



Ethiopian TVET System



Animal Health Care Service Level - I

Training Module –Learning Guide 24-29

Based on Version 3 March 2018

Occupational Standard (OS)

Unit of Competence: Apply knowledge of animal welfare and
behaviours

Module Title: Applying knowledge of animal welfare and
behaviours

TTLM Code: AGR AHC1 TTLM08 0919V1

October 2019



Module Title: Applying knowledge of animal welfare and behaviours

TTLM Code: AGR AHC1 TTLM08 0919V1

This module includes the following Learning Guides

LG24: Explain the concept of animal behaviour and welfare

(LG Code: AGR AHC1 M8 LO1LG24)

LG25: Monitor and assess livestock welfare.

(LG Code: AGR AHC1 M8 LO2LG25)

LG26: Implement livestock welfare assessment procedures

(LG Code: AGR AHC1 TTLM 0919V1)

LG27: Identify animal behaviour

(LG Code: AGR AHC1 M8 LO4LG-27)

LG28: Assess and respond to animal behavior

(LG Code: AGR AHC1 M8 LO5LG28)

LG29: Prepare, maintain and store equipment used to humanely handle the animals

(LG Code: AGR AHC1 M8 LO6LG29)



Instruction Sheet	Learning Guide24 #
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Defining animal welfare and stating the five animal *welfare* freedoms
- Identifying the major animal welfare problems in Ethiopia
- Identifying clinically important behaviors of animals
- Identifying animal welfare legislation, regulations and codes of practice.

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 –**

- States the five elements of animal freedom and defines animal welfare.
- Identifies Major animal welfare problems in Ethiopia.
- Identifies Clinically important behaviours of animals are
- Identifies Animal welfare legislation, regulations and codes of practice are

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 20.
3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1”2,3,and 4 **in page -**.
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.



Information Sheet-1

Defining animal welfare and stating the five animal *welfare* freedoms

1. Concept of animal welfare

The term "welfare" refers to the state of an individual in relation to its environment, and this can be measure. The concept of animal welfare includes three elements: **the animal's normal biological functioning** (which, among other things, means ensuring that the animal is healthy and well-nourished), **its emotional state** (including the absence of negative emotions, such as pain and chronic fear), and **its ability to express certain normal behaviours**. This notwithstanding, not all behaviours are equally important in terms of animal welfare. From a practical standpoint, the clearest indication that a given behaviour is important is whether the animal shows a stress response or exhibits abnormal behaviour when prevented from performing it. A sow's prepartum nesting behaviour or the foraging behaviour of pigs are examples of such important behaviours. These three principles do not necessarily contradict one another; indeed, they are often complementary.

Animal welfare uses a multidimensional approach

All three of the aforementioned principles are included in multiple 'official' definitions of animal welfare. Thus, for example, the World Organisation for Animal Health considers an animal to be in a good state of welfare if it is healthy, comfortable, well-nourished and able to express innate behaviour and not suffering from pain, fear or distress.

2. The Five Freedoms

in accordance with the 'Five Freedoms' principle, an animal's welfare is ensured when the following five conditions are met.

- **Freedom from hunger or thirst:** by ready access to fresh water and a diet to maintain full health and vigour.



- **freedom from discomfort**, by providing appropriate environment shelter and a comfortable resting area
- **Freedom from pain, injury and disease**, by prevention and/or rapid diagnosis and treatment
- **Freedomfrom** to express normal natural behavior by providing sufficient space, proper facilities and the company of other animals of its kind.
- **Freedomfromfear or distress**, by ensuring the conditions and treatment which avoid mental suffering.

The 'Five Freedoms' principle offers a very useful and practical approach to the study of welfare and, especially, to its assessment on livestock farms and during the transport and slaughter of farm animals. It has moreover served as the basis for many animal protection laws in the European Union and other parts of the world. However, despite its clear usefulness, it has two shortcomings. First, it is sometimes too generic. Second, there is a certain overlap between some of the five freedoms.

To remedy these problems, slightly different approaches based on the same concepts have been proposed. Of particular note is the Welfare Quality® project's proposal for assessing animal welfare. The Welfare Quality® project was a five-year European Union research project launched in May 2004 and involving more than 40 scientific institutions from 15 different countries. One of its objectives was to develop European standards for animal welfare assessment. Unlike other protocols, which mainly use environment-based parameters, the protocols of the Welfare Quality® project are primarily founded on animal-based measures.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the three elements in animal welfare concept? (5points)
2. Write the five animal *welfare* freedoms(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-2	Identifies Major animal welfare problems in Ethiopia.
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1.2. Animals welfare problems in Ethiopia

In Ethiopia, animal welfare problems mostly seen in marketing places, during transporting, farming places, abattoir (slaughtering) houses, feeding areas, sheltering areas and watering places. Ethiopia has several marketing systems existing for trading animals in different locations.

Transporting to markets mostly done in Ethiopia by trekking just like most African countries, due to lack of suitable vehicles, and there has been a research performed on how many animals die and injured during transport . It has been shown that, transport conditions, level of vibration on vehicle and the behaviors the animal expresses and changes of stress hormones, contradict animal welfare largely.

The common challenge in walking animals by foot often leads to accidents such as injured, dead or stolen of animal's cases. Likewise, lameness and injuries such as swelling of legs commonly occur. Similarly, the above has also been proven a problem when animals are also transported by vehicle indicating the problems which accompany a lack of rest, water and feed.

Mostly the handling of animals in developing countries has been an issue of subject for critical discussion since a long many times before and is in need of further research. Stakeholders in ethiopia handle animals in a bad way, which increased the prevalence of death and injuries. By measuring behavioral or physiological conditions, animal handling can be explained to a higher extent and a welfare concept implemented in the particular area.

For instance when adult male cattle are mixed in large or during transport, they express higher levels of fighting behavior which can be recorded and measured as a poor welfare indicator. Farm animals can remember the previous challenging situation during transport or handling by the stakeholders, where a larger hesitance reflected by the animals indicate, the greater the previous bad exposer that must have been experienced .



In this regard animal welfare situation in Ethiopia has multi directional problems that have not been dealt by the stakeholders and not covered even by the present non-governmental organizations working with this issue. In Ethiopia, farm animals such as oxen generally subjected to plough for long period without having rest and supplied adequate feed and water. Pack animals such as horses and donkey are forced to carry overload weight for long distances without proper harnessing materials and inadequate feed and water provisions, despite their contributions is high in the daily activity of the owner directly or indirectly.

Pet animals such as dogs will be killed by poison inhumanly yearly for the sake of rabies control and prevention in most areas of the country. Sick animals will not be taken to clinics for treatment. The farm animals in most parts of the country are openly housed without appropriate shelter and are exposed for intensive direct sunlight and erratic summer rainfall.

Animals will be forced to stay for long time in the market even for days without water and feed in harsh handling manner. However, a number of Veterinary schools and Animal science fields of study departments are graduating professionals yet the services in health care and keeping the welfare of animals is lagging behind the expectation.



Self-Check -1

Written Test

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

1. Where is the animal welfare problem of ethiopia mostly seen? (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-3	Identifies clinically important behaviors of animals
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Animal behaviour is the expression of an effort to adapt or adjust to different internal and external conditions, i.e. behaviour can be described as an animal’s response to a stimulus. Animals develop a range of behaviour problems, such as aggression, destructiveness, inappropriate toileting, self-mutilation, inappropriate vocal behaviour, nervousness, and phobias, beating of head, beating of body, Fighting, Kicking, Jumping, Vocalization, Lameness such behaviour can be inconvenient for you, the owner, but more importantly it is often a sign that your pet's welfare is poor.

- Diagnosis of diseases: change in behavior is first signs of disease (loss of appetite, altered activity, loss of grooming)
 - E.g. horse suffering from colic
- Diagnosis and treatment of different behavioral problems in pets (behavioral therapy)
 - Examples include pets with unacceptable elimination behaviors or are aggressive to people or other animals.





Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

- 1. Mention some behaviour problems that animals develop? (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-4**

Identifies Animal welfare legislation, regulations and codes of practice

1.4.1. Animal welfare legislation

In the development of legislation on animal welfare, many national governments and international organizations rely on multi-disciplinary animal welfare science in addition to broad animal welfare principles such as those just reviewed.

In Europe, animal welfare has been the subject of national legislation and regional agreements for more than a generation, largely due to more exposure to and discomfort with the treatment of animals in industrialized farms and slaughterhouses. In light of increased international trade, globalization of animal health concerns and pressure for harmonization of food safety standards, many other countries are also choosing to regulate animal welfare.

To improve their legislative frameworks, some countries use or adapt pre-existing legislation on the prevention of cruelty to animals, while others draft new animal welfare laws, blending national and local concerns with international animal welfare principles. Because the earliest animal welfare legislation was developed in countries where industrialized production is the norm, these legislative instruments tend to focus on farm animals housed, transported and slaughtered in high-technology environments designed to intensify production.

