ANIMAL HEALTH CARE SERVICE

Level -I

Learning Guide #26

Unit of Competence: Apply knowledge of animal welfare and behaviours

Module Title: Applying knowledge of animal welfare and behaviours

LG Code: AGR AHC1 M8 LO3LG-26

TTLM Code: AGR AHC1 TTLM 0919V1

LO3. Implement livestock welfare assessment procedures

INSTRUCTION SHEET	Learning Guide #

This learning guide is developed to equip you with the necessary information regarding the following content coverage and topics

- Recognizing and reporting OHS hazards in the workplace related to animal welfare
- Maintaining quarantine and biosecurity procedures to minimize the risks of disease introduction to keep welfare of animals.
- Maintaining personal hygiene practices during handling of livestock.
- Treating and destroying safely and humanely Sick or dead livestock
- Identifying, assessing and implementing relevant measures to Environmental implications associated with livestock husbandry practices

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

- Recognize and report OHS hazards in the workplace related to animal welfare
- Maintain quarantine and biosecurity procedures to minimize the risks of disease introduction to keep welfare of animals.
- Maintain personal hygiene practices during handling of livestock.
- Treatin and destroy safely and humanely Sick or dead livestock
- Identify, assess and implement relevant measures to Environmental implications associated with livestock husbandry practices

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information "Sheet 1, Sheet 2, Sheet 3, Sheet 4and 5.
4. Accomplish the "Self-check 1, Self-check t 2, Self-check 3 and Self-check 4" **in page -6, 9, 12 and 14** respectively.
5. If you earned a satisfactory evaluation from the "Self-check" proceed to "Operation Sheet 1, Operation Sheet 2 and Operation Sheet 3 " **in page -15.**
6. Do the "LAP test" **in page – 16** (if you are ready).

Information Sheet-1	Recognize and report OHS hazards in the workplace in animal welfare

Occupational Health and Safety (OHS) hazards exist in every workplace in many different forms sharp edges, falling objects, flying sparks, chemicals, noise and a myriad of other potentially dangerous situations.

3.1.1. Hazards and Risks

A hazard is any environmental factor that may negatively affect the welfare of an animal. Means a biological, chemical or physical agent in, or a condition of, an animal or animal product with the potential to cause an adverse health effect. In terms of a risk assessment looking at transport, the underlying assumption is that the welfare of an animal is negatively affected when one of the following animal needs is thwarted or compromised around and/or during transport

When assessing any welfare problem, it is necessary to consider the extent of poor welfare, the intensity of suffering and its duration. Welfare assessment concerns individual animals; however, where there are indications of poor welfare, we consider that the more animals that are affected, the more serious is the problem.

The scientific assessment of animal welfare involves multiple criteria which can be applied at three different levels:

- **"Animal-based"** criteria are assessed at the level of the animals themselves. These include the presence of injuries, the incidence of disease, scoring of body condition, and the performance of certain behavior. Animal-based criteria in animal transportation, for example, might include the rate of survival and the incidence of bruising and injury.

• **"Resource-based"** criteria assess housing, diet and other resources that are provided for the animals.

• **"Management-based"** criteria focus on human care as an important factor in animal welfare. They may include the handling skills of the staff, feeding practices, hygiene strategies, and record keeping.

There are many hazards involved in working with animals. These hazards range from minor to very serious, and can include things like allergies, bites, zoonotic diseases, working with hazardous chemicals or radiation, and handling contaminated waste. Information follows in this document that describes many of the potential hazards individually.

A risk means the likelihood of the occurrence and the likely magnitude of the biological and economic consequences of an adverse event or effect to animal or human health.The primary way to avoid problems in work with animals is to know what the hazards are and what precautions to take in order to avoid them.

3.1.2. Types hazards

The following chart outlines some, but not all categories and types of potential hazards that may be present in work with animals**:**

Example: Types of Hazards that May be Present during Work on Animal Protocols.

