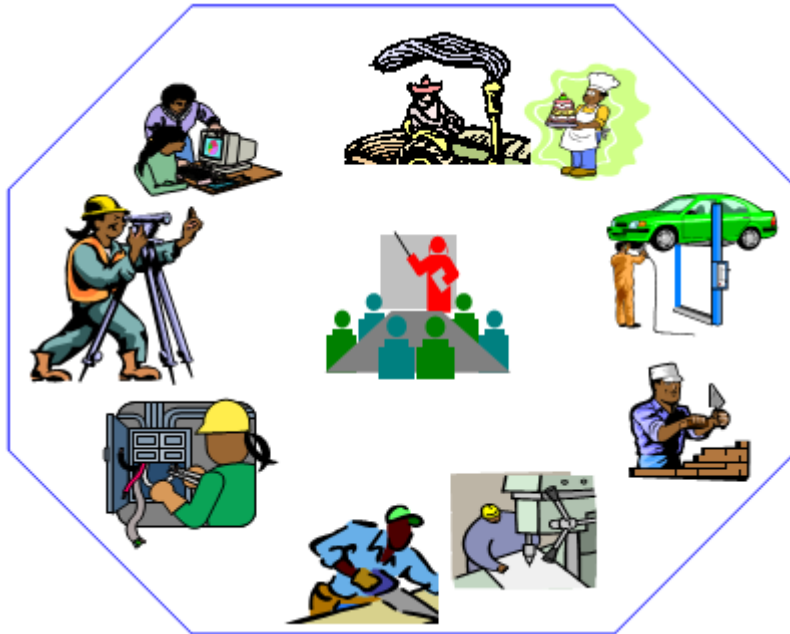


ANIMAL HEALTH

LEVEL – III



CURRICULUM

Based on March, 2022 Version-1 Occupational
standard (OS)

April, 2022

Addis Ababa, Ethiopia

Preface

The reformed TVET-System is an outcome-based system. It utilizes the needs of the labor market and occupational requirements from the world of work as the benchmark and standard for TVET delivery. The requirements from the world of work are analyzed and documented – taking into account international benchmarking – as occupational standards (OS).

In the reformed TVET-System, curricula and curriculum development play an important role with regard to quality driven comparable TVET-Delivery. The Curricula help to facilitate the training process in a way, that trainees acquire the set of occupational competences (skills, knowledge and attitude) required at the working place and defined in the occupational standards (OS).

This curriculum has been developed by a group of professional experts from different federal and regional ATVET colleges, Regional TVET bureaus, Ministry of labor and skill, Industries and Institutes based on the occupational standard prepared for Animal health Level III.

The curriculum development process has been actively supported and facilitated by Ministry of Labor and Skills.

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TVET-Program Design

1.1. TVET-Program Title: Animal Health Level III

1.2. TVET-Program Description

The Program is designed to develop the necessary knowledge, skills and attitude of the trainees to the standard required by the occupation. The contents of this program are in line with the occupational standard. The Trainees who successfully completed the Program will be qualified to work as animal health technician with competencies elaborated in the respective OS. Graduates of the program will have the required qualification to work in the agricultural sector in the field of animal health.

The prime objective of this training program is to equip the Trainees with the identified competences specified in the OS. Graduates are therefore expected Identify and Handle Non-Infectious Animal Diseases, Identify and Handle Parasitic Diseases of Animals, Identify and Handle Infectious Diseases of Animal, Provide Routine Veterinary Clinical Service, Perform Pre-Surgical Operative Procedures and Wound Management, Identify and Handle Pest, Predator and Diseases of Honey Bee Colony, Identify and Handle Pest, Predator and Diseases of Fish, Provide First Aid and Respond to Emergencies for Animals, Conduct Animal Health Extension and Community Veterinary Service and Apply Digital Technology in Agriculture in accordance with the performance criteria and evidence guide described in the OS.

1.3. TVET-Program Training Outcomes

The expected outputs of this program are the acquisition and implementation of the following units of competences:

AGR ANH3 03 0322: Identify and Handle Infectious Diseases of Animal

AGR ANH3 02 0322: Identify and Handle Parasitic Diseases of Animals

AGR ANH3 01 0322: Identify and Handle Non-Infectious Animal Diseases

AGR ANH3 04 0322: Provide Routine Veterinary Clinical Service

AGR ANH3 05 0322: Perform Pre-Surgical Operative Procedures and Wound Management
Activities

AGR ANH3 08 0322: Provide First Aid and Respond to Emergencies for Animals

AGR ANH3 06 0322: Identify and Handle Pest, Predator and Diseases of Honey Bee Colony

AGR ANH3 07 0322: Identify and Handle Pest, Predator and Diseases of Fish

AGR ANH3 09 0322: Conduct Animal Health Extension and Community Veterinary Service

AGR ANH3 10 0322: Apply Digital Technology in Agriculture

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1.4. Duration of the TVET-Program

The Program will have duration of 548 hours including the on school/ Institution training and on-the-job practice or cooperative training time. Such cooperative training based on realities of the industry, nature of the occupation, location of the TVET institution, and other factors will be considered in the training delivery to ensure that trainees acquire practical and workplace experience.

s.no	Unit competency	TVET Institution training		Cooperative training	Total hours
		Theory	Practical		
1.	Identify and Handle Non-Infectious Animal Diseases	30	20	14	64
2.	Identify and Handle Parasitic Diseases of Animals	38	22	10	72
3.	Identify and Handle Infectious Diseases of Animal	45	35	10	90
4.	Provide Routine Veterinary Clinical Service	20	20	16	56
5.	Perform Pre-Surgical Operative Procedures and Wound Management	28	32	-	60
6.	Identify and Handle Pest, Predator and Diseases of Honey Bee Colony	20	12	8	42
7.	Colony, Identify and Handle Pest, Predator and Diseases of Fish	16	18	6	40
8.	Provide First Aid and Respond to Emergencies for Animals	20	28	-	48
9.	Conduct Animal Health Extension and Community Veterinary Service	15	-	25	40
10.	Apply Digital Technology in Agriculture	12	24	-	36

1.5. Qualification Level and Certification

Based on the descriptors elaborated on the Ethiopian National TVET Qualification Framework (NTQF) the qualification of this specific TVET Program is Level III.

The trainee can exit after successfully completing the modules in one level and will be awarded the equivalent institutional certificate on the level completed. However, only institutional certificate of training accomplishment will be awarded.

1.6. Target Groups

Any citizen who meets the entry requirements under items 1.7 and capable of participating in the training activities is entitled to take part in the Program.

1.7 Entry Requirements

The prospective participants of this program are required to take all competencies of level II, have minimum passing point and possess the requirements or directive of the Ministry of Labor and Skills.

1.8 Mode of Delivery

This TVET-Program is characterized as a formal Program on middle level technical skills. The mode of delivery is co-operative training. The time spent by the trainees in the real work place/ industry will give them enough exposure to the actual world of work and enable them to get hands-on experience.

The co-operative approach will be supported with school-based lecture-discussion, simulation and actual practice. These modalities will be utilized before the trainees are exposed to the industry environment.

Hence based on the nature of the occupation, location of the TVET institutions, and interest of the industry alternative mode of cooperative training such as apprenticeships, internship and traineeship will be employed. In addition, in the areas where industry is not sufficiently available the established production and service centers/learning factories in TVET institutions will be used as cooperative training places. The Training-Institution and identified companies have forged an agreement to co-operate with regard to the implementation of this program.

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1.9. TVET-Program Structure

Unit of Competence	Module Code & Title	Training Outcomes	Duration (In Hours)
<u>AGR ANH3 03 0322</u> Identify and Handle Infectious Diseases of Animal	<u>AGR ANH3 M01 0422</u> Identifying and Handling Infectious Diseases of Animal	<ul style="list-style-type: none"> • Develop basic knowledge on veterinary microbiology • Identify and Handle Bacterial disease of animals • Identify and Handle viral disease of animals • Identify and Handle Fungal disease of animals 	90
<u>AGR ANH3 02 0322</u> Identify and Handle Parasitic Diseases of Animals	<u>AGR ANH3 M02 0422</u> Identifying and Handling Parasitic Diseases of Animals	<ul style="list-style-type: none"> • Develop a general knowledge on parasitology and parasites • Identify and handle internal parasitic diseases of animals • Recognize ecto-parasites of animals and manage associated problems 	72
<u>AGR ANH3 01 0322</u> Identify and Handle Non-Infectious Animal Diseases	<u>AGR ANH3 M03 0422</u> Identifying and Handling Non-Infectious Animal Diseases	<ul style="list-style-type: none"> • Develop general understanding on non-infectious diseases of animals • Identify and handle causes of animal poisoning • Identify and handle metabolic and nutritional causes of animal diseases • Identify and handle miscellaneous causes of animal diseases 	64
<u>AGR ANH3 04 0322</u> Provide Routine Veterinary Clinical Service	<u>AGR ANH3 M04 0422</u> Providing Routine Veterinary Clinical	<ul style="list-style-type: none"> • perform general and systemic clinical examination • Prepare and Provide basic treatment 	56

		Service	to clinical cases	
			<ul style="list-style-type: none"> • Provide specific clinical care advice 	
<u>AGR ANH3 05 0322</u>	Perform Pre-Surgical Operative Procedures and Wound Management Activities	<u>AGR ANH3 M05 0422</u> Performing Pre-Surgical Operative Procedures and Wound Management Activities	<ul style="list-style-type: none"> • Acquire basic knowledge on veterinary surgery • Perform preoperative surgical preparations • Perform wound management activities 	60
<u>AGR ANH3 08 0322</u>	Provide First Aid and Respond to Emergencies for Animals	<u>AGR ANH3 M06 0422</u> Providing First Aid and Respond to Emergencies for Animals	<ul style="list-style-type: none"> • Assess emergency situation and provide basic first aid • Provide emergency care to animals • Undertake euthanasia in essentials conditions 	48
<u>AGR ANH3 06 0322</u>	Identify and Handle Pest, Predator and Diseases of Honey Bee Colony	<u>AGR ANH3 M07 0422</u> Identifying and Handling Pest, Predator and Diseases of Honey Bee Colony	<ul style="list-style-type: none"> • Understand biology and behavior of honey bee • Asses health condition of honey bee colony • Prevent and control diseases and pests of honey bee colony 	42
<u>AGR ANH3 07 0322</u>	Identify and Handle Pest, Predator and Diseases of Fish	<u>AGR ANH3 M08 0422</u> Identifying and Handling Pest, Predator and Diseases of Fish	<ul style="list-style-type: none"> • Understand biology and behavior of fish • Diagnose predator, pest and disease infestations • Implement treatment, control and prevention measures against predators, pests and diseases of fish • Monitor and review cleanup activities and operations 	40

<u>AGR ANH3 09 0322</u>	Conduct Animal Health Extension and Community Veterinary Service	<u>AGR ANH3 M09 0422</u>	Conducting Animal Health Extension and Community Veterinary Service	<ul style="list-style-type: none"> • Perform awareness creation and disease control at community level • Build a strategy on disease spared and Advocate New technology • Provide veterinary service to the community 	40
<u>AGR ANH3 10 0322</u>	Apply Digital Technology in Agriculture	<u>AGR ANH3 M10 0422</u>	Applying Digital Technology in Agriculture	<ul style="list-style-type: none"> • Understand the Concept of digital technology • Apply Digital technologies among rural population and farmers • Recording and documentation 	36

*The time duration (Hours) indicated for the module should include all activities in and out of the TVET institution.