However, animal welfare legislation need not be limited to industrialized production. Well-drafted legislation can and should apply to other types of production such as subsistence farming and small-scale commercial production. Different scales of production raise different concerns.

1.4.2. Animal welfare regulations

As any African countries, Ethiopia has not formulated regular ways of awareness creation to the public and is not aware of what the minimal animal welfare standards to be esteemed. There are few attempts made by few non-governmental organizations such as The Donkey Sanctuary Project, Homeless Animals Protection Society introduction of Animal welfare to the curriculum of animal science and veterinary medicine fields of study from the government side.



It is true most proportions of Africans Livestock owners do not realize as animals are sensitive to beatings and mistreatment. In addition, many of them make branding or knives in order to identify their animals on prominent parts of the animal body.

Ethiopia as a country participated in development of animal welfare strategy and guidelines in IGAD wide conferences. The IGAD conference dealt issues like developing relevant policy, national legislations and clear strategies on animal welfare matters, adoption of the existing international animal welfare standards in a science based animal welfare standards and guidelines.

Ethiopia also move a goodstep in integrating the animal welfare issues in the educational system (curriculum) in particular in at the university level, specifically in veterinary and animal science fields of study. Ethiopia support and facilitate the exercise of animal welfare, it has the legal frame in encouraging active participation of animal science professionals in the activities of animal welfare institutions through membership and active participation by offering advice, professional services, to these organizations and/or their representatives.

In Ethiopian, various proclamations tried to show as it condemn aversive actions done on animals. For instance, crime proclamation No. 414/2004 of Ethiopia stated that contamination of water, feed and pasture counted as a crime. Crimes committed through production and distribution of substances hazardous to animal health, manufacture, adulteration and sale of fodder and products injurious to livestock and scandalous treatment of animals are included indicating animal welfare issues lightly in different articles on the Criminal Code of the Federal Democratic Republic of Ethiopia. Federal Negarit Gazeta of Ethiopia under the Proclamation No. 267/2002 stated about the prevention and control of animal diseases.

In this proclamation, the primary concern is to prevent and control animal diseases in order to maximize the benefits obtained from the extensive livestock resource by keeping the wellbeing or welfare of animals. Whereas the Civil Society Organization stated as the Ethiopian government promotes nongovernmental societies to organize and work on animal welfare issues in the state.



Ethiopian Veterinary Drug and Feed Administration and Control Proclamation No. 728/2011 also stated as clinical test shall be conducted with due care to animal welfare requirements.

1.4.3. Codes of Animal welfare practice

The original goal of the world organization for animal health(OIE) was to work towards international cooperation and the creation of a communication network among countries in case of an animal disease outbreak; today, the organization also provides sanitary and scientific information and develops guidance on various aspects of animal health. OIE's codes, guidelines and science-based standards are intended to be used by the veterinary authorities of member states.

The OIE has devised a variety of guidelines to address the treatment of animals used for scientific research or kept for companionship, and has elaborated health standards for intensive farming. These standards are found in the OIE Terrestrial Animal Health Code (the Code).The Code aims to ensure the health of terrestrial animals and the safety of animal products in international trade. It establishes detailed measures to be implemented by the veterinary authorities of both importing and exporting countries to prevent the transfer of pathogens without creating unjustified barriers to trade.

Accordingly the Code regulates import and export procedures and specifies the diagnostic tests to be applied before export. Since 2005, the Code also addresses some animal welfare issues, particularly those arising (1) during the transport of animals by land, sea or air; (2) the slaughter of animals for human consumption; and (3) the killing of animals for purposes of disease control.

The incorporation of animal welfare standards into the Code is the result of the OIE's having identified animal welfare as a priority in its 2001-2005 Strategic Plan.

In 2002, the OIE created a permanent Working Group on Animal Welfare, whose first task was to develop a set of guiding principles to serve as the philosophical foundations of all OIE work on animal welfare.



These principles were adopted by the International Committee of OIE member countries during the 72nd General Session in May 2004 and are now included in the Code as follows:

1. There is a critical relationship between animal health and animal welfare.
2. The internationally recognized "Five Freedoms" (see Chapter I, Section 1.3) provide valuable guidance in animal welfare.
3. The internationally recognized "three Rs" (reduction in number of animals, refinement of experimental methods and replacement of animals with non-animal techniques) provide valuable guidance for the use of animals in science.
4. The scientific assessment of animal welfare involves diverse elements which need to be considered together, and selecting and weighing these elements often involves value-based assumptions which should be made as explicit as possible.
5. The use of animals in agriculture and science and for companionship, recreation and entertainment makes a major contribution to the well-being of people.
6. The use of animals carries with it an ethical responsibility to ensure the welfare of such animals to the greatest extent practicable.
7. Improvements in farm animal welfare can often improve productivity and food safety and hence lead to economic benefits.
8. Equivalent outcomes based on performance criteria, rather than identical systems based on design criteria, should be the basis for comparison of animal welfare standards and recommendations.



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 aims of the codes practices in animal welfare? (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: _____



INSTRUCTION SHEET	Learning Guide25 #
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This learning guide is developed to equip you with the necessary information regarding the following content coverage and topics

- Checking and assessing livestock welfare regularly.
- Recognizing and reporting welfare problems
- Handling Livestock calmly according to enterprise procedures

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:**

- Check and assess livestock welfare regularly.
- Recognize and report welfare problems
- Handle Livestock calmly according to enterprise procedures

Learning Instructions:

8. Read the specific objectives of this Learning Guide.
9. Follow the instructions described below 3 to 6.
10. Read the information written in the information “Sheet 1, Sheet 2, and Sheet 3
11. Accomplish the “Self-check 1, Self-check 2, and Self-check 3 in page -5, 9, and 12 respectively.
12. 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.**
13. Do the “LAP test” **in page – 16** (if you are ready).



Information Sheet-1	Monitor and assess livestock welfare
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2.1. Checking and assessing livestock welfare regularly

In order to assess animal welfare we must first understand what animal welfare means. In the past, animal welfare assessments have often focused on the health of the animal and other physical measures. They are easiest to quantify as are usually observable measures such as body condition. But now there is an increasing emphasis that assessments should be considering the affective states (emotions and feelings) of an animal when measuring their welfare.

Animal welfare encompasses both the affective (emotional) and physical state of an animal. However, often only prescribed (numerical) measures such as the size of an enclosure, the depth of a pool, the nutritional content of food and the healthcare provided, are often used to assess the welfare of the animal.

There are five basic types of standards for assessing animal welfare:

1. Animal-based measures also called performance standards or outcome criteria (Most Emphasis).
2. Practices that are prohibited (Most Emphasis).
3. Input-based engineering or design standards(Less Emphasis).
4. Subjective evaluations (Less Emphasis).
5. Record keeping, stockperson training documents and paperwork requirements. Documentation of management procedures and standard operating procedures (SOPs) (Less Emphasis).



➤ **Assessment of overall animal welfare:**

According to Welfare Quality® protocols, animal welfare assessments must take four questions into account:

- Are the animals properly fed?
- Are the animals properly housed?
- Are the animals healthy?
- Does the behaviour of the animals reflect optimised emotional states? This last question may be the most innovative and controversial aspect. Simply put, it refers to the fact that animals should not experience fear, pain, frustration or any other negative emotional state, at least in a chronic or very intense way

➤ **Principles and criteria from the Welfare Quality® protocols**

The WQP criteria for the assessment of animal welfare are:

1. Animals should not suffer from prolonged hunger, i.e. they should have a sufficient and appropriate diet.
2. Animals should not suffer from prolonged thirst, i.e. they should have a sufficient and accessible water supply.
3. Animals should have comfort around resting.
4. Animals should have thermal comfort, i.e. they should neither be too hot nor too cold.
5. Animals should have enough space to be able to move around freely.
6. Animals should be free from physical injuries.
7. Animals should be free from disease, i.e. farmers should maintain high standards of hygiene and care.
8. Animals should not suffer pain induced by inappropriate management, handling, slaughter or surgical procedures (e.g. castration, dehorning).
9. Animals should be able to express normal, non-harmful social behaviours (e.g. grooming).
10. Animals should be able to express other normal behaviours, i.e. they should be able to express species-specific natural behaviours such as foraging.



11. Animals should be handled well in all situations, i.e. handlers should promote good human-animal relationships.

12. Negative emotions such as fear, distress, frustration or apathy should be avoided, whereas positive emotions such as security or contentment should be promoted.

2.1.1. Methods of animal welfare assessment

There is no established method for assessing animal welfare, but various frameworks have been suggested. Their application requires knowledge of animal health and production and species-typical behavior. Research is being done to develop practical methods of assessing welfare. Generally three approaches are followed in assessing animal welfare: (1) naturalistic, (2) functional and (3) subjective experience. The bellow table describes comparison between these three approaches to ensure animal welfare:

Table 1: Comparison among different methods of animal welfare.