Types	Examples
Physical Hazards	bites, sprains, scratches, sharps, lasers, machinery, slips, falls
Chemical Hazards	Burns, skin irritations, inhalation, ingestion
Zoonosis	Human diseases acquired from animals
Allergens	Allergies to rodents, cats, dogs (urine, contaminated litter, dander, hair)
Ergonomics	Heavy lifting, repetitive motion, body mechanics, posture
Infectious Agents	Bacteria, fungi, parasites, protozoa, rickettsia, viruses, blood-borne pathogens

3.1.3. Risks assessment

Risk assessment means the evaluation of the likelihood and the biological and economic consequences of entry, establishment and spread of a hazard.

The risk assessment approach basically consists of four successive steps:

A. Hazard characterization

B. Exposure assessment

C. Risk characterization

A. **Hazard characterization:** hazard characterization refers to impact of each hazard on the individual animal

B. **Exposure assessment:** exposure assessment refers to the probability (%) or the presence of a hazard in the population.

C. **Risk characterization:** The final step of the risk assessment is the risk characterization, where the risk of each hazard is characterized in terms of the hazard characterization, related to the severity of the effect, and the exposure assessment, related to the frequency or prevalence in the population. By multiplying the score for hazard characterization with that of the exposure assessment, the qualitative score for risk characterization is obtained for each hazard.

- **MANAGEMENT HAZARDS**

- Allow only experienced and trained staff to handle or restrain animals
- Instruct staff in safe animal handling, including recognizing 'warning' signs
- Label cages where an animal's behaviour gives reason for concern
- Provide personal protective clothing
- Students must not handle animals unless the animal and the task have been assessed by their supervisor
- Don't approach any animal unless assured by your supervisor that it's safe
- Follow strict handling, labeling and storage procedures for all hazardous substances
- Provide protective clothing (such as gloves) for staff
- Students must not medicate animals or handle any drugs used in animal treatment
- Wear rubber gloves when using cleaning chemicals

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the types of hazards? (5points)

2. Write the steps of risk assessment? (5 points)

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-1	Maintain quarantine and biosecurity procedures to minimize the risks of disease introduction to keep welfare of animals

In order to eliminate the possibility of spreading animal disease into importing countries, quarantine inspectors will routinely apply this guideline to observe, isolate, treat and test export animals coming from various parts of the country. Despite current levels of advancement in diagnostic tests, import/export programmes of animals still incorporate a formal quarantine period in order to effectively prevent livestock disease introduction and spread between countries. Animal health biosecurity is concerned with import, domestic and export health controls. Import controls are primarily designed to prevent the introduction of hazards pathogenic to animals during trade in animals, animal genetic material, animal products, feedstuffs and biological products.

3.2.1. Quarantine

- It is the separation of animals that are either infected or suspected of being or non-infected animals that are at risk.
- Quarantine is used to separate animals when they are imported from countries where exotic diseases are endemic.
- In this case suspected animals are isolated until infection is either confirmed or discounted. Quarantine programmes are designed to both facilitate the detection of communicable diseases and to make accurate assessments of the overall health status of individuals or groups entering a new population. Prudence dictates that for public health and safety the infectious disease status of all incoming animals is considered at best uncertain.
- Non-human primates can harbor infectious organisms that cause only mild disease for their species but can be severely pathogenic to other species of non-human primate, either in captive collections or in wild populations, or to humans.

- Quarantines are defined by their duration and by the activities and procedures practiced to assess health status. The minimal duration of the quarantine period, as defined by Articles 6.12.4., 6.12.5. and 6.12.6., may be extended until any adverse events during the quarantine period are fully investigated and resolved, and no evidence of transmission of infectious agents within the quarantined group exists. Quarantine activities and procedures should be directed towards defining as much as possible the health status of quarantined animals, while protecting persons and other animals from inadvertent exposure to communicable agents and providing for the health and well-being of quarantined animals. Therefore, quarantine practices should:

  1) Encompass measures which effectively isolate animals or groups of animals thereby preventing the spread of communicable diseases;

  2) protect the health of personnel working in the quarantine;

  3) Encompass measures to promote the health and welfare of quarantined animals including social and behaviouralneeds of non-human primates.

