

ANIMAL HEALTH

LEVEL – II



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 TVET colleges, Ministry of Labor and Skill, Industries and Institutes based on the occupational standard prepared for Animal health Level II.

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

TVET-Program Design

1.1. TVET-Program Title: Animal Health Level II

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 care worker 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 basic Anatomy and Physiology of Animals, Identify Pathological Lesions, Carryout General Clinical Examination of Animals, Apply Animal Feeding and Nutrition, Identify Basic Veterinary Drugs and Chemicals, Perform Reproductive Health Care and Artificial Insemination Activities, Apply Knowledge of Animal Welfare and Behaviors, Apply Agricultural Extension service for Rural development, Prevent and Eliminate MUDA 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 ANH2 01 0322: Identify basic Anatomy and Physiology of Animals

AGR ANH2 02 0322 : Identify Pathological Lesions

AGR ANH2 03 0322: Carryout General Clinical Examination of Animals

AGR ANH2 04 0322: Apply Animal Feeding and Nutrition

AGR ANH2 05 0322: Identify Basic Veterinary Drugs and Chemicals

AGR ANH2 06 0322: Perform Reproductive Health Care and Artificial Insemination Activities

AGR ANH2 07 0322 : Apply Knowledge of Animal Welfare and Behaviors

AGR ANH2 08 0322: Apply Agricultural Extension service for rural development

AGR ANH2 09 0322: Prevent and Eliminate MUDA

1.4. Duration of the TVET-Program

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The Program will have duration of 506 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	Remarks
		Theory	Practical			
1.	Identify basic Anatomy and Physiology of Animals,	72	48	-	120	
2.	Identify Pathological Lesions	30	24	10	64	
3.	Carryout General Clinical Examination of Animals,	16	24	12	52	
4.	Apply Animal Feeding and Nutrition	36	12	8	56	
5.	Identify Basic Veterinary Drugs and Chemicals,	36	12	12	60	
6.	Perform Reproductive Health Care and Artificial Insemination Activities,	30	20	6	56	
7.	Apply Knowledge of Animal Welfare and Behaviours	16	20	6	42	
8.	Apply Agricultural Extension service for Rural development	4	8	24	36	
9.	Prevent and Eliminate MUDA	8	12	-	20	

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 II.

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 I, 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.

1.9. TVET-Program Structure

Unit of Competence		Module Code & Title		Training Outcomes	Duration (In Hours)
<u>AGR ANH2 01 0322</u>	Identify basic Anatomy and Physiology of Animals	<u>AGR ANH2 M01 0422</u>	Identifying basic Anatomy and Physiology of Animals	<ul style="list-style-type: none"> Identify the structures and function of main body systems Identify clinically important structure of animal body Identify the structures and function of main body systems in avian 	120
<u>AGR ANH2 02 0322</u>	Identify Pathological Lesions	<u>AGR ANH2 M02 0422</u>	Identifying Pathological Lesions	<ul style="list-style-type: none"> Identify gross pathological lesions and terminologies Identify inflammatory reactions and exudates Identify basic circulatory pathological disorders Recognize Growth disorder 	64
<u>AGR ANH2 03 0322</u>	Carryout General Clinical Examination of Animals	<u>AGR ANH2 M03 0422</u>	Carrying out general Clinical Examination of Animals	<ul style="list-style-type: none"> Carry out reception duties Conduct general examination of animals Record and report finding of the examination 	52
<u>AGR ANH2 04 0322</u>	Apply Animal Feeding and Nutrition	<u>AGR ANH2 M04 0422</u>	Applying Animal Feeding and Nutrition	<ul style="list-style-type: none"> Identify Animal feed source and Digestive Physiology Determine Animal Feeding and feed requirement Feed Ration Formulation 	56
<u>AGR ANH2 05 0322</u>	Identify Basic Veterinary Drugs and Chemicals	<u>AGR ANH2 M05 0422</u>	Identifying Basic Veterinary Drugs and Chemicals	<ul style="list-style-type: none"> Identify the importance and sources of drugs Understand disposition and fate of drugs Identify basic categories of 	60

				therapeutics drugs	
AGR ANH2 06 0322	Perform Reproductive Health Care and Artificial Insemination Activities	<u>AGR ANH2 M06 0422</u>	Performing Reproductive Health Care and Artificial Insemination Activities	<ul style="list-style-type: none"> Identify and manage Reproductive diseases and fertility problems Perform Artificial Insemination procedures Perform pregnancy test in livestock 	56
<u>AGR ANH2 07 0322</u>	Apply Knowledge of Animal Welfare and Behaviours	<u>AGR ANH2 M07 0422</u>	Applying Knowledge of Animal Welfare and Behaviours	<ul style="list-style-type: none"> Understand the concept of animal behavior and welfare Monitor and assess welfare of animal Identify animal behavior 	42
<u>AGR ANH2 08 0322</u>	Apply Agricultural Extension service for Rural development	<u>AGR ANH2 M08 0422</u>	Applying Agricultural Extension service for Rural development	<ul style="list-style-type: none"> Promote the use of digital technology in Agricultural Extension Understand Adult learning Integrate Gender in Agricultural Extension Recognize Indigenous Knowledge 	36
<u>AGR ANH2 09 0322</u>	Prevent and Eliminate MUDA	<u>AGR ANH2 M09 0422</u>	Preventing and Eliminating MUDA	<ul style="list-style-type: none"> Prepare for work Identify MUDA and problem Analyze causes of a problem. Eliminate MUDA and Assess effectiveness of the solution. Prevent occurrence of wastes and sustain operation 	20

*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 B Level and have satisfactory national competence assessment with practical experiences or equivalent qualifications.

LEARNING MODULE 01	
TVET-PROGRAMME TITLE: Animal Health Level II	
MODULE TITLE: Identifying basic Anatomy and Physiology of Animals	
MODULE CODE: <u>AGR ANH2 M01 04 22</u>	
NOMINAL DURATION: 120 Hours	
MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to identify basic anatomy and physiology of animal and their clinical applicability at work place. It includes knowledge of understanding of normal structures and functions of different organs and systems, and also skills to locate organs in different body systems as well as their clinical application at work place.	
LEARNING OUTCOMES At the end of the module the trainee will be able to: LO1. Identify the structures and function of main body systems LO2. Identify clinically important structure of animal body LO3. Identify the structures and function of main body systems in avian	
MODULE CONTENTS: LO1. Identify the structures and function of main body systems 1.1. Introduction to veterinary anatomy and physiology 1. 2. Planes of reference and directional terms 1.3 Structure and function of integumentary system 1.4. Anatomy and physiology of muscular-skeletal system 1.5. Anatomy and physiology of the digestive system and accessory digestive organs 1 6. Anatomy and physiology respiratory system 1.7. Anatomy and physiology circulatory system 1.8. Anatomy and physiology of urn-genital system 1.9. Anatomy and physiology of the endocrinal system 1.10. Anatomy and physiology nervous system LO2. Identify clinically important structure of animal body 2.1. Muscles for meat inspection, respiration and drug administration 2.2. Organs used for external clinical diagnosis 2.3. Blood vessels used for sample collection and drug administration 2.4. Location of clinically important arteries, veins, nerves, muscles and lymph nodes 2.5. Sites for trocarization, castration, shoeing, hoof trimming and dehorning	



2.6. Location and importance of sciatic nerve, spermatic cord and lymph nodes

LO3. Identify the structures and function of main body systems in avian

- 3.1. Anatomy and physiology of integumentary system
- 3.2. Anatomy and physiology of musculo-skeletal system
- 3.3. Anatomy and physiology of digestive system and accessory organs
- 3.4. Anatomy and physiology of circulatory system
- 3.5. Anatomy and physiology of uro-genital system