1.10 Institutional Assessment

Two types of evaluation will be used in determining the extent to which training outcomes are achieved. The specific training outcomes are stated in the modules. In assessing them, verifiable and observable indicators and standards shall be used.

The *formative assessment* is incorporated in the training modules and form part of the training process. Formative evaluation provides the trainee with feedback regarding success or failure in attaining training outcomes. It identifies the specific training errors that need to be corrected, and provides reinforcement for successful performance as well. For the teacher, formative evaluation provides information for making instruction and remedial work more effective.

Summative Evaluation the other form of evaluation is given when all the modules in the program have been accomplished. It determines the extent to which competence have been achieved. And, the result of this assessment decision shall be expressed in the term of institutional Assessment implementation guidelines..

Techniques or tools for obtaining information about trainees' achievement include oral or written test, demonstration and on-site observation.

1.11 TVET Teachers Profile

The teachers conducting this particular TVET Program are required to have above a minimum of B Level and above have satisfactory national competence assessment with practical experiences or equivalent qualifications.

LEARNING MODULE 01	
TVET-PROGRAMME TITLE: Animal Health Level III	
MODULE TITLE: Identifying and Handling Infectious Animal Diseases	
MODULE CODE: <u>AGR ANH3 M01 0422</u>	
NOMINAL DURATION: 90 Hours	
<p>MODULE DESCRIPTION: This module covers the knowledge and skills and attitude required to develop basic understanding on biology, characteristic feature and, clinical/economic/public health impacts of infectious microorganisms. It also requires the trainees' ability to classify, characterize and identify microorganisms which are threat of animal health through the use clinical examination and microbiological laboratory examination. In addition this competency covers trainees' skill to treat and prevent/control important and more prevalent microbial diseases animals.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Develop basic knowledge on veterinary microbiology</p> <p>LO2. Identify and handle Bacterial disease of animals</p> <p>LO3. Identify and handle viral disease of animals</p> <p>LO4. Identify and handle Fungal disease of animals</p>	
<p>MODULE CONTENTS:</p> <p>LO1. Develop basic knowledge on veterinary microbiology</p> <ul style="list-style-type: none"> 1.1 Introduction to microbiology and infectious microorganisms 1.2 Biological base categorization of infectious microorganisms 1.3 Current status and economic importances of infectious animal disease <ul style="list-style-type: none"> 1.2.1. Worldwide information 1.2.2. Statistical information in Ethiopian livestock 1.3. Public health significance of zoonotic microbial agents <p>LO2. Identify and handle Bacterial disease of animals</p> <ul style="list-style-type: none"> 2.1. General characteristics of bacteria 2.2. Aetiology, host, pathogenesis, clinical sign, diagnosis, treatment and prevention of endo-spore forming bacterias <ul style="list-style-type: none"> 2.1.1. Clostridium 2.1.2. Bacillus 2.3. Aetiology, host, pathogenesis, clinical sign, diagnosis, treatment and prevention of 	



Gram positive bacteria

2.2.1. Streptococcus

2.2.2. Staphylococcus

2.2.3. Listeria

2.2.4. Corynebacterium

2.4. Aetiology, host, pathogenesis, clinical sign, diagnosis, treatment and prevention of Gram negative bacteria

2.3.1. Pasteurella

2.3.2. Brucella

2.3.3. Moraxella

2.5. Aetiology, host, pathogenesis, clinical sign, diagnosis, treatment and prevention of Enterobacteriaceae

2.4.1. Salmonella species

2.4.2. Escherichia coli

2.4.3. Yersinia

2.6. Aetiology, host, pathogenesis, clinical sign, diagnosis, treatment and prevention of Mycobacteria

2.7. Aetiology, host, pathogenesis, clinical sign, diagnosis, treatment and prevention of Mycoplasma and Rickettsia

2.8. Identifying and handling cases of mastitis

LO3. Identify and handle viral disease of animals

3.1. Unique feature and replication of viruses

3.2. Etiology, host, pathogenesis, clinical sign, diagnosis, control and prevention of DNA viral diseases

3.3.1. Pox viruses

3.3.2. Herpes viruses

3.3.3. Parvo virus

3.3. Etiology, host, pathogenesis, clinical sign, diagnosis, control and prevention of RNA viral diseases

3.4.1. FMD virus

3.4.2. NCD (Newcastle diseases virus)

3.4.3. PPR (Pest des Petites Ruminants)

3.4.4. Influenza virus

3.4.5. Rabies virus

3.4.6. Rotavirus, AHS virus, Blue tongue virus

3.4.7. IBR (infectious Bursa disease)

LO4. Identify and handle Fungal disease of animals

4.1. Biology and classification of fungi

4.2. Aetiology, host, clinical sign, diagnosis, treatment and prevention of fungal diseases

4.2.1. Dermatophytosis

4.2.2. Aspergilosis



4.2.3. Epizootic lymphangitis

4.2.4. Candidiasis

4.2.5. Histoplasmosis

LEARNING METHODS:

- Lecture and group Discussion
- Démonstration
- Coopérative training
- Field Visit

ASSESSMENT METHODS:

- Written test
- Oral questioning (Interview)
- Practical demonstration

ASSESSMENT CRITERIA:

LO1. Develop basic knowledge on veterinary microbiology

- The term microbiology is defined and infectious micro-organisms are group based on their biological similarity.
- Infectious microorganisms are grouped in to sub classes and their respective characteristics are explained.
- The clinical and economic impacts of parasitic diseases are introduced.
- Statistical information on the current distribution and its implication of the disease in Ethiopian livestock sector are explained.
- Public health significance of zoonotic parasitic agents is mentioned.

LO2. Identify and handle Bacterial disease of animals

- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent diseases of farm animals' caused by endo-spore forming bacteria are identified and implemented.
- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of important and prevalent diseases of farm animals' caused by gram positive bacteria are identified and implemented.
- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent diseases of animals' caused by gram negative bacteria are identified and implemented.
- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent diseases of animals' caused by Enterobacteriaceae are identified and implemented.
- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of diseases of farm animals' caused by mycobacteria are identified and implemented.
- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of disease of animals' caused by mycoplasma and

rickettsia are identified and implemented.

- Aetiology, classification, transmission, clinical sign, diagnosis, treatment and prevention/control measures mastitis are identified and applied.

LO3. Identify and handle viral disease of animals

- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent diseases of animals' caused by DNA viruses are identified and implemented.
- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent diseases of animals' caused by RNA viruses are identified and implemented

LO4. Identify and handle Fungal disease of animals

- Aetiology, transmission, host preference, clinical sign, diagnosis, treatment and prevention/control measures of economically important diseases of animals' caused by fungal organisms are identified and performed.



Annex: Resource Requirements

AGR ANH3 M01 0422 : Identifying and Handling Infectious Animal Diseases				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A.	Learning Materials			
1.	TTLM	Prepared by trainers	25 pcs	1:1
2	Reference Books			
2.1	Veterinary Microbiology and Microbial Disease	Quinn, P.J <i>et al.</i> , 2011 2 nd ed.	5 pcs	1:5
2.2	Veterinary Medicine, A text book of the disease of cattle, sheep, goat, pig and horses	Radostitis. <i>et al.</i> , 2008, 10 th ed.	5 pcs	1:5
2.3	The Merk Veterinary Manual CD-R	8 th ed.	5 pcs	1:5
2.4	Equine Internal Medicine	Reed, S.M., <i>et al.</i> , 2 nd ed.	5 pcs	1:5
2.5	Veterinary Clinical Diagnosis	Kelly, R., 2008	5 pcs	1:5
3	Reference manuals	To be prepared by the college	5 pcs	1:5
4	written and graphical instructions, Bulletins, data sheet, diagrams or sketches		3 pcs	1:8
5	Journals/Publication/Magazines			
5.1	World Organization for Animal Health. Animal health in the world: <i>Key findings of the 2017-2018</i>	ESA, 2010 E.C	5 pcs	1:5
5.2	Molecular Survey of Viral Poultry Diseases with an Indirect Public Health Significance in Central Ethiopia	Behailu <i>et al.</i> 2021	5 pcs	1:5
5.3	Prevalence and antimicrobial resistance pattern of Salmonella	Alemayehu <i>et al.</i> , 2003	5 pcs	1:5



	isolates from apparently healthy slaughtered cattle in Ethiopia			
5.4	Bovine tuberculosis in Ethiopia: A systematic review and meta-analysis	Berhanu <i>et al.</i> , 2017	5 pcs	1:5
6	Workplace guidelines/manuals	prepared by the trainer	5 pcs	1:5
B. Learning Facilities and Infrastructure				
1	Class room	7m*8m		1:25
1	Library	Have a digital library/e-library 1.7m ² /trainee		1:25
2	Audio visual/ICT room	7m*8m		1:25
3.	Laboratory room			1:25
4.	Workshop			1:25
5.	Open air veterinary clinic			1:25
6	Drug store			
7	Vehicle	Bus for field trip		
C. Consumable Materials				
1.	Disinfectants and antiseptics	<ul style="list-style-type: none"> • Formaldehyde • Alcohol • Savlon • Chlorohexidine • H₂O₂ 		As required
2.	Treatment drugs and chemicals	<ul style="list-style-type: none"> • Antibiotics • Antifungals • Mineral and vitamin supplements 		As required
3.	Electrolyte and fluid for therapies	Normal saline, dextrose (e.g. Dextran 40 in 0.9 % NaCl), ringers solution, plasmolystes, ringers lactate,		As required
4.	vitamins	Multivitamin, Vit B-complex, vit A		As required
5	Anti-inflammatory drugs	Hydrocortisone, Dexamethasone, Aspirin, ibuprofen, diclofenac, Celebrex.		
5.	Glove	For examination	5 pack	1:5



D	Tools and Equipment			
1	PPE	Overalls/Gown, Apron, Respirator or face mask,	25	1:1
2	Clinic tools and equipment	<ul style="list-style-type: none">• Stethoscope• Thermometer• Treatment syringe and needles, nasogastric tube, Girth meter, IV catheter , Stomach tube and mouth gag, Trocar and cannula, Chemical sprayer	3	1:12 each
3	Animal restraining equipment	Depending on the type of the case and the animal species		As required
4	Sample taking Equipment	Depending on the type of sample required and the animal species		As required