Methods to animal welfare		
Criteria	Naturalistic	Functional
Subjective experience		
Definition	The welfare of an animal depends on its feelings	Animal welfare is related to the normal functioning of physiological and behavioral processes
The	(suffering, pain and pleasure) determine the welfare of the animal	the animal
	Its natural behavior and live a life as natural as possible	



Concept Animals should be raised and Concentrates on biologic This approach involves

psychological kept in natural environment functioning of an animal well-being as subjective

experience of animals and be allowed to behave in natural ways.

Advantage This approach intuitively appeals Changes in biological functioning Understanding the subjective and fits with popular opinion are easier to demonstrate- experience of animals is a great (call for animals to be raised inscientifically challenge and hard job for SC ientists in the field of More natural environments) ethology

Disadvantage This approach idealizes The link between biological The feelings and emotions of functioning and the welfare animals, natural environment and the movement of neglects the fact that the is not always apparent. Subatomic particles can animals are able to adopt to It is difficult to draw conclusions not observed directly. artificial environment about welfare if different measures of biological functioning disagree



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

- 3. Write the five basic types of standards to assess animal welfare?(5 points)

- 4. List the three methods of assessing animal welfare? (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-2	Recognizing and reporting welfare problems
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2.2.1. Potential or Existing Animal Welfare Problem

Animal welfare issues are extremely diverse. They depend partly on the scale of production: The problems of subsistence production are likely to include basic nutrition, shelter and health care, whereas the problems of intensive, commercial-scale production are more likely to include a reduction in the capability of the animals to cope with the environment due to factors such as crowding, injury-causing surfaces, poor air quality in buildings, and genetic selection for specific performance traits rather than general health. Problems also vary with climate, the disease status of the region, availability of feed and water, and availability of skilled labour. Despite the variation, several problem areas stand out as high priority across many regions and systems. These are:

- *Transportation*, including long journeys whether by foot or vehicle, and methods used to restrain animals for transport,
- *Slaughter*, including the holding and movement of animals before slaughter and restraint during the slaughter or stunning process,
- *Provision of adequate feed and water*,
- *The handling of animals by humans*, which can result in production losses from injury and chronic fear,
- *Culling of unwanted animals*, including the disposal of animals that are sick or of low commercial value, and
- *keeping animals under conditions* for which they are not genetically suited.

This includes the use of non-indigenous breeds which are not well adapted to local climate and conditions, and the housing of animals in unsuitable facilities.

Finally, animals rarely have good lives if their owners live in poverty. For poor or landless farmers, making a satisfactory living is often the first step toward being able to provide appropriate animal care.



Hence, improving the economic well-being of low-income animal owners needs to be seen as a high-priority issue in efforts to improve animal welfare.

While capacity building needs to be targeted at locally relevant problems, the above general areas provide logical starting points for assessing which problems should be addressed, for the development of training materials and research projects, and for establishing incentives to improve the care and handling of animals.

In Ethiopia, animal welfare problems mostly seen in marketing places, during transporting, farming places, abattoir (slaughtering)houses, feeding areas, sheltering areas and watering places. Ethiopia has several marketing systems existing for trading animals indifferent locations. Transporting to markets mostly done in Ethiopia by trekking justlike most African countries, due to lack of suitable vehicles, and therehas been a research performed on how many animals die and injuredduring transport. It has been shown that, transport conditions,level of vibration on vehicle and the behaviors the animal expressesand changes of stress hormones, contradict animal welfare largely.

The common challenge in walking animals by foot often leads toaccidents such as injured, dead or stolen of animal's cases, which wereinvestigated who found that 7.6% of animals died,

6-9% got injured and 2.8% were stolen. Likewise, lameness and injuriessuch as swelling of legs commonly occur. Similarly, the above has also been proven a problem when animals are also transported by vehicle, indicating the problems which accompany a lack of rest, water andfeed.

In this regard animal welfare situation in Ethiopia has multidirectional problems that have not been dealt by the stakeholders andnot covered even by the present non-governmental organizationsworking with this issue. In Ethiopia, farm animals such as oxengenerally subjected to plough for long period without having rest andsupplied adequate feed and water. Pack animals such as horsesand donkey are forced to carry overload weight for long distanceswithout proper harnessing materials and inadequate feed and waterprovisions, despite their contributions is high in the daily activity ofthe owner directly or indirectly.



Pet animals such as dogs will be killed by poison inhumanly yearly for the sake of rabies control and prevention in most areas of the country. Sick animals will not be taken to clinics for treatment. The farm animals in most parts of the country are openly housed without appropriate shelter and are exposed for intensive direct sunlight and erratic summer rainfall. Animals will be forced to stay for long time in the market even for days without water and feed in harsh handling manner. However, a number of Veterinary schools and Animal science fields of study departments are graduating professionals yet the services in health care and keeping the welfare of animals is lagging behind the expectation.

2.2.1.2. Suggested solutions for animal welfare problems

1. Animal welfare regulation
2. Animal welfare education
3. Improving the health, management and welfare problems
4. Rabies control and dog ownership regulation
5. Population reduction in pets
6. Humane slaughter in abattoir
7. Humane euthanasia when required
8. Reforestation and environmental protection
9. A reliable animal rescue and long term



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

- 5. Write the problems of subsistence production in animal welfare? (5 points)
- 6. Write at least 5 suggested solutions for animal welfare problems? (5 points)

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

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____



Information Sheet-3	Handling Livestock calmly according to enterprise procedures.
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2.3. Handling Livestock calmly according to enterprise procedures.

An essential part of all livestock systems is the effective, safe and humane handling of animals. 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.

The term animal handling originates from when humans started to domesticate animals and handling of animals to some extent became a daily routine. Since then, many researchers and organizations have stated the importance of correct procedures for this. It has been shown that 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, milk production etc.)

Animal handling is an important subject since it affects not only animals' emotional states but also economics due to the fact that abusive handling can, or most likely will, result in lowered production. The handling of animals in developing countries has been a subject for critical discussion for a long time and is in need of further research.

Recent study indicated that stakeholders in Ethiopia handle animals in an aversive way, which has been shown to increase prevalence of death and injuries. By measuring behavioural or physiological conditions, animal handling can be explained to a higher



extent and a welfare concept implemented. When adult male cattle are mixed in lairage or during transport, they express higher levels of fighting behaviour which can be recorded and measured as a welfare indicator. Another established method for this is to use the fact that farm animals that are handled or transported remember previous situations where they have been exposed to aversive handling by stakeholders.

The larger the hesitance animals show, the greater the previous aversion must have been. The different behaviours that an animal expresses are good indicators of how the animal is coping with the situation.

If behaviours change, that is, an animal refuses to move, or an animal freezes or vocalises, it may indicate where in the situation there is a problem. Apart from behavioural measurements, physiological measurements are usually performed.

This involves measuring heart rate, body temperature, and hormonal changes. Furthermore, injuries on animals are shown to increase if a vehicle is poorly constructed or simply if they are hit by a handler.

The most common way of transporting animals in Africa is by foot since there is a great lack of vehicles with sufficient capacity. Walking animals by foot often leads to injured, dead or stolen animals, which were investigated.

Some factors that influence animal welfare during handling and transport are:

- (1) The attitudes of stakeholders and their driving skills,
- (2) Laws and codes of practice,
- (3) Genetic differences between breeds and different selection pressure,
- (4) The design of vehicle for transport and design of equipment used for loading, 5) the stocking density of animals and mixing of unfamiliar animals,
- (6) Payment of persons working with animals,
- (7) The actual physical condition such as temperature, humidity, and risk of disease transmission,
- (8) The methods used during handling, loading, and unloading.

**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(5 points)
2. What are the factors that influence animalwelfare during handling (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: _____



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:

14. Read the specific objectives of this Learning Guide.
15. Follow the instructions described below 3 to 6.
16. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3, Sheet 4 and 5.
17. Accomplish the “Self-check 1, Self-check t 2, Self-check 3 and Self-check 4” **in page -6, 9, 12 and 14** respectively.
18. 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.**
19. 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
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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
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

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

- 8. 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
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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 behavioural needs 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 analyzing and managing relevant risks to human, animal and plant life and 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 introduction and management of invasive alien species.

Thus biosecurity is a holistic concept of direct relevance to the sustainability of agriculture, and wide-ranging aspects of public health and protection of the environment, including biological diversity. The overarching goal of biosecurity is to prevent, control and/or manage risks to life and health as appropriate 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 to biosecurity 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

Principles of biosecurity:

- 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:** Quality of stock feed and water is fit for purpose, especially purchased feed that is free from contaminants, untreated swill and/or restricted animal material (i.e. feeds containing ruminant tissue cannot be fed to ruminants).
- 4) **Animal health management, surveillance and reporting:** Prevent and control animal disease by using appropriate vaccination programmes, regularly monitoring for disease and immediately reporting outbreaks of TADs.
- 5) **Public awareness:** All farmers, traders, agency staff and contractors, understand the importance of the biosecurity requirements for the village, enterprise or country in which they work and can implement the agreed practices for which they are responsible.