LEARNING METHODS:

- Lecture and Discussion
- Practical démonstrations
- Audio Visual
- Ssimulation

ASSESSMENT METHODS:

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

ASSESSMENT CRITERIA:

LO1. Identify the structures and function of main body systems

- The science of veterinary anatomy and physiology are defined and described.
- The different Planes of reference of the body are identified.
- Appropriate directional terms are used in the description of locations of body parts.
- Structure and function the integumentary system are identified and recognized in different animal species
- Structure and function of musculo-skeletal system with their respective locations are recognized in different animal species.
- Structure and function of the digestive system, the accessory digestive organs in both simple stomach and complex stomach animal are identified with their respective locations, are identified
- Structure and function of the respiratory system with their respective locations are identified in different species.
- Structure and function of the circulatory system with their respective locations are identified in different species of animals.
- Structure and function of the uro-genital system including mammary gland with their respective locations are identified.
- Structure and function of the endocrinal system are identified and described for different animal species.
- Structure and function of the nervous system are identified and recognized in different animal species

LO2. Identify clinically important structure of animal body

- Muscles involved on meat inspection and administration of drugs in different animal species are identified
- Muscles involved in respiration are identified.
- The relative locations of organs used for external clinical diagnosis and application of treatment during ill health are identified.
- The locations of blood vessels used in blood sample collection and drug administration; for different animal species, are identified.
- The clinical importance and locations of lymph nodes are identified.
- Appropriate sites for shoeing, hoof trimming and dehorning are identified.

- The location of sciatic nerve is identified and its importance during drug administration is recognized.
- The location of the spermatic cord and its importance during castration is recognized minimize damage to self and the material according to the organisational guidelines.

LO3. Identify the structures and function of main body systems in avian

- Structure and function the integumentary system are identified and recognized in avian species.
- Structure and function of musculo-skeletal system with their respective locations are recognized in avian species.
- Structure and function of the digestive system, the accessory digestive organs in avian are identified.
- Structure and function of the circulatory system with their respective locations are identified in avian species.
- Structure and function of the uro-genital system with their respective locations in avian are identified.

Annex: Resource Requirements

AGR ANH2 M01 0422: Identifying basic Anatomy and Physiology of Animals				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1	TTLM and hand outs	TTLM prepared by the trainer	25 pcs	1: 1
2	Reference Books			
2.1.	Anatomy an physiology of Farm animals,	Anna Dee Fail Christianne Magee 8 th edition, 2011.	5 pcs	1: 5
2.2.	Anatomy an physiology of Farm animals	Rowen. Frandson W. Lee Wilke Anna Dee Fail, 7 th edition, 2009.	5 pcs	1: 5
3	written graphical and diagrams or sketches	Prepared by trainer, government /organization	2pcs	1: 13
5	Journals/Publication/ Magazines			
B. Learning Facilities and Infrastructure				
1.	Well Equipped Lecture Room	56m ²		1:25
2.	Virtual library with multimedia (LCD projector, and CD)	1.7m ² /trainee		1:25
3.	Anatomy and physiology laboratory	1.7m ² trainee well equipped with osteology of different animal species)		1:25
5	Live Animal	Poultry, cattle, shoat, donkey, dog, cat, camel, swine, horse	1 No. each	1:25
C. Consumable Materials				
1.	Detergents and soap	House hold bleach	0.5kg	
		Soap	1pack	



2	Disinfectants and antiseptics	Ethanol /Methanol	1 ltr	
		Povidine iodine/tincture	1 ltr	
		Gauze	1 roll	
		Cotton	1 roll	
3	PPE	Overalls/gown	25 pcs	
		Gloves	5 pack	
		Face mask	5 pack	
		Boots	25 pair	
D. Tools and Equipment				
1	Retraining tool	Bovine crush equine crush	1 pcs	1:25
		Collar	2 pcs	1:13
		Rope	2 pcs	1:13
		mouth gag,	2 pcs	1:13
		bull ring	2 pcs	1:13
		Poultry cage	2 pcs	1:13
		Wire mesh	2 pcs	1:13
2	Other tool	Scissors	4 pcs	
		Knife	2 pcs	
		Forceps	4 pcs	
		Scalpel blade	8 pcs	
		Scalpel handle	4 pcs	

LEARNING MODULE 02

TVET-PROGRAMME TITLE: Animal Health Level II

MODULE TITLE: **Identifying Pathological Lesions**

MODULE CODE: **AGR ANH2 M02 0422**

NOMINAL DURATION: **64** Hours

MODULE DESCRIPTION: This Module covers the knowledge, skills and attitude required to identify gross pathological lesions and used in the diagnosis of wide range of animal health disorders.

LEARNING OUTCOMES

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

- LO1.** Identify gross pathological lesions and terminologies
- LO2.** Identify inflammatory reactions and exudates
- LO3.** Identify basic circulatory pathological disorders
- LO4.** Recognize Growth disorder

MODULE CONTENTS:

LO.1 Identify gross pathological lesions and terminologies

- 1.1. Introduction to general veterinary pathology
- 1.2. Pathological terminologies
- 1.3. Indicators of cell damage and types of necrosis
- 1.4. Gross pathological lesions
 - 1.4.1. Ante mortem examination
 - 1.4.2. Post mortem examination

LO.2 Identify inflammatory reactions and exudates

- 2.1. Inflammatory reactions and cardinal signs
- 2.2. Mediators and actors of inflammation
- 2.3. Types and consequences of inflammation
- 2.4. Clinically important Inflammatory lesions
- 2.5. Development of oedema, abscess and respiratory discharges

LO.3 Identify basic circulatory pathological disorders

- 3.1. Causes and consequences of impaired blood supply to tissues/ organs
- 3.2. Pathological lesions in circulatory disturbances
- 3.3. Aetiology for development of congestion and jaundice/icterus
- 3.4. Types and causes of shock



LO4. Recognize Growth disorder

- 4.1. Congenital defects of body systems
- 4.2. Adaptive changes in animal cells
- 4.3. Characteristics and common types of neoplasia

LEARNING METHODS:

- Lecture and Discussion
- Démonstration
- Field visit
- Simulation and imagination
- Audio Visual méthode /CD/LCD/

ASSESSMENT METHODS:

- Written test, quiz
- Oral questioning
- Individual and group assignments
- Practical demonstration

ASSESSMENT CRITERIA:

LO.1 Identify gross pathological lesions and terminologies

- Concepts of pathology are described.
- Associated technical pathological terminologies are clearly identified.
- Changes indicative of cell damage including degeneration and necrosis are identified.
- Gross pathological lesions that can be detected on ante mortem animals are mentioned and described.
- Gross pathological lesions that can be detected on post mortem animals are mentioned and described.

LO.2 Identify inflammatory reactions and exudates

- The definition of inflammation and causes of inflammatory reactions in animal body are described.
- Mediators and actors of inflammation are mentioned and described.
- Cardinal signs of inflammation are identified and described.
- Clinically important inflammatory lesions are mentioned.
- Types and consequences of inflammation are explained.
- Development of oedema, abscess and respiratory discharges are described

LO.3 Identify basic circulatory pathological disorders

- Causes and consequences of Impaired blood supply to tissues/ organs are identified and described
- Pathologies associated with circulatory disturbances are mentioned and described.
- General cause for the development of congestion and jaundice/icterus are identified
- Types and causes of shock are mentioned.