LEARNING MODULE 02

TVET-PROGRAMME TITLE: Animal Health Level III

MODULE TITLE: Identifying and Handling Parasitic Diseases of Animals

MODULE CODE: AGR ANH3 M02 0422

NOMINAL DURATION: 72 Hours

MODULE DESCRIPTION: This module covers the knowledge and skills and attitude required to develop basic understanding on clinical and economic impacts of parasitic diseases, characterize, identify, treat and prevent/control important and prevalent internal parasitic disease of farm animals. The module also covers the ability to recognize ecto-parasites of animals and manage associated health as well as ecological problems

LEARNING OUTCOMES

At the end of the module the trainee will be able to:

LO1. Develop a general knowledge on parasitology and parasites

LO2. Identify and handle internal parasitic diseases of animals

LO3. Recognize ecto-parasites of animals and manage associated problems

MODULE CONTENTS:

LO1. Develop a general knowledge on parasitology and parasites

- 1.1. Clinical and economic impacts of parasitic diseases
- 1.2. Statistical information on distribution and implication of parasitic disease
- 1.3. Public health significance of zoonotic parasitic agents
- 1.4. Classification of parasites
- 1.5. Hosts and life cycles of common parasites

LO2. Identify and handle internal parasitic diseases of animals

- 2.1 . Identify materials and equipment for diagnose and treatment of parasites
- 2.2 . Host, transmission, lifecycle, clinical sign, diagnosis, treatment and management of nematode parasites
 - 2.2.1. Hamonchus
 - 2.2.1. Trichostrongylus
 - 2.2.3. Dictyocaulus
 - 2.2.4. Strongylus
 - 2.2.5. Bunostomum
 - 2.2.6. Ancylostoma
 - 2.2.7. Ascarididae
 - 2.2.8. Oxyuris



2.2.8. Thelazia

2.2.8. Filaridea

2.3. Host, transmission, lifecycle, clinical sign, diagnosis, treatment and management of trematode parasites

2.3.1. Fasciola

2.3.2. Paramphistoma

2.3.3. Schistoma

2.4. Host, transmission, lifecycle, clinical sign, diagnosis, treatment and management of cestode parasites

2.4.1. Taenia

2.4.2. Anoplocephala

2.5. Host, transmission, lifecycle, clinical sign, diagnosis, treatment and management of protozoan parasites

2.5.1. Trypanosom

2.5.2. Trichomonas

2.5.3. Coccidia- Eimeriidae

2.5.4. Babesia

2.5.5. Toxoplasma

2.5.6. Amoeba

2.5.7. Balantidium

LO3. Recognize common ecto-parasites of animals and manage associated problems

3.1 . Tick

3.2 . Mites

3.3 . Cutaneous myiasis /Fleas, Flies, Lice, bed bugs and leech /

LEARNING METHODS:

- Lecture and Discussion
- Practical démonstration
- Simulation
- Farm visit



ASSESSMENT METHODS:

- Written test
- Interview /Oral question/
- Practical demonstration
- Case study/group work/assignment

ASSESSMENT CRITERIA:

LO.1. Develop a general knowledge on parasitology and parasites

- The clinical and economic impacts of parasitic diseases are introduced
- Statistical information on the current distribution and its implication of the disease in Ethiopian livestock sector are explained
- Public health significance of zoonotic parasitic agents are mentioned
- Parasites are categorized on the basis of Taxonomic classification
- Hosts and lifecycles of commonly prevalent parasites are explained

LO.2. Identify and handle internal parasitic diseases of animals

- Aetiology, transmission, ecology, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent nematode parasitic diseases of farm animals' are identified and implemented
- Aetiology, transmission, ecology, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent trematode parasitic diseases of farm animals' are identified and implemented
- Aetiology, transmission, ecology, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent cystode parasitic diseases of farm animals' are identified and implemented
- Aetiology, transmission, ecology, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent protozoan parasites diseases of farm animals' are identified and implemented

LO.3. Recognize ecto-parasites of animals and manage associated problems

- Aetiology, transmission, ecology, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent nematode parasitic diseases of farm animals' are identified and implemented
- Aetiology, transmission, ecology, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent trematode parasitic diseases of farm animals' are identified and implemented
- Aetiology, transmission, ecology, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent cystode parasitic diseases of farm animals' are identified and implemented
- Aetiology, transmission, ecology, clinical sign, diagnosis, treatment and prevention/control measures of economically important and prevalent protozoan parasites diseases of farm animals' are identified and implemented



Annex: Resource Requirements

<u>AGR ANH3 M02 0422: Identifying and Handling Parasitic Diseases of Animals</u>				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A.	Learning Materials			
1.	TTLM	Prepared by the trainer	25 pcs	1:1
2.	Reference Books			
2.1.	Veterinary Parasitology	Tylor <i>et al.</i> 2016, 4 th ed.	5 pcs	1:5
2.2.	Veterinary clinical parasitology	Zajac <i>et al.</i> 2021:9 th ed.	5 pcs	1:5
3.	Parasitology manuals			
3.1.	Veterinary Parasitology : Reference Manual	Foreyt 2013, 5 th ed.	5 pcs	1:5
3.2.	Manual On Parasitology	Chandrawathani, 2019	5 pcs	1:5
3.3.	Diagnostic Parasitology for Veterinary Technician	Charles and Hendrix ,2012	5 pcs	1:5
B.	Learning Facilities and Infrastructure			
1	Lecture room	56m ²		1:25
2	Parasitology laboratory			1: 25
3	Veterinary clinic			1:25
4	Audiovisual room	LCD, CD. Computer, projector ,adapter		1:25
5	Library	1.7m ² / trainee		
6	Adult parasite	Helminthes, Ticks and mites		As required
C.	Consumable Materials			
1	Detergents, antiseptics and disinfectants	House hold bleach and Soap		As required
		Formalin	2 ltr	



		Ethyl alcohol	2 ltr	
		Savlon	2 ltr	
		Iodine	2 ltr	
2	Drug	Anthelmintics		As required
		Antiprotozoal		As required
3	Record book		2 pcs	1:13
D.	Tools and Equipment			
1	PPE	Boots, hat, coverall, apron, respirator, facemask, gloves	25 pcs each	1: 1
2	Laboratory materials	Microscope	12 pcs	1:2
		Refrigerator	2 pcs	1:13
		Incubator	2 pack	1:13
		Salts	2kg	1:13
		KOH	1 Liter	1:25
		Graduated cylinder	5 pcs	1:5
		Beaker	5 pcs	1:5
		Test tube	pcs	1:1
		Centrifuge	5 pcs	1:13
		Cover slip	2pack	1:13
		Slide	2pack	1:13
3	Sampling materials	Ice box	3 pcs	1:8
		Petridishes		1:6
		Vacutainer tube	1pack	1:25
		Latex glove	2pack	1:13
		Sampling bottle	4Pcs	1:6
		Labling paper and parker		As required

LEARNING MODULE 03	
TVET-PROGRAMME TITLE: Animal Health Level III	
MODULE TITLE: Identifying and Handling Non-Infectious Animal Diseases	
MODULE CODE: <u>AGR ANH3 M03 0422</u>	
NOMINAL DURATION: 64 Hours	
<p>MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to identify and treat different categories of non-infectious causes of animal disease. It also covers the ability to participate in prevention and minimization of its effect through community education and providing consultancy to other stakeholders in the line of livestock industry.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Develop general understanding on non-infectious diseases of animals</p> <p>LO2. Identify and handle causes of animal poisoning</p> <p>LO3. Identify and handle metabolic and nutritional causes of animal diseases</p> <p>LO4. Identify and handle miscellaneous causes of animal diseases</p>	
<p>MODULE CONTENTS:</p> <p>LO1. Develop general understanding on non-infectious diseases of animals</p> <p>1.1. Introduction to non-infectious diseases</p> <p>1.2. Current status and economic implication of non-infectious animal disease</p> <p>1.3.1. Worldwide information</p> <p>1.3.2. Statistical information in Ethiopian</p> <p>1.3. Categories of non-infectious disease of animals</p> <p>1.4. Policies, legislations, regulations and directives in handling non-infectious disease</p> <p>1.5. Hazard identification and risk minimisation during case handling</p> <p>LO2. Identify and handle causes of animal poisoning</p> <p>2.1. Aetiology, clinical sign, diagnosis, treatment and control of chemical toxins</p> <p>2.1.1. pesticide poisoning</p> <p>2.1.2. Acaricide poisoning</p> <p>2.1.3. Herbicide poisoning</p> <p>2.1.4. Rodenticides poisoning</p> <p>2.1.5. Industrial chemical poisoning</p> <p>2.2. Aetiology, clinical sign, diagnosis, treatment and prevention of phyto-toxines</p> <p>2.2.1. Oxalate Poisoning</p>	

- 2.2.2. Cyanide Poisoning
- 2.2.3. Nitrate Poisoning
- 2.2.4. Plants Causing Photosensitization
- 2.2.5. Plants Causing Thiamine Deficiency
- 2.2.6. Teratogenic Plants

LO3. Identify and handle metabolic and nutritional causes of animal diseases

- 3.1. Aetiology, clinical sign, diagnosis, treatment and prevention of nutritional imbalances
 - 3.1.1. Protein and energy source deficiency
 - 3.1.2. Vitamin and mineral deficiency
- 3.2. Etiology, clinical sign, diagnosis, treatment and prevention of metabolic disorders
 - 3.2.1. Carbohydrate engorgement
 - 3.2.2. Ketosis /Acetonemia
 - 3.2.3. Parturient paresis/milk fever
 - 3.2.4. Bloat (ruminal tympany)

LO4. Identify and handle miscellaneous causes of animal diseases

- 4.1. Aetiology, treatments and prevention
- 4.2. Diagnosis and treatment of colic
- 4.3. Symptoms and treatments of abomasal displacement
- 4.4. Cause, symptoms and treatment diabetics
- 4.5. Aetiology, treatments and prevention of physical trauma
- 4.6. Aetiology, treatments and prevention of Traumatic reticulo pericarditis (TRP)
- 4.7. Aetiology treatments and prevention of neoplasia

LEARNING METHODS:

- Lecture and group Discussion
- Démonstration
- Coopérative training
- Field Visit

ASSESSMENT METHODS:

- Written test
- Oral questioning (Interview)
- Practical demonstration
- Cooperative training

ASSESSMENT CRITERIA:

LO1. Develop general understanding on non-infectious diseases of animals

- The definition and clinical as well as economic impacts of non-infectious diseases are introduced.
- Statistical information on the current condition and implication of the problem in Ethiopian context are explained.
- The causes of different categories of non-infectious disease of animals are mentioned and explained.
- policies, legislations, regulations and directives are followed and implemented in work area
- work place hazards are identified and risk are minimized

LO2. Identify and handle causes of animal poisoning

- Aetiology, clinical sign, diagnosis, treatment and prevention/control methods of animal diseases caused by chemical toxins are identified and implemented.
- Aetiology, clinical sign, diagnosis, treatment and prevention/control methods of animal diseases caused by phyto-toxines (toxic plants) are identified and implemented.