**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.
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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, AVS employees 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, milk production etc.).



Self-Check -1	Written Test
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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
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3.4.1. destroying of animals

Livestock owners and others who derive all or a portion of their livelihood from animal agriculture share a moral obligation to ensure the welfare of animals. Therefore, when disease or injury conditions arise that diminishes quality of life or creates pain and suffering that cannot be effectively relieved by medical means, euthanasia is indicated.

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.

When dealing with debilitated, injured, or disabled cattle the following actions may be taken: treatment, slaughter, or euthanasia. The decision-making process as to which action to consider should include the following criteria:

- The level of pain and distress of the animal
- The possibility of recovery
- The ability of the animal to get to food and water
- Medications used on the animal
- Drug withdrawal times
- The economics of the circumstances
- The potential for condemnation
- Diagnostic information



If euthanasia is considered to be the appropriate alternative, the following factors should be given careful thought when choosing an appropriate method:

□ **Human safety:** This is always

the first consideration in the choice of euthanasia. The use of a firearm or even a captive bolt gun may be dangerous to humans. The use of an anesthetic over-dose may produce a calm animal being euthanized quietly and easily.

□ **Animal**

welfare: The method of euthanasia chosen should produce a rapid and painless death.

However, certain environments and animal behavior may prevent the use of a more desirable

technique. The technique chosen should be the method that is safest for both humans and animals alike.

□ **Skill:** The use of a firearm or the use of a captive bolt will require skill and training to assure correct use and minimize danger to others. The person using a firearm must understand the

potential for ricochet. Designated individuals should be appropriately trained in proper euthanasia techniques wherever livestock are housed.

□ **Aesthetics:** Some methods of euthanasia appear more tolerable to observers than others. Some techniques result in involuntary motor activity of the animal, which could be misinterpreted as a painful response to observers inexperienced in bovine euthanasia. This could result in great emotional distress to those observing the procedure.

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
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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
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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 increase
- Change in water availability (may increase or decrease, according to region)



Self-Check -1	Written Test
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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: _____



INSTRUCTION SHEET	Learning Guide27 #
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This learning guide is developed to equip you with the necessary information regarding the following content coverage and topics

- Observing and interpreting animal and its body language.
- Identifying and documenting temperament, trait, health and wellbeing of animals.
- Assessing physical and social environment of animal.
- Determining **behaviour** of animals.
- seeking of assistance from supervisors and/or peers
- Following organizational policies, procedures and legislative requirements

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:**

- Observe and interpret animal and its body language.
- Identify and document temperament, trait, health and wellbeing of animals.
- Assess physical and social environment of animal.
- Determine **behaviour** of animals.
- seek of assistance from supervisors and/or peers
- Follow organizational policies, procedures and legislative requirements

Learning Instructions:

20. Read the specific objectives of this Learning Guide.
21. Follow the instructions described below 3 to 6.
22. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3 and Sheet 4, sheet 5 and sheet 6.”
23. Accomplish the “Self-check 1, Self-check t 2, Self-check 3, Self-check 4, self-check 5 and self-check 6”. **In page -6, 11, 13, 16, 17 and 20**” respectively.
24. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet
25. Do the “LAP test” (if you are ready).

**Information Sheet-1**

Observe and interpret animal and its body language.

Body language is an expression of the whole animal: how it holds itself, moves about and interacts with its surroundings. An animal may for example behave in a way that appears calm, nervous, tense, relaxed or distressed. Transfer of information between animals through any of the senses.

Animals meet with others in various ways; through reproduction and the raising of the young, in defining and observing rank, through defending territory, and mutual warnings against dangers and enemies. All this and much more depends on an animal understanding the moods and intentions of others of its kind, on adapting its own behavior to these cues, and influencing the behavior of others in turn.

Since animals, unlike humans, have no words to communicate with each other they use signs of all kinds. This nonverbal communication plays an important role for us humans, too, both as a complement to and a precursor, which means one that precedes and indicates, suggests, or announces someone or something to come, of language.

Most of the signs of "animal's language" are transitory (existing or lasting only a short time; short-lived or temporary), with facial expressions, gestures, and sounds.

Many animals also leave more permanent signs that others of their kind recognize and understand even when the animal leaving the sign is no longer there. Signs are meaningless if those they are intended for fail to perceive them, observe them, or understand them. Giving and interpreting signals is innate (possessed at birth; inborn), in all animals, including humans. Mammals, even if they spend most of the year without contact with others of their kind, still have to meet and understand one another during mating. The encounters with rivals and the subsequent rearing of their young make body language very important.



Cats Facial Expressions and Gestures

The cat has muscles in its face that gives it great mobility in moving the nose, lips, cheeks, ears, and forehead, the rapid dilation and narrowing of the pupils, and whiskers that often accentuate, (to stress or emphasize), the muscle movements around the muzzle. These all combine to create a wide variety of expressions.

When cats use these muscles to position their heads, bodies, and limbs, including the tail, to carry a message or to give a signal, these movements are then called gestures.

Some common gestures of cats are:

Threat of attack:

The ears are turned so that their backs are visible from the front; the head is held sideways and slowly sways from side to side at every step; and the eyes are glued on the enemy. When the head is stretched forward this indicates a readiness for contact.

Yawning:

Yawning is not as contagious in cats as it is in humans. Seeing another cat yawn does not make a cat sleepy. Instead, yawning is more of a sign of reassurance, expressing something as "I'm feeling peaceful, and I hope that you are too."

Body: If the body is stretched, the cat feels sure of itself or is prepared to attack. A contracted body or a back arched in typical cat fashion indicated fear and readiness for defense.

Legs: Legs that are stretched to their full length are a sign of self-confidence and even of readiness to attack. Bent hind legs, on the other hand, indicate uncertainty or even being timid.

Tail: The motion of the tail if moving quickly and jerkily from side to side shows high excitement. A still raised tail is a friendly greeting and an invitation to sniff. If the tail whips up suddenly this is a threat of attack.



Communication is when one animal transmits information to another animal causing some kind of change in the animal that gets the information.

Communication is usually between animals of a single species, but it can also happen between two animals of different species.

- Signaling between one animal & another
 - Greeting e.g. sniff, hug, kiss
 - Aggression e.g. charge, bite, hit, fight
 - Non-aggression e.g. patting, head butting, stroking
- Verbal signaling (vocalization)
 - E.g. bark, howl, hoot, chirp
- Non-verbal signaling
 - E.g. body, head, ear, & / or tail position
 - Showing teeth, smiling, sign language

Animals communicate using **signals**, which can include visual; auditory, or sound-based; chemical, involving **pheromones**; or tactile, touch-based, cues.

Below are some common types of signals:

- Pheromones—chemicals
- Auditory cues—sounds
- Visual cues
- Tactile cues—touch

Dogs: dogs also use body language that consists of a wide range of body and tail postures combined with various facial expressions. Eye contact is an important part of a dog's body language. A dog uses a direct stare as a threat or a challenge. On the other hand, a dog will break eye contact as a sign of surrender to a more dominant dog.

A good understanding of dog behavior and communication can help most people avoid dog bites. Most dogs treat their human owners as the boss. One way a dog shows you that you are the boss is by lying down with its ears back, it may whine, and its tail may wag.



If the dog also has its ears up, its mouth open, and its lips pulled back, watch out! It's ANGRY. If a dog's tail is between its legs, with its ears pulled back, and body low, that dog is probably scared. Be careful. It may be so scared that it's ready to bite!

Auditory signals

Auditory communication—communication based on sound—is widely used in the animal kingdom. Auditory communication is particularly important in birds, who use sounds to convey warnings, attract mates, defend territories, and coordinate group behaviors. Some birds also produce birdsong, vocalizations that are relatively long and melodic and tend to be similar among the members of a species.

Monkeys cry out a warning when a predator is near, giving the other members of the troop a chance to escape. Vervet monkeys even have different calls to indicate different predators. Bullfrogs croak to attract female frogs as mates. In some frog species, the sounds can be heard up to a mile away. Gibbons use calls to mark their territory, keeping potential competitors away. A paired male and female, and even their offspring, may make the calls together.

Water, like air, can carry sound waves, and marine animals also use sound to communicate. Dolphins, for instance, produce various noises—including whistles, chirps, and clicks—and arrange them in complex patterns. The idea that this might represent a form of language is intriguing but controversial.

Visual signals

Visual communication involves signals that can be seen. Examples of these signals include gestures, facial expressions, body postures, and coloration.

Gesture and posture are widely used visual signals. For instance, chimpanzees communicate a threat by raising their arms, slapping the ground, or staring directly at another chimpanzee. Gestures and postures are commonly used in mating rituals and may place other signals—such as bright coloring—on display.