LO4. Recognize Growth disorder

- Congenital defects of the different body systems will be clearly seen
- All adaptive changes in cells which help the cell to cope with an alteration in its environment are identified
- The common types of neoplasia occurring in animals are identified and described
- The characteristics and classification of most commonly prevalent cases of neoplasia are identified and described

Annex: Resource Requirements

AGR ANH2 M02 0422: Identifying Pathological Lesions				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	Prepared by the trainers	25 pcs	1:1
2	Reference Books			
2.1	Veterinary clinical pathology Secret.	Rick,L <i>et.al.</i> , 2004	5 pcs	1:5
2.2	Tumors in Domestic animals	Alleman R and Claire B. 2006 2 nd ed.	5 pcs	1:5
2.3	Laboratory Manual and Review on Clinical Pathology	Jelalu, 2014	5 pcs	1:5
2.4	Fundamental of veterinary clinical pathology	Steven et al., 2008. 2 nd ed.,	5 pcs	1:5
3.	Work place Guidelines and manuals	Prepared by trainers/Colleges	12 pcs	1:2
4	Audio Visual	CD,VCD,LCD and computers	1 pcs	1:25
4.	Journals/Publication/ Magazines	International or national veterinary journals/Online/	5 pcs	1:5
B. Learning Facilities & Infrastructure				
1.	Lecture room	Concrete block 1.4m ² /trainee	1	1:25
2.	Well-equipped Computer Room	Concrete block	1	1:25
3.	Farm	Shoat farm, dairy and beef farm, poultry farm	1	1:25
4	Open air clinic	Equipped with crush and other restraining materials	1	1:25
5	Pathology and microbiology	Concrete block	1	1:25



	Laboratory room with full equipment			
6	Well-equipped library/ebook/	Concrete block with 1.7m ² /trainee	1	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	4L	1:6
		Povidone and tincture iodine	2L	1:12
		Savlon	4L	1:6
		Soaps	1 pack	1:2
3	Chemical	restraint	2Vial each	As required
		preservatives		
		antiseptics		
D.	Tools and Equipment			
1.	Ropes	Synthetic/ organic rope	5 pcs	1:5
2	Crush	Stainless steel	1 pcs	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	25 pcs	1:1
		coveralls	25 pcs	1:1
		Gloves in packet	3 pcs	1:1
9	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	Postmortem kit		1 pcs	1:25
12	Sampling tools	Tissue/blood sample		As required

LEARNING MODULE 03	
TVET-PROGRAMME TITLE: Animal Health Level – II	
MODULE TITLE: Carrying out General Clinical Examination of Animals	
MODULE CODE: AGR ANH2 M03 0422	
NOMINAL DURATION: 52 Hours	
<p>MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to undertake general physical examination of animals and identify signs of ill health or injury in animals. It also covers defined range of skills to compile patient (animal) and client (animal owner) histories, maintain records and consult the veterinarian as required.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Carry out reception duties</p> <p>LO2. Conduct general examination of animals</p> <p>LO3. Record and report finding of the examination</p>	
<p>MODULE CONTENTS</p> <p>LO1. Carry out reception duties</p> <p>1.1. Receiving client</p> <p>1.2. Taking owner and patient animal information</p> <p>1.3. Taking the patient histories</p> <p>1.4. Completing patient admission and discharge documentation</p> <p>LO2. Conduct general examination of animals</p> <p>2.1. Collecting and checking-up tools and equipment used for measurement</p> <p>2.2. Distant examination of animal health condition and abnormal behaviour</p> <p>2.3. Restraining animals for general examination</p> <p>2.4. Taking physiological parameters /vital signs</p> <p>2.5. Carrying out close physical examination</p> <p>2.6. Establish diagnostic records</p> <p>LO3. Record and report finding of the examination</p> <p>3.1. Isolating sick or injured animals and giving veterinary advice</p> <p>3.2. Recognizing and reporting signs of illness or injury</p> <p>3.3. Referring ill or injured animals</p>	
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. Carry out reception duties

- Clients are received courteously according to workplace guideline.
- Owner and patient animal information is taken.
- Existing client and patient histories are identified and retrieved from clinic records.
- New client and patient records are established if required.
- Patient admission and discharge documentation are promptly and efficiently completed.

LO.2. Conduct general examination of animals

- Tools and equipment used for measurement are collected and check-up for functionality.
- Appropriate restraints are used to hold patients for examination in line with clinic procedures.
- Distant examination on the general condition and health of animal are checked and recorded on standardized case paper/book.
- Abnormal animal behaviour and conditions are recognized.
- Physiological parameters /vital signs are taken and recorded in line with clinical diagnosis procedure.
- Close Physical examination is carried out according to the standard procedure.

LO.3. Isolate sick animals and report the problem

- Sick or injured animals are isolated from other animals, as required, and cared for in accordance with supervisor or veterinary advice
- Signs of illness or injury are recognized and reported
- Animals that are ill or injured are submitted for further investigation and clinical support.

Annex: Resource Requirements

AGR ANH2 M03 0422: Carrying-out General Clinical Examination of Animals				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A.	Learning Materials			
1.	TTLM	Prepared by the trainer	25	1:1
2.	Reference Books			
2.1.	Veterinary medicine, A text book of the disease of cattle, sheep, goat, pig and horses.	Radostis. <i>et al.</i> , 2008. 10 th ed.	5 pcs	1:5
2.2.	Merk Veterinary Manual	CD-R, 8 th ed.	5 pcs	1:5
2.3.	Equine Internal Medicine.	Reed. <i>et al.</i> , 2 nd ed.	5 pcs	1:5
2.4.	Veterinary Clinical Diagnosis	R. Kelly, 2000	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	1:5
4.	Videos or Audio video lecture		1	1:25
5.	Bulletins, Data sheet, Diagrams, sketches.	To be prepared by the trainer or organization	2	1:1
B.	Learning Facilities and Infrastructure			
1	Well-equipped lecture room (with tables, chairs, White board)	7*8m ²		1:25



2	Virtual library with multimedia equipment (LCD, project and CD)	Concrete block (1.7x25m ²)		1:25
3	Open air clinic			1:25
4	Anatomic models	Cattle, sheep, pig, dog and cat model	1 No. each	1:25
5	Laboratory room	concrete block 141m ²		1:25
6.	Well-equipped Computer Room	concrete block 83m ²	1	1:25
C.	Consumable Materials			
1.	Cleaning and disinfecting chemicals	Ethanol alcohol	2 ltr	1: 13
		Isopropyl alcohol	2 ltr	1: 13
		Formaline	2 ltr	1: 13
		Glutaraldehyde	2 ltr	1: 13
		Iodophore	2 ltr	1: 13
		Potassium iodide	2 ltr	1: 13
		Logol's iodine	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	Cotton	Medical grade sterile cotton	1 Roll	1:1
D.	Tools and Equipment			
1.	Personal protecting equipment	Boots, hats/hard hat, overalls, protective eyewear, hearing protections, respirator or face mask, sun protection (sun hat, sun screen), and leather glove.	25 pcs	1:1
2.	Restraining material, tools and chemical	Crush, rope, chain, nose ring, Elizabeth collar, nets, anti-cow kicker, bull holder, poultry cage, shut gun, Anesthesia and etc.	1pcs	1:25
3.	Stethoscope		8 pcs	1:3
4.	Thermometer		8 pcs	1:3
5.	Stomach tube		3 pcs	1:8



6.	Hammer and pleximeter		2 pcs	1:13
7.	Mouth gauge		2 pcs	1:13
8.	Heart girth		3 pcs	1:8
9.	Vaginal speculum		3 pcs	1:8
10.	Hoof picker		4 pcs	1:6

LEARNING MODULE 04

TVET-PROGRAMME TITLE: Animal Health Level II

MODULE TITLE: **Applying Animal Feeding and Nutrition**

MODULE CODE: **AGR ANH2 M04 0422**

NOMINAL DURATION: 56 Hours

MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to carry out animal nutrition and feeding practices in order to enhance production and productivity of livestock industry. It also covers good management practices, record and reporting after completion work.