LO3. Identify and handle metabolic and nutritional causes of animal diseases

- Aetiology, clinical sign, diagnosis, treatment and prevention/control methods of diseases caused by nutritional imbalances are identified and implemented.
- Aetiology, clinical sign, diagnosis, treatment and prevention/control methods of animal diseases caused by metabolic disorders are identified and implemented.

LO4. Identify and handle miscellaneous causes of animal diseases

- Aetiology, clinical sign, diagnosis, treatment and prevention/control methods of animal diseases caused by hormonal deficiencies and colic are identified and implemented.
- Aetiology, clinical sign, diagnosis, treatment and prevention/control methods of animal diseases caused by physical trauma are identified and implemented.
- Aetiology, clinical sign, diagnosis, treatment and prevention/control methods of animal diseases caused by physical trauma are identified and implemented.
- Aetiology, clinical sign, diagnosis, treatment and prevention/control methods for neoplastic causes of animal disease are identified and implemented.



Annex: Resource Requirements

AGR ANH3 M03 0422 : Identifying and Handling Non-Infectious Animal Diseases				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM and handouts	prepared by trainers	25 pcs	1:1
2	Reference Books	Printed and online	5 pcs	1:5
2.1	Textbook of Veterinary Internal Medicine,	Stephen <i>et al.</i> ,2017	5 pcs	1:5
2.2	Veterinary Toxicology; Basic and Clinical Principles	Ramesh C., 2007	5 pcs	1:5
2.3	Comparative Veterinary Pharmacology, Toxicology and Theraphy	Gasthuys,. <i>et al.</i> , 1986. 3 rd ; ed	5 pcs	1:5
3	Reference manuals	prepared by the trainer	5 pcs	1:5
4	written and graphical instructions, Bulletins, data sheet, diagrams or sketches	prepared by trainers	3 pcs	1:8
5	Workplace guidelines/manuals	prepared by the trainer	5 pcs	1:5
B. Learning Facilities and Infrastructure				
1	Class room	7m*8m		1:25
1	Library	Have a digital library/e-library 1.7m ² /trainee		1:25
2	Audio visual/ICT room	Smart room		1:25
3.	Laboratory room	standard		1:25
4.	Workshop	Medium level		1:25
5.	veterinary clinic	B level		1:25
6	Drug store	Medium level		



7	Vehicle	Bus for field trip	1	1:25
C. Consumable Materials				
1	Chemical toxins	<ul style="list-style-type: none"> • Pesticides • Rodenticide • Herbicide • Other industrial chemicals 		As required
2	Treatment agents	<ul style="list-style-type: none"> • Magnesium hydroxide • Sodium bicarbonate • Indigestion powder/MgSO₄ • Calcium borogluconate • Sodiumnitrite • Methylene blue • NH₄Cl • Antihistamine • Atropine sulfate • Pentobarbital • Methocarbamol • Multivitamins • Minerals • Activated charcoal • Adrenalin 		As required
3	Electrolyte and fluid for therapies	Normal saline, dextrose (e.g.Dextran 40 in 0.9 % NaCl), ringers solution, plasmolystes, ringers lactate,		As required
4	vitamins	Multivitamin, Vit B-complex, vit A		As required
5	Anti-inflammatory drugs	Hydrocortisone, Dexamethasone, Aspirin, ibuprofen, diclofenac, Celebrex.		
6.	Glove	Types Different (latex, arm length, leather, rubber glove)		As required
D Tools and Equipment				
1	PPE	Overalls/Gown, Apron, Respirator or face mask,	25 pcs	1:1
2	Clinic tools and equipment	hypodermic syringe and needles, nasogastric tube, Girth meter, IV catheter , Stomach tube and mouth gag, Trocar and cannula, Chemical sprayer	3 pcs each	1:8

LEARNING MODULE 04			
TVET-PROGRAMME TITLE: Animal Health Level III			
MODULE TITLE: Providing Routine Veterinary Clinical Service			
MODULE CODE: <u>AGR ANH3 M04 0422</u>			
NOMINAL DURATION: 56 Hours			
MODULE DESCRIPTION: This Module covers the knowledge, skills and attitude required to prepare materials, equipment, work area and perform routine clinical examination of animals. It also comprises knowledge and skill to treat basic animal problems and conduct post treatment advice to the owner of animals.			
LEARNING OUTCOMES			
At the end of the module the trainee will be able to:			
LO1. Perform general and systemic clinical examination			
LO2. Prepare and Provide basic treatment to clinical cases			
LO3. Provide specific clinical care advice			
MODULE CONTENTS:			
LO.1 Perform general and systemic clinical examination			
1.1. Preparing of working area, materials, equipment and tools for clinical services			
1.2. Restraining of animal for clinical examination.			
1.3. History taking			
1.4. General and systemic clinical examination			
1.5. Observing and recording abnormalities and behavioral changes			
1.6. Clinical sample collections and sample processing			
LO.2 Prepare and Provide basic treatment to clinical cases			
2.1 Preparation of equipment and materials for treatment			
2.2 Applying treatments considering right dosage regime of drugs			
2.3 Recording and reporting of treatment information			
LO.3 Provide specific clinical care advice			
3.1. Providing nutrition and reducing stress			
3.2. Primary clinical and non-clinical care			
3.3. Withdrawal period of drugs			
LEARNING METHODS:			
<ul style="list-style-type: none"> • Lecture and Discussion • Démonstration 			



- Field vist
- Simulation and imagination
- Audio Visual méthode /CD/LCD/

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Individual and group assignments
- Practical demonstration/ clinical attachment

ASSESSMENT CRITERIA:

LO.1 Perform general and systemic clinical examination

- Working area, Materials, equipment and tools used for clinical services are prepared and applied according to the enterprise guide lines
- The animal is captured and or restrained and made ready humanely and safely for clinical examination.
- Detail case history is recorded in consultation with the owner.
- General Clinical examination are carried out according to the standard operating procedures
- Systemic Clinical examination are carried out according to the standard operating procedures
- Abnormalities and behavioral changes of the animal are observed, recorded and reported.
- Samples are collected in accordance with the standard operating procedures.
- Based on the diagnostic finding cases are handled in consultation with supervisor of veterinarian.

LO.2 Prepare and Provide basic treatment to clinical cases

- Animals are safely handled and restrained without causing harm or injury to animal or handler.
- Information on past treatment is sourced from the individual animal's health tag/s and case books
- Equipment and materials and treatment site are prepared based on finding
- Drug type, route of administration and frequency of treatment are determined and prepared based of clinical examination finding.
- Animal treatments are provided hygienically and consistently according to manufacturer's specifications or veterinary advice.
- Treated animals are identified from non-treated animals by recording the date

LO.3 Provide specific clinical care advice

- Primary clinical and non-clinical care advice is provided to animal owner as required in consultation with supervising veterinarian.
- Care advice on ensuring overall health of livestock through good nutrition and reducing stress.

Annex: Resource Requirements

AGR ANH3 M04 0422: Providing Routine Veterinary Clinical Service				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	Prepared by the trainer	25 pcs	1:1
2	Reference Books			
2.1	Textbook of Veterinary Internal Medicine	Stephen <i>et al.</i> , 2004 6 th ed.	5 pcs	1:5
2.2	Veterinary Medicine: A textbook of the diseases of cattle, horses, sheep, pigs and goats	Radiostate <i>et al</i> , 2007, 10 th ed.	5 pcs	1:5
2.3	Veterinary Neuroanatomy and Clinical Neurology	Delahunata glass 2008	5 pcs	1:5
3.	Work place Guideline and manuals	Prepared by trainer	12 pcs	1:2
4	Audio Visual	CD/VCD/LCD	1 pcs	1:25
4.	Journals/Publication/Magazines	International or national veterinary journals/Online/	1 pcs	1:1
B. Learning Facilities and Infrastructure				
1.	Lecture room	7m * 8m	1 pcs	1:25
2.	Well-equipped Computer Room	Concert block	1 pcs	1:25
3.	Farm	Shoat farm, dairy and beef farm, poultry farm	1 pcs	1:25
4	Open air clinic	Equipped with crush and other restraining materials	1 pcs	
5	Pathology and microbiology Laboratory room with full equipments	Concrete block	1 pcs	1:25



6	Well equipped library/ebook/	Concrete block with 1.7m ² /trainee	1 pcs	1:25
C. Consumable Materials				
1.	Stationary materials	Pens, paper, pencils/ Marker, Chalk	2Packs /1Gros	As per required
2	Cleaning and disinfecting chemicals	House hold bleach	1kg	---
		Ethanol alcohol	4lts	1:6
		Povidone and tincture iodine	2 lts	1:12
		Savlon	4 lts	1:6
		Soaps	1 pack	1:2
3	Chemical restraints	Lidocaine	2Vial each	
		Xylazine		
		Acepromazine		
D. Tools and Equipment				
1.	Ropes	Synthetic/ organic rope	5 pcs	1:5
2	Crush	Stainless steel	1pcs	1:25
3	Bull holder	stainless steel	5 pcs	1:7
4	Chain and mesh wire	stainless steel	5 pcs	1:5
5	Pole	Wood/metal	1 pcs	1:25
6	Poultry cage	Plastic/wire/wood	5 pcs	1:5
8	Personal protective equipment	Boots	25 pcs	1:1
		hats/hard hat	each	
		coveralls		
		Gloves in packet	3 pcs	1:1
9	Smart class	Document camera, Audio video input, computer, network connectivity, LCD and amplifier	1 pcs	1:25
10	Microscope with its full accessories	Compound and stereo microscope	5 pcs	1:5
11	Gown	White color	25 pcs	1:1



LEARNING MODULE 05			
TVET-PROGRAMME TITLE: Animal Health Level III			
MODULE TITLE: Performing Pre-Surgical Operative Procedures and Wound Management Activities			
MODULE CODE: <u>AGR ANH3 M05 0422</u>			
NOMINAL DURATION: .60 Hours			
MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to understand basic knowledge on surgical terminologies, and classifications, surgical materials and equipment, suturing, knotting and ligation as well as general pre-surgical operative preparations and procedures. It also covers the ability to carry out management of different types of wounds and abscesses in animals			
LEARNING OUTCOMES At the end of the module the trainee will be able to: LO1. Acquire basic knowledge on veterinary surgery LO2. Perform preoperative surgical preparations LO3. Perform wound management activities			
MODULE CONTENTS: LO1. Acquire basic knowledge on veterinary surgery 1.1 Clinical importance and technical classification of surgery 1.2 General surgical equipment and suture materials 1.3 Understand and practice suturing pattern, knotting and ligation techniques 1.4 Understanding of terminologies related to anaesthesia 1.5 Types of commonly used veterinary anaesthetic medications LO2. Perform preoperative surgical preparations 2.1. Implementing safe work practices and policies 2.2. Vital pre-surgical considerations 2.3. Preparation of surgeon, surgical equipment and operation theatre-premises 2.4. Preparation of the patient and pre-operative patient monitoring 2.5. Methods of anesthesia application LO3. Perform wound management activities 3.1 . Identifying hazard associated with animal handling 3.2 . Types of wound 3.3 . Examination, assessment and treatment of wound 3.4 . Basic principles of wound management			



3.5 . Classification of abscess

3.6 . Procedures for lancing and treatment of abscesses

3.7 . Post-operative care to animals

3.8 . Clean, disinfect, maintain and store work area and surgical equipment

LEARNING METHODS:

- Lecture
- Group discussion
- Practical démonstration
- Simulation

ASSESSMENT METHODS:

- Written test
- Oral question
- Practical demonstration
- Group assignment

ASSESSMENT CRITERIA:

LO1. Acquire basic knowledge on veterinary surgery

- The definition , clinical importance and technical classification of surgery are described
- General surgical equipment (surgical pack) and suture materials are mentioned
- Circumstantial suturing, knot and ligation techniques and pattern are understood and practiced
- Common terminologies related to anaesthesia are defined
- Varsity types of commonly used veterinary anaesthetic medications are mentioned and described.