Facial expressions are also used to convey information in some species. For instance, what is known as the fear grin—shown on the face of the young chimpanzee below—signals submission. This expression is used by young chimpanzees when approaching a dominant male in their troop to indicate they accept the male's dominance.



Changes in coloration also serve as visual signals. For instance, in some species of monkeys, the skin around a female's reproductive organs becomes brightly colored when the female is in the fertile stage of her reproductive cycle. The color change signals that the female can be approached by suitors. An organism's general coloration—rather than a change in color—may also act as a visual signal. For instance, the bright coloration of some toxic species, such as the poison dart frog, acts as a do not-eat warning signal to predators.

Sheep:

Sheep vision is a dominant source of information about the social environment. .

Sheep are also responsive to the vocal sounds produced by other animals.

The vocalization in lambs is high.

During water deprivation, the incidence of “baaing” is correlated positively with the number of hours since water was removed.

The lamb will also vocalize, on occasion, if frightened or injured.

Olfactory and gustatory events function as cues for sheep,

Females adopt the young of other through transfer of odor. Smearing the Calf/Lamb with Amniotic Fluid



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

- 2. Define communication in animal? (5points)
- 3. Write one common gesture of cats? (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-2

Identify and document temperament, trait, health and wellbeing of animals

Temperament is assumed to be multidimensional, and due to the complexity of behavioural traits there is no single objective measurement that is able to capture all behavioural characteristics. Furthermore, it is discussed that the asking of unfavourable behavioural traits like nervousness, flightiness or excitability by adaption to the human-created environment of livestock production hinders the selection for behavioural traits like temperament. One possibility for over-coming these problems is the analysis of the genetic back-ground of cattle behaviour, which could contribute to the successful integration of temperament in breeding programs by the use of temperament associated markers (marker-assisted selection or genomic selection) and further help to evaluate the correlation between temperament and performance.

Temperament: a person's or animal's nature, especially as it permanently affects their behaviour. The characteristic phenomena of an individual's emotional nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, the quality of his prevailing mood, and all peculiarities of fluctuation and intensity of mood; these phenomena being regarded as dependent on constitutional makeup and therefore largely hereditary in origin.

As a consequence of the adaption and selection for different production and housing systems, a large variability in temperament exists today in farm animals, resulting from differences in reactions towards human contact and new surroundings. Fear is considered one of the main psychological factors underlying temperament traits in general, and in particular, fear of humans affects the human-animal relationship considerably. Just as the production system promotes certain behavioural characteristics, animal-specific temperament can likewise affect relevant parameters in livestock production.



A breeding goal should include the following aspects: increased income (higher production of milk/beef); reduced costs (better fertility, fewer diseases, reduced culling rates); ease of management (temperament, milking speed); and advantages regarding the sale of products (animal welfare, ethics, consumer concerns). Complex breeding goals also require information on a wide range of relevant traits that can be measured economically.

A character (or trait) can be considered as a characteristic of an organism shared by all or some of the individuals of a species that can vary, although not necessarily, among these individuals (we consider character and trait as synonyms; see Wagner, 2001, on the diversity of the character concept). Measured individual values for that character are called phenotypes.

We divide temperament traits into five categories:

1. Shyness-boldness- an individual's reaction to any risky situation, but not new situations such as predators and humans.
2. Exploration-avoidance, an individual's reaction to a new situation. This includes behaviour towards a new habitat, new food, or novel objects
3. Activity, the general level of activity of an individual- Activity can interfere with the measurement of exploration or of boldness; it has thus been proposed to obtain a measure of activity in a non-risky and a non-novel environment.

Last two trait categories are expressed in a social context;

4. Aggressiveness, an individual's agonistic reaction towards conspecifics;
5. Sociability, an individual's reaction to the presence or absence of conspecifics (excluding aggressive behaviour).

Animal wellbeing: An animal's present state with regard to its relationship with all aspects of its environment, both internal and external. It implies a positive mental state, successful biological function, positive experiences and freedom from adverse conditions. Animal wellbeing relates to evidence of how an animal is coping with a given situation and a judgment as to how the animal feels in these circumstances.



Assessment of wellbeing involves using a combination of behavioural and physiological measures that indicate: the animal's health status• evidence of species-specific behaviours• the status of the key indicators of the physiological and behavioural responses to a stress. Animal behaviour is an important indicator of how an animal is interacting with its environment: changes in patterns of behaviour are often the first pointer as to how an animal is responding to and coping with change. Animal behaviour can be assessed by observation and during interactions with the researcher or animal carer.

The essential animal wellbeing issues to consider

- ✓ Using food and water as rewards after restriction:

Controlling the delivery of food or fluids can influence the behaviour of a wide variety of animals. Food or fluid can be used as a reward, even in well-fed (satiated) animals. Food or water restriction is usually achieved by limiting the daily quantity available to the animal, or limiting the animal's daily period of access. This will cause the animal to experience hunger and thirst. If the restriction is prolonged, the animal may become dehydrated or lose bodyweight.

- ✓ using aversive stimuli or punishment to motivate behaviour:

Aversive stimuli or punishment cause animals to experience fear, distress, anxiety or pain. The basic behavioural and physiological (fear and stress) responses are minimized if the animal is able to control the aversive stimulus. Situations in which animals cannot influence or control the aversive experience are particularly distressing to them. Fear and stress behavioural responses include:

- escape (eg stopping contact with an aversive stimulus, such as an electrified cage floor)
- avoidance (a learnt behaviour that prevents an aversive encounter, such as not stepping on an electrified floor, or pressing a lever that turns off the electric shock)
- decreases in grooming, food intake, level of activity, exploration, sexual activity, mothering behaviour and loss of bodyweight
- Increases in 'freezing' behaviour. These response behaviours are species typical or 'hard wired', but the aversive stimuli that evoke them are



learned. Severe negative or aversive sensory stimuli must not be used, and painful or noxious stimuli should be avoided. If their use is necessary, the level and duration of the stimulus must be minimized, and escape from the stimulus must be available.

✓ Social behaviour:

Social grouping has both potential beneficial and adverse behavioural and physiological effects:

- The positive effects of social grouping include grooming and parenting, social attachment (bonding), and promotion of infant development. Stimulating the brain with sensory inputs affects the growth and interconnectedness of the brain, thereby affecting function. Social deprivation can result in stunted growth
- Negative effects include aggression, fighting, and immunological and cardiovascular changes and depression induced by social stress. In many cases, the negative effects on subordinate animals in social-dominance hierarchies subside over time. However, if food or water is restricted, subordinate animals may continue to be adversely affected.

**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 five categories traits in animal? (5 points)
2. Write the essential animal wellbeing issues to consider? (5 points)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____



Information Sheet-3

Assess physical and social environment of animal.

Physical environment:

Microenvironment and Macroenvironment

The *microenvironment* of an animal is the physical environment immediately surrounding it—the primary enclosure with its own temperature, humidity, and gaseous and particulate composition of the air. The physical environment of the secondary enclosure—such as a room, a barn, or an outdoor habitat—constitutes the *macroenvironment*

Housing:

Primary enclosures- Acceptable primary enclosures may include:

- ✓ Allow for the normal physiologic and behavioral needs of the animals, including urination and defecation, maintenance of body temperature, normal movement and postural adjustments, and, where indicated, reproduction.
- ✓ Allow adequate ventilation.
- ✓ Allow the animal's access to food and water and permit easy filling, refilling, changing, servicing, and cleaning of food and water utensils.

Housing Systems should have special caging and ventilation equipment, including filter-top cages, ventilated cages, isolators, and cubicles in order to minimize the spread of airborne disease agents between cages or groups of cages. They often require different husbandry practices, such as alterations in the frequency of bedding change, the use of aseptic handling techniques, and specialized cleaning, disinfecting, or sterilization regimens to prevent microbial transmission by other than the airborne route.

Ventilation

The purposes of ventilation are to supply adequate oxygen; remove thermal loads caused by animal respiration, lights, and equipment; dilute gaseous and particulate contaminants; adjust the moisture content of room air.



Social Environment:

Consideration should be given to an animal's social needs. The social environment usually involves physical contact and communication among members of the same species (conspecifics), although it can include noncontact communication among individuals through visual, auditory, and olfactory signals. When it is appropriate and compatible with the protocol, social animals should be housed in physical contact with conspecifics. For example, grouping of social primates or canids is often beneficial to them if groups comprise compatible individuals.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are purposes of ventilation in animal? (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-4

Determine behavior of animals.

Behavior: is anything an animal does involving action and/or a response to a stimulus. Blinking, eating, walking, flying, vocalizing and huddling are all examples of behaviors.

Normal behavior is the way an animal's acts in its natural environment. Enough space, proper shelter and housing, as well as company of the animals own kind, allows and encourages the expression of normal behaviours. It is also that expected of physically and psychologically health animals. Changes in behavior and the presence/absence of particular behaviours can provide a valuable indication of the animal's welfare. Conflict is a natural or normal part of the behavior of many social animals.