LEARNING OUTCOMES

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

LO1. Identify Animal feed source and Digestive Physiology

LO2. Determine Animal Feeding and feed requirement

LO3. Feed Ration Formulation

MODULE CONTENTS:

LO1. Identify Animal feed source and Digestive Physiology

- 1.1. sources and categories of animal feed
- 1.2. Temperature requirements for feed storage, preserve and processing
- 1.3. Identifying and describing feedstuffs classification
- 1.4. Identifying and describing feed contents
- 1.5. Differentiate the role of GIT hormones, pH & Enzymes on the digestion

LO2. Determine Animal Feeding and feed requirement

- 2.1. Accessing and using PPE
- 2.2. Tools and equipment for feed preparation
- 2.3. Follow OHS guidelines and procedures
- 2.4. Preparing Feed and feed supplements
- 2.5. Determine Essential requirements for animal nutrition
- 2.6. Determining economic basis to supplementary feeding system
- 2.7. Develop and Monitor feeding plan for animal
- 2.8. Identifying factors that determine animal feed intake
- 2.9. Identifying the most important elements of feed
- 2.10. Aligning feed requirement with physiology and production type
- 2.11. Recording and reporting feeding abnormalities and signs of stress

LO3. Feed Ration Formulation

- 3.1 . Preparing and monitoring feeding plan to livestock farming
- 3.2 . Selecting feeding method and amount of feed
- 3.3 . Determining feed types and feed budget
- 3.4 . Feeding costs and benefit analysis
- 3.5 . Recording feed related data
- 3.6 . Performing animal feed content evaluation
- 3.7 . Calculating animal feed requirement for specific animal
- 3.8 . Applying basic ration formulation steps for animals

LEARNING METHODS:

- Lecture and Discussion
- Practical démonstration
- Farm visit

ASSESSMENT METHODS:

- Written test
- Interview (Oral question)
- Practical demonstration
- Case study

ASSESSMENT CRITERIA:

LO 1. Identify animal feed source and digestive Physiology

- Animal source of feed determined by on Livestock farming systems based on production system
- Animal feed categorized based on their content and nutritional value.
- Temperature requirements in the house for feed storage, preserve and processing are followed correctly
- Roughages classified clearly identified based on their moisture content and digestibility. It also classified by type of source
- Feedstuffs Classification by origin and by Crud fibre (CF%) into well identified and described.
- Concentrates feed source well identified and classified categorically.
- Advantages and disadvantages of feed source intended and used based on efficiency, availability and cost effective.
- Feed consists identified and described based on percentage composition that used for different animals.
- The function and degree of digestion well identified and described for different digestive organ on different Animal species.
- The role of gastrointestinal hormones, pH & Enzymes on the digestion of different feed type in different species well differentiated.

LO 2: Determine Animal Feeding and feed requirement

- PPE are accessed and used correctly
- Appropriate tools and equipment, feed and water containers are selected and checked for cleanliness and made ready for use
- OHS guidelines and procedures are followed accordingly
- Feed and feed supplements are confirmed and prepared in line with feeding plans
- Essential requirements for animal nutrition are determined according to assessed animal condition
- Economic basis to supplementary feeding system is determined according to enterprise requirements
- Existing and potential hazards in relation to feeding and watering are identified and reported to the supervisor

- Feeding plans to process is monitored to ensure animals are fed effectively in accordance with feeding plans
- Factors that determine animal feed intake and feed requirement for different animal species identified at different stages
- The most important elements of feed required for animal at different quantity identified
- Feeding procedure, frequency and practice aligned with animal type, production type and physiological status
- Feeding and watering abnormalities and signs of stress in animals are recorded and reported to the supervisor according to organizational guidelines and procedures.

LO 3: Feed Ration Formulation

- Feeding plan and information of feeding plan is prepared and adjusted as appropriate to livestock farming system and essential nutritional requirements
- Feeding plan is developed and monitored to ensure production plan according to enterprise objectives
- A feeding method options are selected that supplies the appropriate amount of feed to the herd/flock to meet condition and growth needs, and that meets production requirements of the business
- A feed types and feed budget is determined according to the selected system of feeding.
- Costs benefit analysis are undertaken within enterprise feed budget requirements
- Data is documented for continual assessment and effective management planning.
- Animal feed content evaluation performed as per the required standard, such as the DM (dry matter), TDN (total digestible nutrient& CF (crud fibres)
- Animal feed requirement for specific animal calculated based on their body weight, production, age and species type
- Apply the basic ration formulation steps during animal feed preparation form locally available feed sources



Annex: Resource Requirements

AGR ANH2 M04 0422: Applying Animal Feeding and Nutrition				
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	Basic animal nutrition and Feeding 5 th edition	Wilson <i>et al</i> , 2004	5 pcs	1:5
2.2	Handbook of general animal nutrition	Chahal, 2008	5 pcs	1:5
2.3	Animal feeds, feeding and nutrition, and ration formulation	David Tisch., 2005	5 pcs	1:5
2.4.	Feed Additives: Aromatic plants and Herbs in animal Nutrition and Health	Panagiota., 2019	5 pcs	1:5
2.5.	Applied Animal Nutrition: Feeds and feeding	Peter., 2004; 3 rd edition	5 pcs	1:5
B.	Learning Facilities and Infrastructure			
1	Lecture room	7mx8m		1:25
2	Feed Store			
3	Housing			1:25
4	Smart class	Contain LCD, DVD, CD/USB, computer, internet connectivity, projector, projector screen, Audio-video recorder, connectivity cable, amplifier	1 pcs each	1:25
5	Library	1.7 m ² /trainee	1	1:25
C.	Consumable Materials			
1.	Chemical	Detergents(House hold bleach, Soap,		As required



		NaHCO ₄) and Disinfectants (Formalin, Ethyl alcohol, KMnO ₄) and Quaternary amonia		
3	Feed	Roughage, concentrated and supplementary feed		As required
4	Record books		5 pcs	1:5
D	Tools and Equipment			
1.	PPE	Overall, gloves, aprons, boots, eye goggle, respirator and hat	25 pcs each	1:1
2	Knives, knife-sharpening equipment, secateurs, scissors, nutcrackers, blenders and mincers,	Stainless steel	4 pcs each	1:6
3	Heavy duty balance	Weighing capacity 50Kg-200Kg	1 pcs	1:13
4	Feeding material	Feeding trough	1pcs/spp	1:25
		watering trough	1pcs/spp	1:25