LO2. Perform preoperative surgical preparations

- Safe work practices and work place policies are implemented to minimize Hazard associated with preoperative preparations of the patient animal
- Vital pre-surgical considerations including, preadmission, owner communication, consent form and admission of the patient animal are conducted in assisting major veterinary surgical operation
- Preparation of surgical equipment and operation theatre-premises are performed following organizational rules and standardized surgical operative guidelines.
- Preparation of the surgeon is considered before assisting in major surgical operation.
- Safe restraining of the animal, premedication and surgical site preparation is carried out.
- Pre-operative patient monitoring is implemented following guidelines and precaution
- Different methods anaesthesia applications are implemented for different purposes of surgery

LO3. Perform wound management activities

- Hazard associated with animal handling/ wound management are identified and OHS procedures are followed
- Contextual meaning of wound are defined, types of wound are identified and explained
- Initial examination and wound assessments are carried out to determine affected blood vessels, nature and extent of injury
- Treatment and other management procedures for different types of wound are applied

following basic Principles of wound Treatment

- Causes and classification of abscess in farm animals are explained
- Effective Procedures for lancing and treatment of abscesses are applied
- Animal are released after parenteral antibiotic medications and owner are given animal care advice
- Wastes are identified and deposited off following organizational rules and standard waste disposal guidelines
- Work area and surgical equipment are cleaned, disinfected, maintained and stored in accordance with clinic policies



Annex: Resource Requirements

AGR ANH3 M05 0422 : Performing Pre-Surgical Operative Procedures and Wound Management Activities				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	prepared by the trainer	25 pcs	1:1
2.	Reference Books			
2.1.	Farm Animal Surgery	Fubini and Ducharme, 2016: 2 nd ed.	5 pcs	1:5
2.2.	Textbook of Surgery: The Biological Basis of Modern Surgical Practice	Townsend <i>et al.</i> 2007	5 pcs	1:5
3.	Manuals			
3.1.	Minor Surgery Manual	Mia Crupper, N. D., 2016	5 pcs	1:5
3.2.	Skills in Minor Surgical Procedures for General Practitioners	Blanco and Tejero, 2012	5 pcs	1:5
B. Learning Facilities and Infrastructure				
1.	Lecture room	56m ²		1:25
2.	Veterinary clinic			1:25
3.	Surgery laboratory			1:25
4.	Isolation room			As required
5.	Anatomical model	For different species		As required
6.	Audiovisual room	CD, DVD, LCD, Computer, Internet	1 pcs	1:25
7.	Library	1.7m ² /trainee		
C. Consumable Materials				



1.	Chemical			As required
1.1.	Detergents	Omo, Soap		
1.2.	Disinfectants	Formalin, Ethyl alcohol, Quaternary ammonia		As required
1.3.	Antiseptics	Tincture of iodine, savlon, H ₂ O ₂ and chlorohexidine		As required
2	Anaesthesia	Lidocaine, ketamine, Atropine sulphate, diazepam, Acepromazine, Promazine and xylazine		As required
3	Record book		2	1:13
D	Tools and Equipment			
1.	PPE	Boots, hat, coverall, apron, respirator, facemask, eye goggle, gloves	25 pcs	1: 1
2	Hypodermic syringe and needle		2 pack	
3	Surgical kit		1 kit	1:25
4	Scissor, blade, forceps, suture material, gauze, cotton, towel, surgical tray			As required
5	Surgical lamp	shadow less	2	1:13
6	Surgical bed	Adjustable and movable	2	1:13

LEARNING MODULE 06

TVET-PROGRAMME TITLE: Animal Health Level III

MODULE TITLE: **Providing First Aid and Responding to Emergencies for Animals**

MODULE CODE: **AGR ANH3 M06 04 22**

NOMINAL DURATION: **48** Hours

MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to recognize emergencies, provide basic first aid broad spectrum of situations incidents and implement emergency care life support measures to animals. It also comprises knowledge and skills required to euthanize sick, injured or unwanted animals in a humane way that complies with safe operating practices and with ethical, welfare and legislative requirements.

LEARNING OUTCOMES

At the end of the module the trainee will be able to:

LO1. Assess emergency situation and provide basic first aid

LO2. Provide emergency care to animals

LO3. Undertake euthanasia in essentials conditions

MODULE CONTENTS:

LO1. Assess emergency situation and provide basic first aid

1.1 Aims of first aid

1.2 Emergency situation

1.2.1. Hemorrhage, Severe vomiting and diarrhea

1.2.2. Bone fracture, Choking and difficulty breathing

1.2.3. Bloat, Dystocia and Hypocalcaemia

1.2.4. Snake bite or poisoning

1.2.5. Other emergency situation

1.3 Following standard guideline and OHS procedures

1.4 Selecting and using first aids kits

1.5 Safe handling of animal

1.6 Assessing physical condition and vital signs

1.7 ABC rules of first aid

1.8 Referring serious cases

1.9 Documenting and reporting first aid support

LO2. Provide emergency care to animals

2.1. Clinic policies and procedures for the treatment of emergencies

- 2.2. Patient evaluation
- 2.3. Hemorrhage control and breathing assistance
- 2.4. Emergency procedures and nursing care
- 2.5. Reassuring casualty in caring and calm manner
- 2.6. Recommend Euthanasia in cases of untreatable and sever pain

LO3. Undertake euthanasia in essentials conditions

- 3.1. Definition and situations for recommending euthanasia
- 3.2. Methods of euthanasia
- 3.3 Identify Animal intended for euthanasia
- 3.4. Equipment and materials for euthanasia
- 3.5. Identify Hazards associated with euthanasia
- 3.6. Apply proper restraining during euthanasia
- 3.7. Monitoring Euthanasia procedure
- 3.8. Disposing Carcass and biological waste
- 3.9. Records relating to the euthanized animal.

LEARNING METHODS:

- Lecture and Discussion
- Practical demonstration
- Audio visual

ASSESSMENT METHODS:

- Written test
- Group/individual assignment with presentation
- Practical assessment with Oral questioning

ASSESSMENT CRITERIA:

LO1. Assess emergency situation and provide basic first aid

- Aims of first aid are described
- Emergency situation is recognised according to organizational manual.
- Risk posed to self, others and animals is assessed following standard guideline.
- OHS procedures and safe working practices are applied including the selection of PPE to suit the emergency situation.
- Tools and equipment for safety and first aid kits required for emergencies are selected, used, maintained and stored in good order.
- Animal is handled safely and humanely using available resources.
- Physical condition and vital signs of the animal are assessed according to organizational guideline
- Options for assisting animals are evaluated and procedures selected with reference to workplace protocols and regulations
- Basic first aid care is provided following ABC rule and First aid assistance is sought from others as appropriate and required.
- Serious cases that need further treatment and correction are referred to veterinary clinic for further process
- All first aid support activities are documented and reported to supervisor and completed on referral slip.

LO2. Provide emergency care to animals

- Clinic policies and procedures for the treatment of emergencies are developed in consultation with the supervising veterinarian.
- Patient evaluation is conducted to assess injuries and vital signs of the patient animal. Relevant procedures for hemorrhage control or breathing assistance are applied according to patient needs.
- Emergency procedures and nursing care are applied as required in accordance with patient needs and OHS requirements.
- Casualty is reassured in a caring and calm manner and made comfortable using available resources.
- Euthanasia is recommended in cases of untreatable severe pain to relieve from further suffering, uncontrollable and profuse bleeding.

LO3. Undertake euthanasia in essentials conditions

- The definition and situations for recommending euthanasia are explained.
- Methods of euthanasia and material (chemicals) use in the process are mentioned.
- Animal intended for euthanasia is identified and method for euthanasia is decided in consistent with legislative requirements.
- Equipment and materials required for euthanasia are kept and prepared in accordance with legislative requirements.
- Hazards associated with the euthanasia are identified and PPE/safety equipment are prepared and used in accordance with statutory requirements and industry practices.
- Animal is physically restrained and Euthanasia is applied in a way that minimizes its pain and distress.
- Euthanasia procedure is monitored to ensure that the animal's death is rapid and without complications or undue suffering.
- Carcass and biological waste not required for further investigation/research purpose are disposed of in accordance with organisational guidelines and procedures and legislative requirements
- Equipment and materials are disposed of or are decontaminated, cleaned and stored in accordance with standard operating procedures.
- Records relating to the euthanized animal are kept.