Primates should be housed in stable groups of suitable size and composition to allow the full expression of these behaviours. Self-grooming is a normal behaviour, but over-grooming (which has been linked to tension and anxiety) can result in hair loss and skin sores. Primates should display self-grooming, feeding and drinking behaviours relevant to the species concerned. Primates should display physical activities relevant to the species concerned.

These include:

Walking, running, climbing, turning, reaching, stretching, bending, pushing, pulling, swinging, jumping. It is important that animals are given the opportunity to be able to express their natural behaviors. If an animal is not able to express their natural behaviors, they may suffer emotionally and physically.

For instance, dust bathing is a natural behavior performed by chickens several times per day. It occurs when a chicken finds a dirt patch and digs themselves into it, covering their entire bodies with dirt. Similarly, chattering, the act of making a chirping sound at birds, is a completely normal behavior in cat but it would be considered an odd behavior if a horse was found chattering at birds!



Abnormal behaviour in animals- can be defined in several ways. Statistically, abnormal is when the occurrence, frequency or intensity of a behaviour varies statistically significantly, either more or less, from the normal value. Less formally, 'abnormal' includes any activity judged to be outside the normal behaviour pattern for animals of that particular class or age.

For example, infanticide may be a normal behaviour and regularly observed in one species, however, in another species it might be normal but becomes 'abnormal' if it reaches a high frequency.

Fear and aggression:

The animal is afraid or displays an aggressive response during handling. Fear responses can lead to unpredictable actions in equids such as shying, leaping away, bolting, etc. which can be dangerous for the animal as well as the handler and/or bystanders. It is therefore important for animal welfare and human safety that signs of fear are recognized by those handling equids, and handling adjusted accordingly.

Fearful and aggressive behaviours will often provoke a negative human reaction as owners become angry or afraid. Fear or aggression responses indicate the animal is becoming stressed. Chronic stress leads to immunosuppression, which can make it more difficult for the animal to fight disease, making illness more severe or longer lasting.

**Self-Check -1****Written Test**

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

1. Define behaviour in animal? (5points)
2. What is the difference between normal and abnormal behaviours? (5points)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____



Information Sheet-5	seek of assistance from supervisors and/or peers
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Assist with work demands, including clear work goals, Provide all workers with adequate information, Provide workers with training and development opportunities, Conduct performance reviews and include constructive feedback, Provide additional assistance when workers are undertaking challenging tasks, such as new duties or roles, Where possible, ensure adequate backfilling of roles or redistribution of work when workers are out of the office or away on leave.

Provide and promote an employee assistance service that responds to individual issues or concerns, both work and non-work related. Assist workers to come up with practical solutions for any task-related issues that arise.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the objective of seeking assistance supervisor? (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-6	Follow organizational policies, procedures and legislative requirements.
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A policy is a course of action or guidelines to be followed whereas a procedure is the 'nitty gritty' of the policy, outlining what has to be done to implement the policy.

All organizations should have written policy and procedures, and staff training in the following areas:

- a confidentiality policy
- a clearly defined process for identifying and regularly updating a Community Resource Index so that all workers are aware of what other services are available to refer to (the index contains basis contact details and information about what each service provides)
- processes for networking with other agencies, including attending relevant interagencies (meetings of local service providers)
- guidelines for case conferencing (this will be discussed in more detail a bit later)
- referral protocols, including how referrals should be made, the kind of information that can be shared with other services and any ongoing roles and responsibilities of each service with regard to the client
- A policy for how long client information is kept after clients are no longer involved with the service. For example, different government departments produce documents that outline legal requirements for their staff in relation to storing and maintaining information.

Policies and procedures are an essential part of any organization. Together, policies and procedures provide a roadmap for day-to-day operations. They ensure compliance with laws and regulations, give guidance for decision-making, and streamline internal processes. Following policies and procedures is good for employees and your organization as a whole.



The Importance of Following Policies and Procedures:

As your organization's leaders create and enforce policies, it's important to make sure your staff understands why following policies and procedures is critical.

Here are just a few of the positive outcomes of following policies and procedures:

Consistent processes and structures

Policies and procedures keep operations from devolving into complete chaos.

When everyone is following policies and procedures, your organization can run smoothly. Management structures and teams operate as they're meant to. And mistakes and hiccups in processes can be quickly identified and addressed.

When your staff is following policies and procedures, your organization will use time and resources more efficiently. You'll be able to grow and achieve your goals as an organization.

Consistency in practices is also right for employees individually. They know what they're responsible for, what's expected of them, and what they can expect from their supervisors and co-workers. This frees them up to do their jobs with confidence and excellence.

Better quality service

When employees follow procedures, they perform tasks correctly and provide consistent customer service.

A safer workplace

When your staff is following policies and procedures, workplace accidents and incidents are less likely to occur



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are The Importance of Following Policies and Procedures? (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: _____



INSTRUCTION SHEET	Learning Guide #28
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This learning guide is developed to equip you with the necessary information regarding the following content coverage and topics

- Assessing of **risks or hazards** to the public, self, bystanders and the target animal.
- Offering **constructive solutions** about animal behaviour to owner
- Offering owners **referral to specialists**
- Taking statutory response to animal behaviour.
- Seeking of assistance from supervisors and/or peers
- Following organisational policies, procedures and legislative requirements

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:**

- Assess of **risks or hazards** to the public, self, bystanders and the target animal.
- Offer **constructive solutions** about animal behaviour to owner
- Offer owners **Referral to specialists**
- Take statutory response to animal behaviour.
- Seek of assistance from supervisors and/or peers
- Follow organisational policies, procedures and legislative requirements

Learning Instructions:

26. Read the specific objectives of this Learning Guide.
27. Follow the instructions described below 3 to 6.
28. Read the information written in the information “Sheet 1, Sheet 2, and Sheet 3.
29. Accomplish the “Self-check 1, Self-check t 2, and Self-check 3 in page -3, 7, and 13 respectively.



30. 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.**

31. Do the “LAP test” **in page – 16** (if you are ready).



Information Sheet-1	Assessing of risks or hazards to the public, self, bystanders and the target animal.
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1.1 Definition of risks and hazards

- **Risk:** Risk is the significance of the hazard in terms of likelihood and severity of any possible injury. ***Include any occurrence which results in personal injury, disease or death, or property damage*** It is a measure of the likelihood of a consequence from working with a certain hazard
- **A hazard:** A hazard is anything that has the potential to harm the health or safety of a person and/or an animal. It is the inherent danger involved in working with a particular animal, material, equipment, process, procedure or system
- **Hazardous Substances:** Any substance that has the potential to harm the health of persons in the workplace and includes chemicals scheduled under the Poisons Act, chemicals classified under the Dangerous Goods Act (1975) or Hazardous Wastes.
- **Hazards involved in working with animals and animal projects:** 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.
- **Risks involved in working with animals:** range from a low to high potential of injury or illness from the identified hazards.

Note-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.

1.2 Types of risks and hazards related to animal behavior

Physical Hazards- Bites, sprains, scratches, sharps, lasers, machinery, slips, falls

Chemical Hazards- Burns, skin irritations, inhalation, ingestion

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, bloodborne pathogens



Zoonosis- Human diseases acquired from animals or vice versa. It diseases communicable from animals to humans are called zoonosis. In many cases the animals show little, if any, sign of illness. A bacterium in the normal flora of a healthy animal may cause a serious disorder in a person exposed to it. While the animals have developed “resistance” to these microorganisms, humans with no previous exposure to the agent lack this protective immunity. Therefore, one should always be aware of possible consequences when working with each type of animal and then take precautions to minimize the risk of infection. Zoonosis can be acquired through various routes of infection, including contact with animal products, the animal itself, or a byproduct of the animal. The routes of infection include ingestion, inhalation, and penetration of broken or unbroken skin, wound penetration, and contact with the mucous membranes of the eyes, nose, and mouth via the following:

- Animal bites and scratches;
- Contact with animal tissues and cultures, body fluids, and excreta;
- Inanimate objects that are contaminated by the animal or animal contact; and
- Exposure to aerosols produced as a result of activities such as cleaning cages.

Individuals whose work involves substantial exposure to or handling of animals and animal tissues, body fluids, and cell cultures should be aware of the possibility of the illnesses that may be transmitted by contact with animals. In the zoonosis training module, at-risk individuals are informed of laboratory-acquired zoonosis, causative microorganisms, animals most commonly in contact with humans, appropriate animal handling procedures, personal hygiene, and protective equipment specific to the animal type and use.

1.3 Assessing of *risks or hazards*

Risks or hazards must to be assessed include:-

- Assessment of breed/type potential to cause harm or difficulty
- Circumstances prevailing
- Degree of animal restraint and confinement
- Level of own experience, confidence and capability



- Level of owner/handler cooperation, competence and control
Obvious signs of the animal's abnormal health and condition.