LEARNING MODULE 05	
TVET-PROGRAMME TITLE: Animal Health Level II	
MODULE TITLE: Identifying Basic Veterinary Drugs and Chemicals	
MODULE CODE: <u>AGR ANH2 M05 0422</u>	
NOMINAL DURATION: 60 hours	
<p>MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to develop understanding of basic terminologies, importance of basic veterinary drugs, chemotherapeutic drugs including antimicrobial, anthelmintic, acaricides, antifungal agents, antiprotozoal drugs, antiseptics and disinfectants. It also covers the knowledge required to identify route of drug administration for various species of animals.</p>	
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Identify the importance and sources of drugs</p> <p>LO2. Understand disposition and fate of drugs</p> <p>LO3. Identify basic categories of therapeutics drugs</p>	
<p>MODULE CONTENTS:</p> <p>LO1. Identify the importance and sources of drugs</p> <ol style="list-style-type: none"> 1.1. Basic terminologies in veterinary pharmacology 1.2. Describing the importance of drug information 1.3. Main sources and origin of drugs <ol style="list-style-type: none"> 1.3.1. Sources of Drugs 1.3.2. Rational Use of Veterinary Drugs 1.3.3. Process of drug development 1.4. Workplace procedures in veterinary drug use <p>LO2. Understand disposition and fate of drugs</p> <ol style="list-style-type: none"> 2.1. Pharmacokinetics and pharmacodynamics of drugs and chemicals 2.2. Routes and sites of veterinary drug administration 2.3. Precaution and instructions on veterinary drugs and chemicals 2.4. Residual and side effects of drugs <p>LO3. Identify basic categories of therapeutics drugs</p> <ol style="list-style-type: none"> 3.1. Identifying therapeutic drugs used in the treatment of animal disease <ol style="list-style-type: none"> 3.1.1. Anti-helminthic 3.1.2. Anti-protozoan 3.1.3. Anti-bacterial 	



3.1.4. Anti-fungal

3.1.5. Acaricides and miscellaneous chemical agents

3.2. Vitamins and mineral supplements

LEARNING METHODS:

- Brainstorming
- Lecture and group Discussion
- Démonstration
- Field Visit

ASSESSMENT METHODS:

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

Assessment Conditions

- Assessment will be conducted in each learning outcome and final assessment after finishing the module

ASSESSMENT CRITERIA:

LO1: Identify the importance and sources of drugs

- Basic terminologies used in veterinary pharmacology are defined.
- General information on the importance of drugs is described.
- Main sources and origin of drugs are identified

LO2: Understand disposition and fate of drugs

- General information on drug absorption, distribution, metabolism and elimination are described
- Production and expiry date, withdrawal period, precaution, manufacturers' instruction of basic veterinary drugs and chemicals are understood.
- Dosage form, Route and site of drug administration for various species of animals identified.
- Residual and side effects of basic veterinary drugs and chemicals are understood.

LO 3: Identify basic categories of therapeutics drugs

- Therapeutic drugs used in the treatment of various disease causing agents are identified.
- Hormones, vitamins, mineral supplements and other chemicals used for animal disease/ problem treatment and available in the market are identified.



Annex: Resource Requirements

AGR ANH2 M05 0422 : Identifying Basic Veterinary Drugs and Chemicals				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM and handouts	Prepared by the trainers	25 pcs	1:1
2	Reference Books	Printed and online	5 pcs	1:5
2.1	Veterinary Pharmacology and Therapeutics,	Riviere, J. and Papich,G., 2017, 10 th ed.	5 pcs	1:5
2.2	Pharmacological Basis of Therapeutics,	Hardman <i>et al.</i> , 2001, 10 th ed.	5 pcs	1:5
2.3	list of veterinary drugs for Ethiopia	DACA of Ethiopia, 2002; 1 st ed.	5 pcs	1:5
2.4	list of veterinary drugs for Ethiopia	VDFACA, 2012; 2 nd ed.	5 pcs	1:5
4	Reference manuals	Prepared by trainer	7 pcs	1:5
5	written and graphical instructions, Bulletins, data sheet, diagrams or sketches	prepared by the trainer	3 pcs	1:5
6	Journals/Publication/Magazines	Federal Negarit Gazeta of the federal democratic republic of Ethiopia. Proclamation No. 728/2011 Veterinary Drug and Feed Administration and Control Proclamation, 18 th Year No.14 Addis Ababa 19th January, 2012.	5 pcs	1:5
7	Workplace guidelines/manuals	To be prepared by the trainer/college	7 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	1.7 m ² /trainee		1:25
4.	Workshop	1.7m ² /trainee		1:25
5.	Open air veterinary clinic			
6	Drug store			
C.	Consumable Materials			
1	Veterinary drugs	<ul style="list-style-type: none"> • Anti-helminthic veterinary drugs • Anti-protozoan veterinary drugs • Anti-bacterial veterinary drugs • Anti-fungal veterinary drugs 		As required
2	Mineral supplements and fluid therapies	Calcium borogluconate, Dicalcium phosphate, Disodium phosphate, Dehydrated disodium, phosphate Magnesium sulphate, Magnesium oxide, Iodized salt, Ferrous sulphate, Magnesium sulphate, Magnesium trisilicate and Aluminum hydroxide, Sodium bicarbonate		As required
3	Electrolyte and fluid for therapies	Normal saline, dextrose (e.g. Dextran 40 in 0.9 % NaCl), ringers solution, plasmolystes, ringers lactate,	4 liters	1:6
4	vitamins	Multivitamin, Vit B-complex, vit A	5vials	1:5
5	Anti-inflammatory drugs	Hydrocortisone, Dexamethasone, Aspirin, ibuprofen, diclofenac, Celebrex.	Vial/ ampule	1:8
6	Chemicals/Acaricides	Deltametrin, Diazinon, carbaryl, permethrin, flumethrin, formamidines, and avermectins	ltr/vial	1:8
D	Animals	<ul style="list-style-type: none"> • Ox/cow • Sheep/goat • Equine • Cat/dog • Pig • poultry 	1 each	1:25
E	Tools and Equipment			



1	PPE	Overalls/Gown, glove, Apron, Respirator or face mask,	25 pcs	1:1
2	Clinic tools and equipment	Treatment syringe and needles, nasogastric tube, Girth meter, IV catheter	3 pcs each	1:8

LEARNING MODULE 06

TVET-PROGRAMME TITLE: Animal Health Level II

MODULE TITLE: **Performing Reproductive Health Care and Artificial Insemination Activities**

MODULE CODE: AGR ANH2 M06 0422

NOMINAL DURATION: **56** Hours

MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to identify and prevent the prevailing reproductive diseases or infertility problems and carry out pregnancy diagnosis. It also contains knowledge and skill to conduct semen handling and Artificial Insemination procedures in promoting production/productivity of animals.

LEARNING OUTCOMES

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

LO1: Identify and manage Reproductive diseases and fertility problems

LO: Perform Artificial Insemination procedures

LO: Perform pregnancy test in livestock

MODULE CONTENTS

LO1: Identify and manage Reproductive diseases and fertility problems

- 1.1. Reproductive anatomy and physiology of farm animals
- 1.2. Understanding and diagnosis of reproductive diseases and fertility problems
- 1.3. Prevention and control of infertility problems
- 1.4. Providing advice to the beneficiaries
- 1.5. Hazard identification and risk minimization

LO2: Perform Artificial Insemination procedures

- 2.1. Phases and signs of oestrus cycle
- 2.2. Case history of the animal for service
- 2.3. Preparation for artificial insemination
- 2.4. Carryout estruses synchronization
- 2.5. Schedule for insemination process
- 2.6. Semen handling techniques
- 2.7. Preparing materials and equipment for insemination
- 2.8. Personal protective clothes and equipment
- 2.9. Selecting and thawing of semen
- 2.10. Keep breeding record and evaluate AI efficacy
- 2.11. Cleaning and waste disposal



2.12. Zoonotic diseases of reproductive organs

LO3: Perform pregnancy test in livestock

- 3.1 Physiology of reproductive hormones
- 3.2 Fertilization and embryo development
- 3.3 Methods of pregnancy test and gestation lengths
- 3.4 Materials and equipment for pregnancy diagnosis
- 3.5 Procedure for pregnancy test
- 3.6 Stage of pregnancy, growth postural and positional abnormalities
- 3.7 Differential diagnosis for pregnancy
- 3.8 Records keeping and reporting test result
- 3.9 Monitoring any injury after post-testing