3.2.2. Biosecurity

Biosecurity is a strategic and integrated approach that encompasses the policy and regulatory frameworks (including instruments and activities) for analyzingand managing relevant risks to human, animal and plant lifeand health, and associated risks to the environment. Biosecurity covers food safety, zoonoses, the introduction of animal and plant diseases and pests, the introduction and release of living modified organisms (LMOs) and their products (e.g. genetically modified organisms or GMOs), and the introductionand management of invasive alien species.

Thusbiosecurity is a holistic concept of direct relevance tothe sustainability of agriculture, and wide-rangingaspects of public health and protection of theenvironment, including biological diversity. The overarching goal of biosecurity is to prevent, control and/or manage risks to life and health asappropriate to the particular biosecurity sector. In doing so, biosecurity is an essential element of sustainable agricultural development.

Some factors influencing biosecurity**:**

- Globalization
- New agricultural production and food processing technologies
- Increased trade in food and agricultural products
- Legal obligations for signatories of relevant international agreements
- Increasing travel and movement of people across borders
- Advances in communications and global access tobiosecurity information
- Greater public attention to biodiversity, the environment and the impact of agriculture on both
- Shift from country independence to country interdependence for effective biosecurity
- Scarcity of technical and operational resources high dependence of some countries on food imports

Principlesofbiosecurity:

1) **Livestock quarantine and animal movements:** Manage the introduction and movement of livestock in a way that minimizes the risk of introducing or spreading infectious disease
2) **People, equipment and vehicle hygiene:** People,equipment and vehicles entering the village, enterprise or country are controlled to minimize the potential for property contamination
3) **Food and water safety:**Qualityofstockfeedandwaterisfitforpurpose,especiallypurchasedfeedthatisfreefromcontaminants,untreatedswilland/orrestrictedanimalmaterial(i.e. feedscontainingruminanttissuecannotbefedtoruminants).
4) **Animal health management, surveillance and reporting:**Preventandcontrolanimaldisease by using appropriate vaccination programmes, regularly monitoring for diseasea ndimmediatelyreportingoutbreaksofTADs.
5) **Public awareness:** All farmers, traders, agency staff and contractors, understand the i mportance of the biosecurity requirements for the village, enterprise or country in which they work and canimplementtheagreedpracticesforwhichtheyareresponsible.

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define quarantine and biosecurity? (5points)

2. Write principles of biosecurity? (5 points)

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-1	Maintain personal hygiene practices during handling of livestock.

Being professional means being safe and humane. Good animal handling skills prevent staff from being injured. Good animal handling skills reduce stress for the animal. Safe and effective animal handling requires a thorough understanding of the normal behavior and responses of each species.

3.3.1. Personal hygiene

1. High standards of personal hygiene are essential. Hands shall be washed after handling chemicals, infectious materials, animals and before leaving the animal rooms. Animal rooms shall be equipped with anti-microbial soap and dispensers and shall be utilized after hands-on work with animals. Shower facilities should also be made available for employees handling animals note: Avoid the use of solvents for washing skin. Solvents remove the natural protective oils from skin and can cause irritation and inflammation. In some cases, washing with solvent may facilitate absorption of toxic chemicals.

2. Personal effects such as backpacks and books that can serve as fomites should not be taken into animal rooms. Notepads and computers dedicated for research use or husbandry care are allowed in animal rooms.

3. Protective clothing and devices shall be worn by all personnel working with animals or their tissues. Outer garments (lab coats, coveralls and disposable aprons) shall be worn in animal rooms. These outer garments shall not be worn outside the animal facility. Covered shoes shall be worn when working in the animal facility. Depending on hazards, other specifications for shoes may be required in the facility. For example,

AVSemployees routinely wear skid-resistant, steel-toed shoes dedicated to each animal facility.