Annex: Resource Requirements

<u>AGR ANH3 M06 0422: Providing First Aid and Responding to Emergencies for Animals</u>				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1	TTLM	Prepared by the trainer	25 pcs	1:1
2	Reference Books			
2.1	Manual of Small Animal Emergency and Critical Care Medicine	Duogclass, <i>et al.</i> , 2004	5 pcs	1:5
2.2	Textbook of Small Animal Emergency Medicine	Kenneth J. Drobotz <i>et al.</i> , 2018	5 pcs	1:5
4	written graphical and diagrams or sketches	Prepared by trainer	2 pcs	1: 13
B. Learning Facilities and Infrastructure				
1.	Well Equipped Lecture Room	56m ²		1:25
2.	Virtual library with multimedia (LCD project, computer, and CD)	1.7m ² /trainee		1:25
3.	Open air clinic			
C Consumable material				
	Disinfectant, Chemical antiseptic	Isopropyl alcohol 3%		As required
		hydrogen peroxide		
		Petroleum jelly		



		Activated charcoal		
		Antibacterial ointment		
		Soap		
		Iodine		
		Antiseptic solution		
		Savlon		
		strychnine		
D.	Tools and Equipment			
1.	Personal protective equipment	Overall	25 pcs	1:1
		Respirator	25 pcs	1:1
		Boots	25 pair	1:1
		Glove	2 pack	
		safety eye washes and safety showers		
2	Tools to give first aid	• Ice pack		As required
		• Syringe		
		• Gauze		
		• Cotton rolls		
		• Adhesive tape		
		• Cohesive bandages		
		• Antiseptic		
		• Sterile saline Scissors		
		• Bandaging scissors		
		• Latex exam gloves		
		• Leg wraps		
		• Hemostats and forceps		
		• Pliers to pull nails		
• Rectal thermometer				
• Stethoscope				
3	Fire arm	Mechanical euthanizing material	1 pcs	
	Captive bolt		1 pcs	
	Shooting gun		1 pcs	



LEARNING MODULE 07			
TVET-PROGRAMME TITLE: Animal Health Level III			
MODULE TITLE: Identifying and Handling Pests, Predators and Diseases of Honey Bee Colony			
MODULE CODE: AGR ANH3 M07 0422			
NOMINAL DURATION: 42 Hours			
MODULE DESCRIPTION : This module specifies the knowledge to understand biology and behavior of honey bee, skills and attitude required to inspect a honey bee colony for indicators of disease or evidence of pests, and take appropriate follow-up action. It also comprises trainees' ability to prevent and control diseases and pests of honey bee colony.			
LEARNING OUTCOMES At the end of the module the trainee will be able to: LO1. Understand biology and behavior of honey bee LO2. Asses health condition of honey bee colony LO3. Prevent and control diseases and pests of honey bee colony			
MODULE CONTENTS LO1. Understand biology and behavior of honey bee 1.1 Biology of honey bee 1.2 Developmental stage and work duties in honey bee colony 1.3 Caste system of honey bee colony 1.4 Feeding and communication behaviour in society of honey bee 1.5 Characteristics of honey bee races in Ethiopia LO2. Asses health condition of honey bee colony 2.1 Selecting and checking PPE, tools and equipment to open a hive 2.2 OHS hazards in opening hive 2.3 Inspecting and notifying the signs of disease 2.4 Examination and treatment pests and parasites of brood 2.5 Signs and symptoms of disease and pests of adult honey bees 2.6 Collecting and shipping samples of honey bee to laboratory LO3. Prevent and control of diseases and pests of honey bee colony 3.1 Prevention and control of honey bee diseases and pests 3.2 Maintaining and using PPE 3.3 Drugs and chemicals for treatment and control of disease and pastes			



- 3.4 Treatments for infestations and infections
- 3.5 Biosecurity measures and plans
- 3.6 Remedial action to ensure health and productive condition of honey bee colony
- 3.7 Legislatives in the use of restricted chemicals in bee keeping environment
- 3.8 Notifiable diseases of honey bee colony
- 3.9 Maintaining records

LEARNING METHODS:

- Lecture and Discussion
- Practical demonstration
- Audio Visual
- Field visit

ASSESSMENT METHODS:

- Written test
- Practical Demonstration with Oral Questioning
- Assignment (individual and group)

ASSESSMENT CRITERIA:

LO.1. Understand biology and behavior of honey bee

- Basic information on biology of honey bee is described.
- Developmental stage and work duties are mentioned
- Caste system (social status) in the honey bee colony is discussed.
- Feeding and communication behaviour in society of honey bee is discussed.
- Characteristics of common Honey bee races in Ethiopia are described.

LO.2. Asses health condition of honey bee colony

- Suitable PPE are selected and checked according to the organizational regulation.
- Tools and equipment required to open a hive are selected and checked according to the organizational guideline.
- OHS hazards associated with opening a hive are identified and actions taken according to the organizational guideline.
- Disease signs in the brood, adults, poor or irregular flight patterns and dead or dying bees around hive entrance are inspected and appropriate authorities are notified.
- Brood is inspected for evidence of pests and parasites and, where found, appropriate action is taken and appropriate authorities are notified as required by legislation.
- Adult bees and brood combs are observed for signs of disease and, where notifiable disease is present, appropriate authorities are informed as required by legislation and appropriate action is taken.
- Signs of disease or pest that adult bees face are identified.
- Appropriate samples for testing are collected, packed and shipped to the laboratory as per prevailing regulations and evidence is gathered to support a diagnosis according to relevant standards and protocols.
- Appropriate samples for testing are collected, Labeled, packed and shipped to the laboratory according to the regional laboratory protocol; evidence is gathered to support a diagnosis according to relevant standards and protocols.

LO.3. Prevent and control diseases and pests of honey bee colony

- Prevention and control methods of honey bee colony diseases and pests are identified and applied according to the organizational guideline.
- Appropriate PPE clothing and equipment is provided, used and maintained in accordance with enterprise procedures and OHS requirements.

- Drugs and chemicals used in the treatment and control of diseases and pests of honey bee colony are identified and handled according to the organizational guideline.
- Infestations/infections are monitored and treatments are applied according to OHS standards principles, business requirements, veterinary guidelines and sound bee keeping practice and enterprise procedures.
- Biosecurity measures are implemented according to enterprise biosecurity plans and instructions from appropriate authority.
- Results of inspections and any remedial action taken are recorded and used as the basis for future beekeeping operations
- Treatment programs are modified where necessary and when dictated by progress.
- Appropriate approval is obtained for use of restricted chemicals.
- Senior personnel are notified promptly of significant changes to treatments and/or when business implications dictate.
- Notifiable diseases are identified and regulatory requirements are complied with the industry requirement.
- Records are maintained as required by industry and enterprise guidelines.



Annex: Resource requirements

<u>AGR ANH3 M07 0422: Identifying and Handling Pests, Predators and Diseases of Honey Bee Colony</u>				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio
A. Learning Materials				
1.	TTLM	Prepared by the trainer	25 Pcs	1:1
2.	Reference Books			
2.1.	Honey Bee Pests, Predators, and Diseases Paperback.	Morse,RA.and Pottum,K., 2013. 2 nd ed	5 pcs	1:5
2.2.	Honey Bees: Diseases, Parasites, Pests, Predators and their Management Paperback.	Nagaraja, N. and Gopal D., 2009; 1 st ed.	5 pcs	1: 5
2.3.	Honey Bee Veterinary Medicine, An Issue of Veterinary Clinics of North America: Food Animal Practice.	Applegate <i>et al.</i> , 2021; 1 st ed.	5 pcs	1:5
3.	Reference manuals	<ul style="list-style-type: none"> • ILRI manuals and researches • EVA journals/ Magazines • International or national journals • Animal Health Institute manual 	5 pcs	1:5
4.	Videos or Audio video lecture	Online accessed		
5.	Bulletins, Data sheet, Diagrams, sketches.	Prepared by the trainer	2 pcs	1:13
B. Learning Facilities and Infrastructure				
1.	Well-equipped lecture room (with tables, chairs, White board)	56m ²		1:5
2.	Virtual library with multimedia equipment (LCD, project and CD)	Concrete block 1.7x25m ²		
3.	Open air clinic			1:25
4.	Anatomic models	Honey bee and Apiary	5	1:5
5.	Laboratory room		1	1:25



6.	Smart room	LCD, CD, Computer and Projector	1	1:25
C. Consumable Materials				
1.	Cleaning and disinfecting chemicals	Ethanol alcohol	2 ltr	1: 13
		Isopropyl alcohol	2 ltr	1: 13
		Barakina	2 ltr	1: 13
		Glutaraldehyde	2 ltr	1: 13
		Hydrogen peroxide	2 ltr	1: 13
2.	Gauze	Sterile and Roll cotton and gauze	2 roll	1:13
3.	Surgical and latex glove	Sterile and packed glove	1 pack	1:1
4.	Honey bee Fumes	Liters	1 ltr	1:25
D. Tools and Equipment				
1.	Personal protecting equipment	Bee-proof overalls and gloves, Steel capped boots/shoes, Sunhats, Bee veils and Sunscreen lotion	25 Pcs	1:1
2.	Bee blower		1 pcs	1:8
3.	Detergent		1 pcs	1:8
4.	Bee smoker		1 pcs	1:8
5.	Brush		3 pcs	1:8
6.	Buckets and wheelbarrow		3 pcs	1:8
7.	Glass slides, jars or cages for adult bee samples		3 pcs	1:8
8.	Geographic Positioning System (GPS) equipment		3 pcs	1:8
9.	Hive tool		3 pcs	1:8
10.	Hives		3 pcs	1:8
11.	Loading and unloading equipment		3 pcs	1:8
12.	Compass and detailed locality maps		3 pcs	1:8
13.	Queen excluder		3 pcs	1:8



LEARNING MODULE 08

TVET-PROGRAMME TITLE: Animal Health Level III

MODULE TITLE: **Identifying and Handling Pest, Predator and Disease in Fish**

MODULE CODE: **AGR ANH3 M08 04 22**

NOMINAL DURATION: **40** Hours

MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to describe Basic information on biology and anatomy of fish that helps to inspect fish for indicators of disease or evidence of pests, and take appropriate follow-up action. It also requires expertise to treat and prevent pest, diseases and predator of fish following safety rules and considering environmental implication in the use of chemical agents as a treatment control method.

LEARNING OUTCOMES

At the end of the module the trainee will be able to:

- LO1.** Understand biology and behavior of fish
- LO2.** Diagnose predator, pest and disease infections
- LO3.** Implement treatment, control and prevention measures against predators, pests and diseases of fish
- LO4.** Monitor and review cleanup activities and operation

MODULE CONTENTS:

LO1. Understand biology and behavior of fish

- 1.1. Biology and anatomy of fish
- 1.2. Reproduction pattern of fish
- 1.3. Fish feeding behavior

LO2. Diagnose predator, pest and disease infections

- 2.1. PPE and working equipment
- 2.2. Hazard identification, assessment and risk control procedures
- 2.3. Pest and predators of fish
 - 2.3.1. Life cycles, physiology and behavior
 - 2.3.2. Characteristics, signs and symptoms of predators, pest infestations
- 2.4 Identification of fish diseases.
 - 2.4.1. Bacterial diseases
 - 2.4.2. Viral diseases
 - 2.4.3. Fungal diseases and toxicants (chemicals)

2.4.4. Worms and crustacean parasites

2.4. Monitoring fish stock health problems

2.5. Diagnose sick fish Stock and professional advice

2.6. Investigating disease outbreaks and reporting stock deaths

2.7. Specimens for laboratory analysis

LO3. Implement treatment, control and prevention measures against predators, pests and diseases of fish

3.1. Treatments techniques in aqua culture

3.2. Drug withdrawal period in fish treatment

3.5. Notifiable diseases of fish

3.6. Prevention and control methods of fish diseases, predators and pests

3.7. Maintaining records

LO4. Monitor and review cleanup activities and operation

4.1. ESD principles in collecting and disposal of Moribund/ dead stock

4.2. Repairs and maintenance of equipment

LEARNING METHODS:

- Lecture and Discussion
- Practical demonstration
- Audio visual

ASSESSMENT METHODS:

- Written test
- Group/individual assignment with presentation
- Practical assessment with Oral questioning

ASSESSMENT CRITERIA:

LO1. Understand biology and behavior of fish

- Basic information on biology and anatomy of fish is described.
- Reproduction pattern of fish are defined.
- Information feeding behavior of common and important fish species are defined.