This form is completed for the purpose of conducting an occupational health risk assessment for the participant. This form will be used in conjunction with the Health Assessment Questionnaire to evaluate for appropriate medical surveillance.

Completion of this form for each individual involved in our animal care and use program is required by the principal investigator, supervisor, or department chair in order to aid in determining appropriate training courses and necessary health precautions to minimize the potential for animal-related health risks to NDSU employees and students assigned to animal facilities and projects. This form needs to be completed only one time for each individual under their supervision unless one or more of the following has changed: the duration of animal exposure, the type of activity, the type of animal and/or a change in the individuals, health status.

1.4 Assessment **Work-Related Health/Safety Issues**

All Animals to be encountered according to the following designations:

Level 0 No animal contact

Level 1 No direct contact, but enters animal facility

Level 2 Does not conduct procedures on live animals but handles “unfixed” animal tissues and fluids

Level 3 Handles, restrains, collection of specimens or administers substances to live animals.

Level 4 Performs invasive procedures such as surgery, necropsy

_____Amphibian

_____Birds

_____Cat

_____Camelid

_____Cattle

_____Dog

_____Horse



_____ Swine

_____ Rat

Will work involve direct contact with any of the following?

1. Biological Agents

a. Recombinant DNA Yes _____ No _____

b. Infectious Agents Yes _____ No _____

2. Human Blood, Tissues, or Cells Yes _____ No _____

3. Physical Agents

a. Caustic, Flammables or cryoagents Yes _____ No _____

b. Noise Yes _____ No _____

c. Radiation Yes _____ No _____

d. Radioisotopes Yes _____ No _____

e. Extreme environmental conditions Yes _____ No _____

f. Lasers Yes _____ No _____

4. Chemical Agents

a. Anesthetic gases- Yes _____ No _____

b. Drugs/Chemotherapeutic agents Yes _____ No _____

c. Heavy metals Yes _____ No _____

PI/Supervisor's determination of special preventative measures or actions to be taken for this individual's animal-related work.

1. Training courses

_____ Baseline Safety Training

_____ IACUC Training

_____ Occupational Health & Safety Program

_____ Chemical/Lab Safety Training

_____ Radiation Safety Training

_____ Laser Safety Training

_____ Exposure Control Plan

_____ Chemical Hygiene

_____ Other Protocol Specific Procedures



2. Health Assessment, immunizations/vaccinations
3. Personal protective equipment like gloves, clothing, respirators, etc.
4. Avoiding contact with certain species, etc.

Hazard and Risk Assessment (Appendix C)

- identifies hazardous biological, chemical, or physical agents
- identifies potential hazards that are inherent to animal work, such as animal bites, chemical cleaning agents, allergens, or zoonosis
- Assesses extent and level of participation in occupational health and safety training program on the hazards posed by the animals and materials used; the exposure intensity, duration, or frequency; the susceptibility of the personnel; and the history of occupational illness or injury in the particular workplace
- PI or supervisor completes the Hazard and Risk Assessment for those who have substantial contact with animals, provides a copy to the individuals and sends copy to the Safety Office

1.5 Assessment of risk based on risk ranks

This model animal risk assessment summary is for risk ranks of animal-related activities for immune-competent adult humans. Risk ranks are based on both the likelihood of an incident and the seriousness of the possible abnormal condition. Risk levels for experimental agents are not included in the chart, and use of experimental hazardous agents requires review and approval of the appropriate safety committee.



Risk of	Bite wound (a)	Scratch wound (a)	Microbial flora exposure (b)	Allergy development
Chick embryo	1	1	2	1
Fish	1	1	2	1
Reptiles	3	1	2	1
Amphibians	1	2	2	1
Mouse	2	2	1	3
Rat	3	2	1	3
Hamster	3	2	1	2
Guinea Pig	2	2	1	3
Rabbit	2	3	1	3
Cat	3	3	3	3
Dog	3	2	2	2
Sheep, Goat	1	2	3	2
Pig	2	1	3	2
Wild mammals & birds	4 (if handled)	4 (if handled)	3	2
Cattle	1	1	3	2
Bison	1	1	3	2
Horse	1	1	1	1

Key: 1 = No known risk

2 = Minor risk

3 = Moderate risk

4 = Significant risk

5 = High risk

a = Potential microbial contamination and physical trauma are both included. Tetanus prophylaxis required for all staff members.

b = Risk of inhalant, ocular, or oral exposure to microbial or parasitic agents from animals acquired through institutionally approved vendors.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Risks and hazards (5 points)
- 2.
3. What do we mean by zoonotic diseases?(4 points)

4. What are criteria must involved in assessing risks and hazards?((5 points)

Note: Satisfactory rating – 7 points Unsatisfactory - below 7 points

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____



Information sheet-2	Offering <i>constructive solutions</i> about animal behaviour to owner
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2.1 Providing **information related to behavioral change of animals for owner** Constructive solutions needed to be offered include;-

- Looking at the owner-animal-environment triangle of effect in the expression of problem animal behaviour and offering remedial advice
- Considering different methods of handling and dealing with animals displaying specific behavioral traits (e.g. Nervous or timid)
- Endeavoring to remedy the causes as well as the problem animal behaviour for wandering animals the constructive solution May include, but not limited to:
 - restoring animal to correct owner property
 - capture and impoundment
 - offering advice regarding more adequate fencing
 - providing advice regarding: a more enriched environment
 - Improving obedience and responsiveness using positive and negative reinforcement training.
 - Further information follows regarding physical hazards and ways to minimize the risk of injury from physical hazards should be provided.

2.2 Handling different species of animals by restraining

Purposes:

- To understand the normal behaviour of the various animal species
- To determine which restraint technique to use
- To recognize behavioral differences among species for restraint
- To work safely with animals through understanding behavioral aspects of various spp.

Positional terminology:



- i. Recumbent: refers to lying down or back
- ii. Lateral: refers to the side
- iii. Dorsal: refers to the back (spine side)
- iv. Sternal: refers to the underside (sternum or abdomen)

Basic Animal Species Behaviour Related to Handling and Manipulations

The flight zone is an animal's "personal space".

The size of the flight zone varies with the tameness of the animal, and other animal-related factors. Completely tame animals have little or no flight zone and a person can touch them.

An animal will begin to move away when the person enters the edge of the flight zone.

When the person is outside the flight zone, an animal (or group of animals in a herd) will turn and face the person while maintaining a safe distance.

When an animal is:

- apprehensive (e.g., about being picked up),
- aggressive (e.g., about to attack), or
- defensive (e.g., protecting itself, or its young in the case of a mother), its posture and other behavioral signs can give clues about its state and possible intentions.

In many mammalian species the "*warning*" postures includes

- *lowered head, ears down or back, and*
- in the smaller animals, *mouth opens* in a snarl.

By carefully observing the animal's behaviour while approaching it, injuries such as bites and scratches can be avoided.



Your voice, your touch, your smell, are all part of an animal's knowledge about you. To establish a two-way familiarity before a project starts, the people who will be handling or restraining the animals should talk to, touch, and regularly handle each animal.

Consistency in handling each animal is important. Most animals handled very quickly by those who are their regular handlers or caretakers and accept the handling without undue stress.

Different species defend themselves in different ways: For example,

- a mouse, rat, hamster or dog may bite,
- a rabbit may struggle furiously and kick or sometimes bite to try and escape,
- a cat may scratch (with intent!) or bite;
- a camel or horse may kick or bite;
- a cattle may kick or hit.

The approach to restraining the animal, including any equipment used for restraint,

- is to prevent the animal from taking such action while ensuring it is safely and humanely held.

Although the correct approach to handling and restraint can be understood from printed and audio-visual materials, practice is essential.

Appropriate handling and restraint methods have been developed for most animal species.

Skills in the appropriate handling and restraint methods should be attained BEFORE procedure starts.

In most cases, injuries to humans occur because someone did something unwise, became complacent while working on the animal, or did not know how to read the animal's body language.



Safe and effective animal handling requires a thorough understanding of the normal behavior and responses of each species.

Below are some general information on species-specific animal behavior and handling techniques.

There is no substitute, however, for careful observation and experience.



Self-Check -2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are constructive solutions required to solve animal behaviour related risks and hazards?(5 points)

2. What are importance of restraining?((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-3	Offering owners <i>Referral to specialists</i>
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All known human exposure to a zoonotic disease is considered an incident and must be immediately reported by the individual to their supervisor or principal investigator for appropriate medical treatment and investigation.