LEARNING METHODS:

- Lecture and Discussion
- Practical démonstration
- Simulation
- Audio Visual

ASSESSMENT METHODS:

- Written test
- Practical Demonstration
- Assignment (individual and group)

ASSESSMENT CRITERIA:

LO.1. Identify and manage Reproductive diseases and fertility problems

- Basic understandings on reproductive anatomy of normal/healthy animals are acquired.
- Infectious and non-infectious reproductive diseases and fertility problems of farm animals are identified.
- Existing and potential hazards in the workplace are recognized, risk assessed and controlled according to OHS requirements.
- Reproductive diseases and fertility problems are diagnosed based on veterinary clinical examination and appropriate information from records.
- Sick animals are identified, isolated and cared according to the organizational guidelines.
- Identified infertility problems are reported to immediate supervisors to take appropriate preventive and control measures according to national and enterprise guide lines.
- Advice is provided to beneficiaries in accordance to the enterprise guidelines.

LO.2. Perform Artificial Insemination procedures

- Detail case history of the animal came for the service is addressed form the owner.
- The phases of estruses cycle are understood.
- The main sign of oestrus/heat is detected.
- Animals intended for insemination are restrained and correctly assessed for insemination according to the supervisor/ industry guide lines.
- Animals in heat are identified and prepared for insemination according to the industry guide lines.
- Estruses synchronization is carried out, as required, according to the industry cod of conduct.
- Timing of insemination process is scheduled to ensure availability of resource and personnel requirements.
- The required materials, tools and equipment are prepared and used according to the industry guidelines.
- Collected semen is properly handled and periodically top-upped during storage, distribution and at field levels according to the industry guidelines.
- The necessary materials and equipment are prepared for insemination according to industry code of practice.
- Personal protective clothes and equipment are used according to the industry guidelines.
- The semen is selected and thawed according to accepted industry practices.

- Insemination is carried out maintaining all the veterinary sanitation procedures.
- Insemination and breeding data are recorded and AI efficiency is evaluated according to the industry requirements.
- Materials and equipment to be reused are cleaned and returned to safe and appropriate place whereas other wastes are safely disposed.

LO.3. Isolate sick animals and report the problem

- Basic understandings on the physiology of reproductive hormones in female animals are developed.
- Fertilization and embryo development in animals are explained.
- Gestation lengths in different species of animals are mentioned.
- Methods of pregnancy test in animals are mentioned.
- OHS hazards are continually identified, risks assessed and suitable controls implemented.
- PPE is used according to organization requirement.
- Preparation of relevant documentation is completed according to organisation requirements and procedures.
- Materials and equipment needed for pregnancy diagnosis are prepared.
- Animals are mustered, yarded and safely restrained in line with organisational policy.
- Pregnancy diagnoses are carried out following standard guidelines and procedures
- The stage of pregnancy, growth postural and positional abnormalities of pregnancy is identified following the recommended guide lines.
- Differentia diagnosis for pregnancy diagnosis is considered.
- Records are kept and test results reported according to organization requirements.
- Debris and veterinary medicine containers from pregnancy testing operations are disposed of in full consideration of environmental considerations and controls.
- Regular monitoring of animals post testing is carried out to ensure that no evidence of physical damage or injury is evident.



Annex: Resource Requirement

AGR ANH2 M06 0422: Caring-out General Clinical Examination of Animals				
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		5 pcs	1:5
2.1	Veterinary Reproduction and Obstetrics	David N, <i>et al.</i> , 2018; 10 th ed.	5 pcs	1:5
2.2.	Biotechnologies Applied to Animal Reproduction: Current Trends and Practical Applications for Reproductive Management	Carlos J., and Stue, K., 2017, 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 • NVI manual and journals 	5pcs	1:5
4.	Videos or Audio video lecture			
5.	Bulletins, Data sheet, Diagrams, sketches.	To be prepared by the trainer or organization	5pcs	1:25
B. Learning Facilities and Infrastructure				
1.	Well-equipped lecture room (with tables, chairs, White board)	Concrete block (56m ² maintained regularly).	1	1:25
2.	Virtual library with multimedia equipment (LCD, project, Television, software and CD)	1.7m ² per trainees	1	1:25
3.	Anatomic models	Cattle, sheep, pig, dog and cat model	1 each	1:5
4.	Laboratory room			



5.	Well-equipped Computer Room	1.7m ² per trainees	1	1:25
C. Consumable Materials				
1.	Cleaning and disinfecting chemicals	Ethanol alcohol	2 ltr	1:25
		Isopropyl alcohol	2 ltr	1:25
		Formaline,	2 ltr	1:25
		Glutaraldehyde	2 ltr	1:25
		Iodophore	2 ltr	1:25
		Potassium iodide	2 ltr	1:25
		Logol's iodine	2 ltr	1:25
		Hydrogen peroxide	2 ltr	1:25
2	Gauze	Medical grade sterile cotton gauze	1 roll	1:25
3	Latex glove	Medical grade sterile and packed glove	1 pack	1:25
5	Cotton	Medical grade sterile cotton	1 roll	1:25
D. Tools and Equipment				
1.	Personal protecting Equipments	Boots, hats/hard hat, overalls, protective eyewear, hearing protections, respirator or face mask, sun hat, and leather glove.	25 pcs each	1:1
2.	Restraining material	Crush, rope, chain, bull holder, shut gun and etc.	3 pcs	1:8
3.	AI equipment	Arm length gloves, Insemination gun, Containers, Thermos flask, Scissors, Canister, Towel/ tissue paper, Forceps, AI kit bag, Thermometer, AI certificate, Case recording book, Semen straw, Liquid nitrogen and AI sheath	1	1:25
4.	Vaginal speculum		3 pcs	1:8
5.	Torch		1 pcs	1:25
6.	Veterinary ultrasounds		1 pcs	1:25
7.	Thermometer	Vet. clinical	5 pcs	1:5
8.	Stethoscope	Clinical	5 pcs	1: 5

LEARNING MODULE 07	
TVET-PROGRAMME TITLE: Animal Health Level II	
MODULE TITLE: Applying Knowledge of Animal Welfare and Behaviours	
MODULE CODE: <u>AGR ANH2 M 07 0422</u>	
NOMINAL DURATION: 42 Hours	
MODULE DESCRIPTION: This unit module covers the knowledge, skills and attitude required to explain the concept of animal behaviour and welfare; monitor and observe livestock welfare, implement welfare procedures/practices, identify and report major animal welfare problems, identify animal behaviour in the context of an animal control and regulation environment during day-to-day activities, prepare, maintain and store equipment used to humanely handle the animals.	
LEARNING OUTCOMES At the end of the module the trainee will be able to: LO1. Understand the concept of animal behaviour and welfare LO2. Monitor and assess welfare of animal LO3. Identify animal behavior	
MODULE CONTENTS: LO1. Understand the concept of animal behaviour and welfare 1.1. The five animal freedom and animal welfare 1.2. Major animal welfare problems 1.3. Identifying abnormal behaviours of animals 1.4. Hazards when working with animals 1.5. Animal welfare legislation, regulations and codes of practice <hr/> LO2. Monitor and assess welfare of animal 2.1. Livestock welfare assessment 2.2. Recognize and report welfare problems 2.3. Safe handling of livestock 2.4. Humanely handling of sick animals 2.5. Assessing environmental implications on livestock husbandry practices 2.6. Constructive solutions in case of animal welfare violation <hr/> LO3. Identify animal behavior 3.1. Understand animal behavior and body language 3.2. Identifying temperament, traits, health and wellbeing of animal	