LO2. Diagnose predator, pest and disease infections

- Appropriate PPE clothing and equipment are provided, used and maintained in accordance with enterprise procedures and OHS requirements.
- Hazard identification, assessment and risk control procedures for the workplace are implemented and monitored using the hierarchy of control model, legislative requirements and enterprise and workplace procedures.
- Pest, predators and diseases of fish are identified in relation to the work place.
- Fish Stock is monitored for a range of health problems which support a systematic and comprehensive analysis of available symptoms in accordance with enterprise procedures.
- Where appropriate, sick fish Stock are diagnosed and professional advice is obtained where the complexity of the problem or the severity of infestation dictate.
- Disease outbreaks are investigated and stock deaths reported in accordance with enterprise procedures.
- Specimens for external analysis are collected, labeled, packaged and sent to laboratories, according to laboratory specifications.
- Based on the confirmatory diagnosis obtained from sample processing, treatment is given according to the nature of the problem.
- Conclusions are drawn from relevant information based on appropriate evidence and reasoned decisions

LO3. Implement treatment, control and prevention measures against predators, pests and diseases of fish

- Treatments are applied according to OHS standard principles, veterinary guidelines, business requirements and sound aqua cultural practice
- With holding periods are compiled according to the drug company's description.
- Treatment programs are modified, where necessary and when dictated by progress.
- Senior personnel are notified promptly of significant changes to treatments and/or

when business implications dictate.

- Notify able diseases are identified and regulatory requirements are complied with the Government requirement.
- Records are maintained as required by government requirements and industry requirements and enterprise guidelines.
- Prevention and control methods of fish diseases, predators and pests are identified and implemented according to the organizational guideline
- Preventative measures selected and implemented control measures suited to infestation/infection are identified from stock health plan.
- Predator, pest and disease control methods suited to environmental conditions, severity of infestation, marketing and legislative requirements and business circumstances are chosen.

LO4. Monitor and review cleanup activities and operation

- Moribund or dead stock are collected and disposed of in accordance with veterinary guidelines, enterprise procedures, government requirements and Ecologically Sustainable Development (ESD) principles.
- Clean up activities are carried out following ESD principles.
- Repairs and maintenance are undertaken on equipment and report prepared and conveyed to senior personnel.



Annex: Resource Requirements

AGR ANH3 M08 0422: Identifying and Handling Pest, Predator and Disease in Fish				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1	TTLM and hand outs	Prepared by the trainer	25pcs	1: 1
2	Reference Books			
2.1	The diversity of fish: biology, evolution, and ecology	Gene S. Halfman., 2009, 2 nd edition	5 pcs	1: 5
2.2	Bacterial fish pathogen: disease of farmed and wild fish	Baustin, 2007, 4 th ed.	5 pcs	1: 5
3	Reference and technical manuals		5 pcs	1: 5
4	written graphical and diagrams or sketches	Prepared by trainer	2 pcs	1: 13
5	Journals/Publication/Magazines	Online accessed		
B. Learning Facilities and Infrastructure				
1.	Well Equipped Lecture Room	56m ²		
2.	Virtual library with multimedia (LCD project, computer, and CD)	1.7m ² /trainee		
3.	Fish farm /Pond			
4	Fish laboratory	Well equipped (microscope, Fish		



C. Consumable Materials				
1.	Detergents and soap	House hold bleach	1kg	
		Soap	1pack	
2	Disinfectants and antiseptics	Ethanol	1 ltr	As required
		Formaline	2 ltr	
		Povedine iodine	1ltr	
		Methanol	1 ltr	
		Iodine	1 ltr	
D. Equipment and Materials				
1	Personal protective equipment	Gloves	1 pack	1:25
		Raincoat or Gown or overalls (water proof)	25 pcs	1:1
		Water Life saver jacket	25 pcs	1:1
		Boots	25 pair	1:1
2	Capturing net		3 pcs	1:5
3	Vaccination gun		1 pcs	
4	Scissors	Stainless steel	4 pcs	
5	Knife		2 pcs	
6	Forceps		4 pcs	
7	Scalpel blade		8 pcs	
8	Scalpel handle		4 pcs	

LEARNING MODULE 09	
TVET-PROGRAMME TITLE: Animal Health Level III	
MODULE TITLE: Conducting animal Health Extension and Community Veterinary Service	
MODULE CODE: <u>AGR ANH3 M09 0422</u>	
NOMINAL DURATION: 40 Hours	
<p>MODULE DESCRIPTION: This Module covers the required knowledge, skills and attitude regarding to application of animal health extension and provision of veterinary community service during field attachment. It also covers skill and knowledge to improve community awareness on animal disease control and prevention, and to insure community participation. It also requires recording and reporting provided community veterinary services.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Perform awareness creation and disease control at community level</p> <p>LO2. Build a strategy on disease spread and advocate new technology</p> <p>LO3. Provide veterinary service to the community</p>	
<p>MODULE CONTENTS:</p> <p>LO.1 Perform awareness creation and disease control at community level</p> <ul style="list-style-type: none"> 1.1 Basic understanding on sociological norms 1.2 Analyzing veterinary extension issues in the community 1.3 Approaches of information dissemination for different community types 1.4 Awareness creation program <ul style="list-style-type: none"> 1.4.1. Ways of transmission and prevention of animal disease 1.4.2. Economically important endemic and zoonotic disease 1.5 Involving the community in the prevention and control of animal disease 1.6 Mobilization of community in national disease surveillance program <p>LO.2 Build a strategy on disease spread and advocate new technology</p> <ul style="list-style-type: none"> 2.1 Empowering the community in prevention strategies of disease spread 2.2 Participatory Rural Appraisal (PRA) strategy in disease prevention 2.3 Advantage of integrated and small-scale farming 2.4 Integrating indigenous knowledge for transfer of new technology. 2.5 Adding value chain on livestock and livestock product <p>LO.3 Provide veterinary service to the community</p>	



- 3.1. Identification of working area and need of veterinary services
- 3.2. Preparation of supportive document needed for field work
- 3.3. Provision of community veterinary service
- 3.4. Monitoring and evaluation of community veterinary service
- 3.5. Recording and reporting community veterinary service
- 3.6. OHS and safety measures

LEARNING METHODS:

- Lecture and Discussion
- Démonstration
- Field visit
- Audio Visual méthode /CD/LCD/
- Participatory Learning and action (PLA)

ASSESSMENT METHODS:

- Written test
- Oral questioning
- Individual and group assignments
- Practical demonstration/ clinical attachment
- Project work

ASSESSMENT CRITERIA:

LO.1 Perform awareness creation and disease control at community level

- Community need assessment on veterinary extension issues are conducted and analysed.
- The type of community and level of literacy are identified and used to select media of communication and approach
- Awareness carination program are conducted at community level on locally prevailing disease.
- Information on disease sources and transmission ways are delivered.
- Importance of animal health care and early reporting of disease occurrence is explained
- Locally available diseases that are economically destructive and those with zoonotic importance are described.
- Participating community in the process of vaccination, mass treatment and crush construction are conducted.
- Control of disease transmission resulting from mixing different herds of animals at grazing and watering points is carried out by participating the local community.
- Available pictorial, post card, diagram or other demonstrable materials indicating harmful effects of the disease on animal health and the economy of farmers are used in the process of participation for the control of diseases.
- Mobilization of community is carried during national disease surveillance program

LO.2 Build a strategy on disease spared and advocate new technology

- Empowering the community in prevention of disease spread to new area is performed by early warnings and with prevention strategies
- Participatory Rural Appraisal (PRA) strategy is used in habituating disease prevention strategy.
- Advantage of integrated and small-scale farming is explained
- Integrating community indigenous knowledge in transfer of new technology.
- Information on adding value chain on livestock and livestock product is delivered

LO.3 Provide veterinary service to the community

- Based on community need assessment, the type of veterinary service and work area identified.
- Supportive document for field work is identified, prepared and approved by relevant body to facilitate the implementation of field work attachment.



- Veterinary service provision at community is performed for specific period of time with in the community.
- During community veterinary service provision period, information associated with the geographical location, available veterinary services facilities, culture and taboos are identified and considered.
- Service provide for community are well identified, recorded and reported based on institution guideline and format.
- Community veterinary service provision are supported supervised, monitored and evaluated by immediate field supervisor based on institution guideline.
- Whole provide community veterinary service are well recorded, reported and evaluated by institution against institution guideline and format, to confirm its implementations as per required standard.
- The proper implementation of OHS and safety measures are issued throughout field attachment.



Annex: Resource Requirements

AGR ANH3 M09 0422: Conducting animal Health Extension and Community Veterinary Service				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	prepared by the trainer	25 pcs	1:1
2	Reference books			
2.1	Essential core books for veterinary medicine	Marble H K. and Page J R, 2018, 2 nd ed.	5 pcs	1:5
2.2	Skills for communicating in veterinary medicine.	Adams <i>et al.</i> , 2017	5 pcs	1:5
3.	Work place Guideline and manuals	Prepared by trainers	3	1:8
4	Audio Visual	CD/VCD/LCD		1:25
4	Journals/Publication/Magazines	International or national veterinary journals/Online/		1:1
4.1	Assessment of community awareness on common zoonotic disease in and around Yabello District of Oromia regional state, Ethiopia.	Zewdie <i>et al.</i> , 2018,	5 pcs	1:5
4.2	Integrating community-based animal health workers into the formal veterinary service delivery system in Kenya.	Mugunieri <i>et al.</i> , 2004.	5 pcs	1:5
B. Learning Facilities and Infrastructure				
1.	Lecture room	Concrete block 1.4m ² /trainee		1:25
2.	Audio-visual center	Well equipped		1:25



3	Well-equipped library	Concrete block with 1.7m ² /trainee		1:25
4	vehicle	Bus and motor cycle		
C.	Consumable Materials			
1.	Stationary materials	Pens, paper, pencils/ Marker, Chalk, flip chart		As per required
2	Antiseptic and disinfecting chemicals	Varies depending on the type of case handled in the community veterinary services		As required
3	Veterinary drugs			
D.	Tools and Equipment			
1	PPE	Cover all, boots, glove, sun hat, eye goggle,		
1	Document camera, Audio video input, computer, network connectivity, LCD and amplifier, brochures,			
2	Microscope with its full accessories	Compound and stereo microscope	5 pcs	1:5

LEARNING MODULE 10

TVET-PROGRAMME TITLE: Animal Health Level III

MODULE TITLE: **Applying Digital Technology in Agriculture**

MODULE CODE: **AGR ASH3 M10 0422**

NOMINAL DURATION: **36** Hours

MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to understand the concepts of agricultural marketing, understand the concepts of agribusiness, identify marketing targets for agricultural products, implement marketing strategy, establish contract farming, and apply agricultural marketing services.