4. Under no circumstances are personnel permitted to eat, drink, smoke or apply cosmetics in animal rooms. Eating, smoking, drinking and applying cosmetics are allowed in designated areas only.

3.3.2. Handling of livestock

By measuring behavioural or physiological conditions, animal handling can be explained to a higher extent and welfare concept implemented. Safe and effective animal handling requires a thorough understanding of the normal behavior and responses of each species.Everyone involved with the handling of livestock has a responsibility for the wellbeing of the animals in their care. All livestock handlers should be familiar with legislation and codes of practice applicable in markets, during transport and up to the point of slaughter.

The objective of humane animal handling is to move animals with minimum stress to both the animals and handler. Considerate handling reduces the risk to the animal of pain, injury and suffering. Unfamiliar surroundings, noisy and aggressive handling, and the proximity of unknown animals or people can cause even the calmest of animals to become difficult to handle and much more likely to cause injury to themselves, other animals or handlers.

Handling, especially by unfamiliar handlers, has the potential to be a highly stressful experience for animals. By working in a quiet, calm and considerate manner, handling can be carried out efficiently, with less effort and with less likelihood of the handler or the animals becoming stressed or injured. Handling routines that are stressful for animals can reduce their immune function and most likely result in lowered productivity (e.g. growth rate, meat production, milkproductionetc.).

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the objective of humane animal handling? (5points)

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-1	Treating and destroying safely and humanely Sick or dead livestock

3.4.1. destroying of animals

Livestock ownersandotherswhoderivealloraportion oftheirlivelihoodfrom animal agricultureshareamoralobligationtoensurethewelfareofanimals.Therefore,whendiseas eor injury conditionsarisethatdiminishesquality oflifeorcreatespainandsufferingthatcannotbe effectivelyrelievedbymedicalmeans,euthanasiaisindicated.

If an outbreak of a transboundary animal disease or other serious disease occurs and a stamping-out policy is adopted for its control and eradication, it may be necessary to destroy a large number of animals. It is essential that these animals are speedily and humanely slaughtered and are indeed dead before disposal of carcasses commences. Speed is of the essence once the disease has been confirmed because, in most situations, the live animals will continue to produce and possibly disseminate the disease pathogen. An experienced veterinarian should be present during destruction.

Whendealingwithdebilitated,injured,ordisabledcattlethefollowingactionsmaybetaken: treatment,slaughter,oreuthanasia.Thedecisionmakingprocessastowhichaction toconsider shouldincludethefollowingcriteria:

- Thelevelofpainanddistress oftheanimal
- Thepossibilityofrecovery
- Theabilityoftheanimaltogettofoodandwater
- Medications usedontheanimal
- Drugwithdrawaltimes
- Theeconomics ofthecircumstances

- Thepotentialforcondemnation
- Diagnosticinformation

Ifeuthanasiais consideredtobetheappropriatealternativethefollowingfactorsshould begivencarefulthoughtwhenchoosinganappropriatemethod:

- ***Humansafety***:Thisisalways thefirstconsiderationinthechoiceofeuthanasia.Theuseofa firearmorevenacaptiveboltgunmaybedangeroustohumans.Theuseofab arbiturate overdosemayproduceacalmanimalbeingeuthanizedquietlyandeasily.
- ***Animal welfare***:Themethodofeuthanasiachosenshouldproducearapidandpainless death. however,certainenvironmentsandanimalbehaviormaypreventtheuseofamo redesirable technique.Thetechniquechosenshouldbethemethodthatissafestforbothhum ansand animals alike
- ***Skill***:Theuseofafirearmortheuseofacaptiveboltwillrequireskillandtrainingt oassure correctuseandminimizedangertoothers.Theperson usingafirearm mustunderstandthe potentialforricochet.Designatedindividualsshouldbeappropriately trainedinproper euthanasiatechniques whereverlivestockarehoused
- ***Aesthetics:***Somemethodsofeuthanasiaappear moretolerabletoobserversthanothers.Sometechniquesresultininvoluntary motoractivity ofthe animal,whichcouldbe misinterpretedasapainfulresponsetoobserversinexperiencedinbovineeuthanasia.This couldresultingreatemotionaldistress tothoseobservingtheprocedure.