- 3.3. Assess physical and social environment of animal
- 3.4. Follow policies, procedures and legislative
- 3.5. Referring and Taking legal response to animal behaviour

LEARNING METHODS:

- Lecture and Discussion
- Practical demonstration
- Audio visual

ASSESSMENT METHODS:

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

ASSESSMENT CRITERIA:

LO1. Understand the concept of animal behaviour and welfare

- The five elements of animal freedom are stated and animal welfare is defined.
- Major animal welfare problems in Ethiopia are identified in the handling, transportation, harnessing, slaughtering, restraining and etc.
- Major animal Abnormal behaviours of animals are identified
- Risks or hazards when working with animals are identified.
- Animal welfare legislation, regulations and codes of practice are identified. Structure and function of the nervous system are identified and recognized in different animal species

LO2. Monitor and assess welfare of animal

- Regular checks are taken to assess livestock welfare according to the requirements of the organisation.
- Welfare problems are recognised and reported.
- Livestock are handled peacefully and according to enterprise procedures
- Thorough personal hygiene practices are maintained in all activities associated with handling livestock, including reducing risks from diseases transmissible to humans.
- Sick or dead livestock is safely treated and humanely destroyed, if necessary
- Environmental implications associated with livestock husbandry practices are identified, assessed whether these are not violating welfare of animal
- Constructive solution are recommended in cases when animal welfare are found disrupted

LO3. Identify animal behavior

- Animal and its body language are observed and interpreted treated.
- Temperament, traits, health and wellbeing of animal are identified and documented.
- Physical and social environment of animal is assessed.
- Behaviour of animal is determined.
- Organisational policies and procedures and legislative requirements are followed.
- Referral to specialists is offered to owner when appropriate.
- Legal response to animal behaviour is taken when appropriate



Annex: Resource Requirements

AGR ANH2 07 0422: Applying Knowledge of Animal Welfare and Behaviour				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1	TTLM and hand outs	Prepared by the trainer	25 Pcs	1: 1
2	Reference Books		5 pcs	1: 5
2.1	Animal Welfare	Appleby <i>et al.</i> 2018, 3 rd ed.	5 pcs	1:5
2.2	Encyclopedia of animal rights and animal welfare	Bekoff and Meaney, 3 rd ed., 2013	5 pcs	1:5
3	Reference and technical manuals	<ul style="list-style-type: none"> Standard procedure for animal handling OHS guidelines prepared by the organization 	5 pcs	1: 5
4	written graphical and diagrams or sketches	Prepared by trainer, government /organization	1pcs	1: 25
5	Journals/Publication/Magazines	Online Published paper		
B. Learning Facilities and Infrastructure				
1.	Well Equipped Lecture Room	56m ²		1:25
2.	Virtual library with multimedia (LCD projector, and CD)	1.7m ² /trainee		1:25
3	Live Animal	Poultry, cattle, shoat, donkey, dog, cat, camel, swine, horse	1 each	
C. Consumable Materials				
1.	Detergents and soap	House hold bleach	0.5kg	
		Soap	1 pack	



2	Disinfectants and antiseptics	Ethanol /Methanol	1 ltr	
		Povidine iodine/tincture	1 ltr	
3	PPE	Overalls/gown	25 pcs	
		Gloves	2 pack	
		Face mask	2 pack	
		Boots	25 pair	
D.	Tools and Equipment			
1	Retraining tool	Bovine crush equine crush	1 pcs	1:25
		Collar	2 pcs	1:13
		Rope	2 pcs	1:13
		mouth gag,	2 pcs	1:13
		bull ring	2 pcs	1:13
		Poultry cage	2 pcs	1:13
		Wire mesh	2 pcs	1:13

LEARNING MODULE 08

TVET-PROGRAMME TITLE: Animal Health Level II

MODULE TITLE: **Applying Agricultural Extension for Rural Development**

MODULE CODE: **AGR ANH2 M08 0422**

NOMINAL DURATION: **36** Hours

MODULE DESCRIPTION: This module covers the knowledge, skills and attitudes required to promote the use of digital technology in agricultural extension, understand adult learning, integrate gender in agricultural extension and recognize indigenous knowledge.

LEARNING OUTCOMES

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

- LO1.** Promote the Use of Digital Technology in Agricultural Extension
- LO2.** Understand Adult Learning
- LO3.** Integrate Gender in Agricultural Extension
- LO4.** Recognize Indigenous Knowledge

MODULE CONTENTS:

LO1. Promote the Use of Digital Technology in Agricultural Extension

- 1.1. Introduction of the use of digital technology in Agricultural extension
- 1.2. Building Skills in using digital technology
- 1.3. The role of digital technologies in agricultural extension services

LO2. Understand Adult Learning

- 2.1. The concept of adult learning
- 2.2. Determining principles of Adult learning
- 2.3. The importance of Adult learning in Agricultural
- 2.4. Adult learning methods
- 2.5. Understanding the role of adult learning

LO3. Integrate Gender in Agricultural Extension

- 3.1. The concept of gender
- 3.2. Creating gender awareness and sensitization
- 3.3. The role of gender in agriculture
- 3.4. Implementation of gender mainstreaming

LO4. Recognize Indigenous Knowledge

- 4.1. The concept of indigenous knowledge
- 4.2. Understanding Characters of indigenous knowledge

4.3. Promoting Exchange of indigenous knowledge

4.4. The importance of indigenous knowledge

4.5. Studying the controversial issues of the debate on indigenous knowledge

LEARNING METHODS:

- Lecture and Discussion
- Demonstration
- Simulation
- Role playing
- Community Service

ASSESSMENT METHODS:

- Quiz, Written test, Oral questioning, Written exam (assessment)
- Individual and group assignment
- Practical demonstration

ASSESSMENT CRITERIA:

LO.1. Promote the use of digital technology in Agricultural Extension

- The use of Digital technology in Agricultural extension is introduced to familiarize its importance
- Skills in using digital technology is built to strengthen agricultural extension services
- The role of digital technologies in agricultural extension services is understood to enhance agricultural development.

LO.2. Understand Adult Learning

- The concept of adult learning is understood to bring behavioural changes
- Principles of Adult learning is determined for the implementation of extension services
- The importance of Adult learning in Agricultural Extension is understood to enhance agricultural extension services
- Adult learning methods are understood to enhance the knowledge and skills of extension beneficiaries
- The role of adult learning is understood to allow farmers develop knowledge and skills

LO.3. Integrate Gender in Agricultural Extension

- The concept of gender is understood to provide inclusive agricultural extension services
- Gender awareness and sensitization is created to increase the contribution of gender in agricultural development
- The role of gender in agriculture is determined to enhance agricultural development.
- Gender mainstreaming is implemented for effective outcome of extension services

LO4. Recognize Indigenous Knowledge.