LEARNING OUTCOMES

At the end of the module the trainee will be able to:

- LO1.** Understand the Concept of digital technology
- LO2.** Apply Digital technologies among rural population and farmers
- LO3.** Recording and documentation

MODULE CONTENTS:

LO1. Understand the Concept of digital technology

- 1.1. Introduction to digital technologies
- 1.2. The role of digital technologies in agriculture
- 1.3. Principles of Agricultural science and technology
- 1.4. Application of mobile/smartphones and tablet

LO2. Apply Digital technologies among rural population and farmers

- 2.1. Identifying and coordinating required tools and equipment
- 2.2. Identification of digital technology infrastructures
- 2.3. Developing digital technology skills
- 2.4. Developing digital agri-preneurial skill.
- 2.6. Using digital technologies, communication tools and techniques
- 2.7. Promoting the implementation of digital technologies

LO3. Recording and documentation

- 3.1. Developing data collecting formats
- 3.2. Identifying and selecting data collection methodologies
- 3.3. Organizing, analyzing and interpreting collected data
- 3.4. Documenting and reporting organized, analyzed and interpreted data
- 3.5. Collecting feedbacks from relevant stakeholders



LEARNING METHODS:

- Lecture and Discussion
- Demonstration
- Simulation
- Role playing

ASSESSMENT METHODS:

- Written test with Oral questioning
- Practical demonstration

ASSESSMENT CRITERIA:

LO.1. Understand the Concept of digital technology

- Digital technologies are understood to apply digital technology.
- Importance of digital technologies are understood in agricultural sector
- Role of digital technologies in agriculture is identified to enhance agricultural development.
- Principles of Agricultural technology are identified to apply in the agricultural sector
- Mobile/Smart phones and template functions are understood to collect data and use in the reporting system

LO.2. Apply Digital technologies among rural population and farmers

- Require tools and equipment are identified and coordinated to apply digital technologies
- Digital technology infrastructures are identified to implement in agricultural development
- Digital technology skills are developed among the rural population
- Digital Agri-preneurial skill is developed for agricultural transformation.
- Digital technology communication tools are used to collect data and reporting system
- Digital technologies, tools and techniques are used to deliver digital education
- Implementation of digital technologies is promoted to enhance productivity

LO.3. Recording and documentation

- Data collecting formats are developed based on the needs
- Data collection methodologies are identified and selected based on the intended objectives
- Collected data are organized, analyzed and interpreted based on the intended objectives
- Organized, analyzed and interpreted data are documented and reported
- Feedbacks are collected from the relevant stakeholders



Annex: Resource Requirements

AGR ASH1 M10 0422: Applying Digital Technology in Agriculture				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	Prepared by the trainer	25 pcs	1:1
2.	Reference Books			
2.1	Digital Technologies for Agricultural and Rural Development in the Global South	Duncombe, R., 2018	5 pcs	1:5
2.2	Digital Technologies in Agriculture and Rural Areas	Trendov, <i>et al.</i> 2019	5 pcs	1:5
3	Journals/Publication/Magazines	Online access		
B. Learning Facilities and Infrastructure				
1.	Lecture Room	56 m ²		1:25
2.	Library	1.7 m ² / trainee		
3.	Audio Visual Center			1:13
4.	Smart Class			1:25
C. Consumable Materials				
1.	Dust masks	Plastic	25 Pcs	1:1
2.	Glove	Plastic	25 Pcs	1:1
3.	Working cloth	Tertian	25 Pcs	1:1
4.	First aid Kit	Per workshop	1 Kit	1:25
5.	Safety shoes	Leather	25 Pcs	1:1
6.	Paper	A4,A3,A2	5 Pack	1:2
7.	Pencil	0.5	50 Pack	2:1
8.	Flip chart	A1	1 Pcs	1:25
9.	Marker	Temporary/ Permanent	50 Pack	2:1
D. Tools and equipment				
1.	Ruler	Scale	1 Pcs per	1:25



			shop	
2	Dust masks	Plastic	25 Pcs	1:1
3	Glove	Plastic	25 Pcs	1:1
4	Working cloth	Tertian	25 Pcs	1:1
5	Digital camera		2 pcs	1:13
6	Smart phone		25 pcs	1:1
7	Tablet		5 pcs	1:5
8	Portable projector		1 pcs	
9	computer		8 pcs	1:3
10.	GPS		5 pcs	1:5
11.	Different charger and cable			As required

PPENDEX-1

Learning Methods:				
For none impaired trainees	Reasonable Adjustment for Trainees with Disability (TWD)			
	Low Vision	Deaf	Hard of hearing	Physical impairment
Lecture-discussion	<ul style="list-style-type: none"> ❖ Provide large print text ❖ Prepare the lecture in Audio/video ❖ Organize the class room seating arrangement to be accessible to trainees ❖ Write short notes on the black/white board using large text ❖ Make sure the luminosity of the light of class room is kept ❖ Use normal tone of voice ❖ Encourage trainees to record the lecture in audio format ❖ Provide Orientation on the physical feature of the work shop ❖ Summarize main points 	<ul style="list-style-type: none"> ❖ Assign sign language interpreter ❖ Arrange the class room seating to be conducive for eye to eye contact ❖ Make sure the luminosity of the light of class room is kept ❖ Introduce new and relevant vocabularies ❖ Use short and clear sentences ❖ Give emphasis on visual lecture and ensure the attention of the trainees ❖ Avoid movement during lecture time ❖ Present the lecture in video format ❖ Summarize main points 	<ul style="list-style-type: none"> ❖ Organize the class room seating arrangement to be accessible to trainees ❖ Speak loudly ❖ Ensure the attention of the trainees ❖ Present the lecture in video format ❖ Ensure the attention of the trainees 	<ul style="list-style-type: none"> ❖ Organize the class room seating arrangement to be accessible for wheelchairs users. ❖ Facilitate and support the trainees who have severe impairments on their upper limbs to take note ❖ Provide Orientation on the physical feature of the work shop

<p>Demonstration</p>	<ul style="list-style-type: none"> ❖ Conduct close follow up ❖ Use verbal description ❖ Provide special attention in the process of guidance ❖ facilitate the support of peer trainees ❖ Prepare & use simulation 	<ul style="list-style-type: none"> ❖ use Sign language interpreter ❖ Use video recorded material ❖ Ensure attention of the trainees ❖ Provide structured training ❖ Show clear and short method ❖ Use gesture ❖ Provide tutorial support (if necessary) 	<ul style="list-style-type: none"> ❖ Illustrate in clear & short method ❖ Use Video recorded material ❖ Ensure the attention of the trainees ❖ Provide tutorial support (if necessary) 	<ul style="list-style-type: none"> ❖ Facilitate and support the trainees having severe upper limbs impairment to operate equipments/ machines ❖ Assign peer trainees to assist ❖ Conduct close follow up ❖ Provide tutorial support (if necessary)
<p>Group discussion</p>	<ul style="list-style-type: none"> ❖ Facilitate the integration of trainees with group members ❖ Conduct close follow up ❖ Introduce the trainees with other group member ❖ Brief the thematic issues of the work 	<ul style="list-style-type: none"> ❖ Use sign language interpreters ❖ Facilitate the integration of trainees with group members ❖ Conduct close follow up ❖ Introduce the trainees with other group member 	<ul style="list-style-type: none"> ❖ Facilitate the integration of trainees with group members ❖ Conduct close follow up ❖ Introduce the trainees with other group member ❖ Inform the group members to speak loudly 	<ul style="list-style-type: none"> ❖ Introduce the trainees with their peers

<p>Exercise</p>	<ul style="list-style-type: none"> ❖ Conduct close follow up and guidance ❖ Provide tutorial support if necessary ❖ provide special attention in the process 	<ul style="list-style-type: none"> ❖ Conduct close follow up and guidance ❖ Provide tutorial support if necessary ❖ provide special attention in the process/practical training ❖ Introduce new and relevant vocabularies 	<ul style="list-style-type: none"> ❖ Conduct close follow up and guidance ❖ Provide tutorial support if necessary ❖ provide special attention in the process/ practical training 	<ul style="list-style-type: none"> ❖ Assign peer trainees ❖ Use additional nominal hours if necessary
<p>Individual assignment</p>	<ul style="list-style-type: none"> ❖ prepare the assignment questions in large text ❖ Encourage the trainees to prepare and submit the assignment in large texts ❖ Make available recorded assignment questions ❖ Facilitate the trainees to prepare and submit the assignment in soft or hard copy 	<ul style="list-style-type: none"> ❖ Use sign language interpreter ❖ Provide briefing /orientation on the assignment ❖ Provide visual recorded material 	<ul style="list-style-type: none"> ❖ Provide briefing /orientation on the assignment ❖ Provide visual recorded material 	

ASSESSMENT METHODS:				
Interview		<ul style="list-style-type: none"> ❖ Use sign language interpreter ❖ Ensure or conform whether the proper communication was conducted with the trainee through the service of the sign language interpreter ❖ Use short and clear questioning ❖ Time extension 	<ul style="list-style-type: none"> ❖ Speak loudly ❖ Using sign language interpreter if necessary 	<ul style="list-style-type: none"> ❖ Use written response as an option for the trainees having speech challenges
Written test	<ul style="list-style-type: none"> ❖ Prepare the exam in large texts ❖ Use interview as an option if necessary ❖ Prepare the exam in audio format ❖ Assign human reader (if necessary) ❖ Time extension 	<ul style="list-style-type: none"> ❖ Prepare the exam using short sentences, multiple choices, True or False, matching and short answers ❖ Avoid essay writing ❖ Time extension 	<ul style="list-style-type: none"> ❖ Prepare the exam using short sentences, multiple choices, true or false, matching and short answers if necessary. 	<ul style="list-style-type: none"> ❖ Use oral response as an option to give answer for trainees having severe upper limb impairment ❖ Time extension for trainees having severe upper limb impairment
Demonstration /Observation	<ul style="list-style-type: none"> ❖ Brief the instruction or provide them in large text ❖ Time extension 	<ul style="list-style-type: none"> ❖ Use sign language interpreter ❖ Brief on the instruction of the exam ❖ Provide activity-based/ practical assessment method ❖ Time extension 	<ul style="list-style-type: none"> ❖ Provide activity based assessment ❖ Brief on the instruction of the exam ❖ Use loud voice ❖ Time extension 	<ul style="list-style-type: none"> ❖ Provide activity based assessment ❖ Conduct close follow up ❖ Time extension

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