Methods of destruction/destroying of animals are set out below. Rabid or suspect rabid animals should be shot in the heart with a firearm to preserve the brain, which is the best diagnostic specimen, and to avoid contamination of personnel with potentially

infective brain or saliva. Animals with bovine spongiform encephalopathy (BSE) or scrapie should not be shot through the head, as brain tissue is required for diagnostic testing.

FIREARMS (RIFLES AND GUNS)

Ensure compliance with any firearm licensing requirements, including the use of trained and approved operators for rifles and guns.

Advantages of using firearms

The advantages of firearms are:

- clean kills in the hands of experienced operators;
- handling individual animals is not necessary;
- destruction of animals from a distance;
- firearms and ammunition are readily available;
- Many people are proficient in their use.

Disadvantages of using firearms

The disadvantages of firearms are:

- they are potentially dangerous;
- They are unsuitable for use close to populated areas.

The aim of any destruction technique is to achieve euthanasia in a single treatment by a rapid loss of consciousness, leading to death with no return to consciousness, and with an acceptable, minimal level of stress to the animal before its death.

In an emergency animal disease (EAD) outbreak, it may be necessary to destroy a large number of animals quickly. It is essential that these animals are speedily and humanely slaughtered and that they are indeed dead before the disposal of their carcasses begins. Speed is essential in most outbreaks, because live animals will continue to produce and possibly disseminate the pathogen.

It is important that the death of the animal be confirmed at an appropriate interval after killing procedures and before moving the carcass for disposal.

It is the responsibility of all in the destruction team to ensure that animals are correctly assessed to be dead.

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the advantage and disadvantage of firearm (5points)

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-1	Identify, relevant measures to Environmental implications in livestock husbandry practices

There are significant differences in the environmental impact between species, and between the different forms of livestock production. Both intensive and extensive production systems may damage the environment, but in different ways. Pressure to expand production, either through intensification (increasing output per unit of land by increasing non-land inputs) or area expansion (increasing output by expanding land in production without changing inputs per unit of land), can have negative environmental consequences unless the value of common-property resources and the cost of negative externalities are fully recognized and accounted for.

Species

Cattle provide many products and services, including beef, milk and traction. In many mixed farming systems, cattle are usually well integrated in nutrient flows and can have a positive environmental impact. In many developing countries, cattle and buffalo provide draught power for field operations; in some areas, particularly parts of sub-Saharan Africa, use of animal traction is increasing, substituting for fossil fuel use. Cattle manure is a good fertilizer; it presents a low risk of over-fertilization and improves soil structure.

Livestock also use crop residues and agro-industrial by-products, such as molasses cake and brewers grains, some of which would otherwise be burned. However, cattle in extensive production systems in developing countries often have limited productivity.Moreover, cattle in feedlots require more concentrate feed per kilogram of output than do poultry or pigs; as a result, they have significantly higher resource requirements and hence greater environmental impact.

Production systems

The livestock sector is undergoing structural change towards more capital-intensive systems, specialized and larger production units relying on purchased inputs, higher animal productivity and greater geographical concentration. This has altered the environmental impacts of the sector. It has also offered the sector new options for mitigating such impacts, with a range of cost, socio-economic and gender implications.

The principle livestock production factors influencing their environmental impact are identified as the balance between different farm animal types and the husbandry practices used for these species, the variable potential which exists for the recycling of wastes and the modification of inputs to systems, the extent to which animal production can be integrated into more holistic farming systems and the impact of livestock on wild life biodiversity.

Impacts of climate change on grazing livestock production systems may include:

- Increased frequency of extreme weather events
- Increased frequency and magnitude of drought and floods
- Productivity losses (physiological stress) due to temperature in crease
- Change in water availability (may increase or decrease, according to region)

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the Impacts of climate change in grazing livestock production systems? (5points).

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Reference

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