- The concept of indigenous knowledge is understood to strengthen the service of agricultural extension
- Characters of indigenous knowledge are understood to promote local experience
- Exchange of indigenous knowledge is promoted to enhance community development
- The importance of indigenous knowledge is understood to facilitate its contribution to the development processes.
- The controversial issues of the debate on indigenous knowledge are further studied to propose the urgent need, to document, learn, preserve, and exchange indigenous knowledge

Annex: Resource Requirements

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AGR ASH2 M08 0422: Applying Agricultural Extension for Rural Development				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A. Learning Materials				
1.	TTLM	Prepared by trainer	25 pcs	1:1
2.	Reference Books			
2.1	Rural Extension: Basic Issues and Concepts	Hoffman, <i>et al.</i> 2009. Vol. I 3 rd ed.	5 pcs	1:5
2.2	Rural Extension: Basic Issues and Concepts	Hoffman, <i>et al.</i> 2009. 3 rd ed.	5 pcs	1:5
2.3	Rural Extension: Basic Issues and Concepts	Hoffman, V., <i>et al.</i> 2009. 3 rd ed.	5 pcs	1:5
2.4	Communication for Rural Innovation	Lewis, C., 2004 3 rd ed.	5 pcs	1:5
2.5	Concepts and Practices in Agricultural Extension in Developing Countries: A Source Book	Ananadayasekeram, P., <i>et al.</i> 2008.	5 pcs	1:5
2.6	Agricultural Extension in Developing Countries	Adams M. E., 1992	5 pcs	1:5
2.7	Agricultural Extension	FAO, ...	5 pcs	1:5
3.	Journals/Publication/Magazines			
3.1	Community Service Guideline		25 pcs	1:1
3.2	Sustainable Agricultural Extension Manual for Eastern and Southern Africa	IIRR, 1998	5 pcs	1:5
B. Learning Facilities and Infrastructure				
1.	Lecture Room	56m ²		1:25
2.	Library	1.7 m ² per trainee		
3.	Audio Visual Center			1:15
4.	Smart Class	At least 1 in each		1:25



		Department		
C.	Consumable Materials			
1	Paper	A4 - Rim	25	1:1
2	Chalk	Pack	1	1:25
3	Board cleaners	No	2	1:13
4	Marker	Pack	2	1:13
5	Flip Chart	Pad	2	1:13
D.	Tools and Equipment			
1	Audio and Video recorder	No	1	per Department
2	Desktop Computer	No	25	1:1
3	LCD	No	1	per class
4	A DVD/VHS combination	No	1	per smart class
5	RCA video and audio input cable	No	1	per smart class
6	Laptop VGA and audio input cable	No	1	per smart class
7	Network connectivity		1	per smart class
8	An amplifier and speakers	No	1	per smart class
9	A high-powered projector (3,000 lumens)	No	1	per smart class
10	Whiteboard	No	1	1:25
11	Blackboard	No	1	1:25
12	Flip Chart Stand	No	1	1:25
13	Projection screen	No	1	1:25

LEARNING MODULE 09

TVET-PROGRAMME TITLE: Animal Health Level II

MODULE TITLE: Preventing and Eliminating MUDA

MODULE CODE: AGR ANH2 M 09 0422

NOMINAL DURATION:20 Hours

MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required by a worker to prevent and eliminate MUDA/wastes in his/her workplace by applying scientific problem-solving techniques and tools to enhance quality, productivity and other kaizen elements on continual basis. It covers responsibility for the day-to-day operation of the work and ensures Kaizen Elements are continuously improved and institutionalized.

LEARNING OUTCOMES

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

- LO1.** Prepare for work
- LO2.** Identify MUDA and problem
- LO3.** Analyze causes of a problem
- LO4.** Eliminate MUDA and Assess effectiveness of the solution
- LO5.** Prevent occurrence of wastes and sustain operation

MODULE CONTENTS:

Lo1. Prepare for Work

- 1.1. Using work instructions
- 1.2. OHS requirements
- 1.3. Selecting tools, equipment and material

LO2. Identify Muda and Problem

- 2.1 Preparing plan
- 2.2. Listing causes of a problem
- 2.3. Identifying and measuring wastes

LO3. Analyze causes of a problem

- 3.1 Analyzing causes by using 4M1E
- 3.2. Eliminating the root cause

LO4. Eliminate MUDA and Assess Effectiveness of the Solution

- 4.1 Adopting the basic principles for improvement
- 4.2 Reducing and eliminating wastes
- 4.3 Recording results.

LO5.Prevent Occurrence of Wastes and Sustain Operation

- 5.1. Preparing standards
- 5.2. Preventing occurrences of wastes
- 5.3. Creating waste-free workplace

ASSESSMENT CRITERIA:

LO.1 Prepare for work

- Work instructions are used to determine job requirements, including method, material and equipment.
- Job specifications are read and interpreted following working manual.
- OHS requirements, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work.
- Appropriate material is selected for work.
- Safety equipment and tools are identified and checked for safe and effective operation.

LO.2 Identify MUDA and problem

- Plan of MUDA and problem identification is prepared and implemented.
- Causes and effects of MUDA are discussed.
- All possible problems related to the process /Kaizen elements are listed using statistical tools and techniques.
- All possible problems related to kaizen elements are identified and listed on Visual Management Board/Kaizen Board.
- Tools and techniques are used to draw and analyze current situation of the work place.
- Wastes/MUDA are identified and measured based on relevant procedures.
- Identified and measured wastes are reported to relevant personnel.

LO.3 Analyze causes of a problem.

- All possible causes of a problem are listed.
- Cause relationships are analyzed using 4M1E.
- Causes of the problems are identified.
- The root cause which is most directly related to the problem is selected.
- All possible ways are listed using creative idea generation to eliminate the most critical root cause.
- The suggested solutions are carefully tested and evaluated for potential complications.
- Detailed summaries of the action plan are prepared to implement the suggested solution procedures.

LO. 4 Eliminate MUDA and Assess effectiveness of the solution.

- Plan of MUDA elimination is prepared and implemented by medium KPT members.
- Necessary attitude and the ten basic principles for improvement are adopted to eliminate waste/MUDA.
- Tools and techniques are used to eliminate wastes/MUDA based on the procedures and OHS.
- Wastes/MUDA are reduced and eliminated in accordance with OHS and organizational requirements.
- Tangible and intangible results are identified.
- Tangible results are compared with targets using various types of diagrams.
- Improvements gained by elimination of waste/MUDA are reported to relevant bodies

LO.5 Prevent occurrence of wastes and sustain operation.

- Plan of MUDA prevention is prepared and implemented.
- Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement are discussed and prepared
- Occurrences of wastes/MUDA are prevented by using visual and auditory control methods.
- Waste-free workplace is created using 5W and 1Hsheet.
- The completion of required operation is done in accordance with standard procedures and practices.
- The updating of standard procedures and practices is facilitated
- The capability of the work team that aligns with the requirements of the procedure is ensured and trained on the new Standard Operating Procedures (SOPs).



Annex: Resource requirement

AGR ANH2 M09 0422: Preventing and Eliminating MUDA				
No.	Category/Item	Description/ Specifications	Qty.	Recommended Ratio (Item: Trainee)
A. Learning Materials (Disability inclusive learning guide)				
1.	TTLM	Prepared by trainer	25 Pcs	1:1
2.	Reference Books			
2.1	Gemba Kaizen	Masaaki Imai 2nd ed.	5 Pcs	1:5
3.	Journals/Publication/Magazines	Published/unpublished	2 Pcs	1:13
B. Learning Facilities and Infrastructure				
1.	Lecture room	56m ²		
2.	Workshop			
3.	Store			
4.	Library	1.7 m ² Per Trainee		
5.	Instructional Audio video	Library/classroom location		1:1
6.	Teaching boards	White board ,Flip chart ,Smart board	1 Pcs	1:25
7.	Arm chair	55 Cm *74 Cm *100Cm	25 Pcs	1:1
8.	Notice board	120*100 Cm	1 Pcs	1:25
9.	White board	240 Cm *120 Cm	1 Pcs	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 shop	1:25

APPENDEX-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

Demonstration	<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)
Group discussion	<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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