If a zoonotic disease is suspected in an animal, the principal investigator or supervisor and the

NDSU Attending Veterinarian shall be notified immediately for appropriate action. **Allergens.** Approximately 20% of people who work with animals have animal allergies. Animal allergies may be present before an individual begins formal work with animals, or the allergy may develop during the course of the individual's work with animals. Animal hair, fur, skin, dander, urine, saliva, scratches, etc., can cause or aggravate allergies to animals. Animal contact can bring personnel into contact with infectious agents, either from the animal itself or from agents introduced for the research project. Physical hazards associated with animal contact including animal bites, scratches, and kicks; noise; waste; and physical methods of euthanasia.



Self-Check -3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is your solution if you observe some one exposed to hazard related to animal behaviour?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-4

Taking statutory response to animal behaviour

Statutory response in animal welfare include:-detail procedural requirements and explain timelines for outcomes; issue caution or infringement notice; recommend action plan ; and seize animal.

The following elements and examples are essential components of statutory responses and action plans to reduce animal behavior related behaviour:

Personnel Training

- Training will provide personnel with clear definitions and descriptions of their duties and the hazards associated with those duties (such as zoonosis, chemical hazards, physical hazards like radiation and allergies, handling waste materials)
- Training will provide personnel with information about levels of risk associated with working with animals and personal health conditions (**e.g., special precautions to avoid hazards for pregnant women or persons with chronic diseases, etc.**)

- Make certain that personnel are proficient in implementing safety precautions
- Departments are responsible for maintaining their department specific training records

Hazard and Risk Assessment

- identifies hazardous biological, chemical, or physical agents
- identifies potential hazards that are inherent to animal work, such as animal bites, chemical cleaning agents, allergens, or zoonosis
- Assesses extent and level of participation in occupational health and safety training program on the hazards posed by the animals and materials used; the exposure intensity, duration, or frequency; the susceptibility of the personnel; and the history of occupational illness or injury in the particular workplace
- PI or supervisor completes the Hazard and Risk Assessment for those who have substantial contact with animals, provides a copy to the individuals and sends copy to the Safety Office

Personal Hygiene

- Set high standards for personnel cleanliness and hygiene



- Require suitable clothing, gloves, masks, head covers, coats, coveralls, shoe covers, etc.
- Require hand-washing and changing clothes where necessary
- Make certain that all laboratory personnel, including service and custodial staff and visitors, understand the chemical and biological dangers associated with the lab or facility
- Affix biohazard signs on doors outside laboratories where biohazardous material is handled or stored (available from the University Police and Safety Office). The protocol to be followed in case of a spill of the biohazardous materials should be posted in a visible location in the laboratory or facility
- Restrict laboratory or facility access and keep doors locked when unattended**
- Keep the facility clean and free of clutter. Make certain that emergency safety devices (fire extinguishers, eye washes, etc.) are easily accessible and in working order
- Make certain that all personnel, students and visitors wear protective clothing such as lab coats, gloves and safety glasses. Remove lab coats or gowns before leaving the laboratory or facility
- Do not eat, drink, smoke, store food and food utensils, apply cosmetics or lip balm, or insert or remove contact lenses while in the facility or laboratory
- Restrain long hair. Avoid wearing loose clothing or jewelry, shorts, open-toed shoes or sandals.
- Carry out procedures so as to minimize risks of splashes, spills, and generation of aerosols
- Pipetting by mouth is not allowed
- Use hypodermic needles only when absolutely necessary. Do not bend, break, shear or recap used needles. Use the appropriate sharps containers
- Use a two-person team to inoculate animals when appropriate
- Wash hands after handling infectious material and before leaving the laboratory
- Decontaminate all contaminated materials before disposal or reuse
- Decontaminate laboratory surfaces following any spill of biohazardous materials and at the end of each workday.



Report all spills, accidents, and incidents immediately (as required by the NDSU Safety and Risk Management Program 24 hour reporting requirement)

Facilities, Procedures, and Monitoring

- Maintain cleanliness of facilities and supplies
- Consider ergonomics and request for assessments
- Inspect, maintain, and repair equipment
- Dispose of contaminated bedding properly

Animal Experimentation involving Hazards

- PI's, departments and supervisors must maintain up-to-date written policies governing experimentation with hazardous biological, chemical, physical agents
- Individuals must use recommended practices and procedures, and facility requirements for working with hazardous biological agents and materials
- Individuals must use special facilities and safety equipment as recommended
- Individuals must dispose of hazardous or contaminated waste properly

Personal Protection

- Obtain required clothing, shoes, shoe covers, gloves, arm protectors, masks, face shields, hearing protection, respirators, etc. from your supervisors

Medical Evaluation and Preventive Medicine for Personnel:

- Comply with required medical evaluations for high risk positions and those with substantial contact with animals
- Comply with required immunizations, and vaccinations for particular individuals
- Inform personnel how to report accidents, injuries, illnesses, exposures and property damage



Self-Check -4	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

2. What are statutory responses to reduce animal behavior related risks? (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-5	seek of assistance from supervisors and/or peers
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Assist with work demands, including clear work goals, Provide all workers with adequate information, Provide workers with training and development opportunities, Conduct performance reviews and include constructive feedback, Provide additional assistance when workers are undertaking challenging tasks, such as new duties or roles, Where possible, ensure adequate backfilling of roles or redistribution of work when workers are out of the office or away on leave.

Provide and promote an employee assistance service that responds to individual issues or concerns, both work and non-work related. Assist workers to come up with practical solutions for any task-related issues that arise.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

2. What is the objective of seeking assistance supervisor? (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-6	Follow organizational policies, procedures and legislative requirements.
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A policy is a course of action or guidelines to be followed whereas a procedure is the 'nitty gritty' of the policy, outlining what has to be done to implement the policy.

All organizations should have written policy and procedures, and staff training in the following areas:

- a confidentiality policy
- a clearly defined process for identifying and regularly updating a Community Resource Index so that all workers are aware of what other services are available to refer to (the index contains basic contact details and information about what each service provides)
- processes for networking with other agencies, including attending relevant interagencies (meetings of local service providers)
- guidelines for case conferencing (this will be discussed in more detail a bit later)
- referral protocols, including how referrals should be made, the kind of information that can be shared with other services and any ongoing roles and responsibilities of each service with regard to the client
- A policy for how long client information is kept after clients are no longer involved with the service. For example, different government departments produce documents that outline legal requirements for their staff in relation to storing and maintaining information.

Policies and procedures are an essential part of any organization. Together, policies and procedures provide a roadmap for day-to-day operations. They ensure compliance with laws and regulations, give guidance for decision-making, and streamline internal processes. Following policies and procedures is good for employees and your organization as a whole.



The Importance of Following Policies and Procedures:

As your organization's leaders create and enforce policies, it's important to make sure your staff understands why following policies and procedures is critical.

Here are just a few of the positive outcomes of following policies and procedures:

Consistent processes and structures

Policies and procedures keep operations from devolving into complete chaos.

When everyone is following policies and procedures, your organization can run smoothly. Management structures and teams operate as they're meant to. And mistakes and hiccups in processes can be quickly identified and addressed.

When your staff is following policies and procedures, your organization will use time and resources more efficiently. You'll be able to grow and achieve your goals as an organization.

Consistency in practices is also right for employees individually. They know what they're responsible for, what's expected of them, and what they can expect from their supervisors and co-workers. This frees them up to do their jobs with confidence and excellence.

Better quality service

When employees follow procedures, they perform tasks correctly and provide consistent customer service.

A safer workplace

When your staff is following policies and procedures, workplace accidents and incidents are less likely to occur



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

3. What are The Importance of Following Policies and Procedures? (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: _____



INSTRUCTION SHEET	Learning Guide29 #
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This learning guide is developed to equip you with the necessary information regarding the following content coverage and topics

- Checking of Equipment and materials for humanely treating livestock.
- Cleaning, maintaining and storing Equipment, materials and facilities in line with manufacturer's specifications.
- Disposing of Livestock residues and waste in an environmentally responsible manner.

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:**

- Check of Equipment and materials for humanely treating livestock.
- Clean, maintain and store equipment, materials and facilities in line with manufacturer's specifications.
- Dispose of livestock residues and waste in an environmentally responsible manner.

Learning Instructions:

32. Read the specific objectives of this Learning Guide.

33. Follow the instructions described below 3 to 6.

34. Read the information written in the information “Sheet 1, Sheet 2, and Sheet 3.

35. Accomplish the “Self-check 1, Self-check t 2, and Self-check 3 in **page -3, 7, and 13** respectively.

36. 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**.

37. Do the “LAP test” in **page – 16** (if you are ready).



Information Sheet-1	Check of Equipment and materials for humanely treating livestock.
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Human safety needs to be considered in order to minimize risks from animals and equipment within a handling system. When considering any changes to animal treating systems, consultation should be held with the livestock handlers who use the system in order to incorporate their practical knowledge and experience.

Systems should:

- Be safe and easy to use by staff without specialist technical knowledge
- Be tamper-proof
- Minimize user fatigue
- Optimize the number of staff involved in the handling
- Allow accessibility at the required places
- Help stock handlers work effectively and efficiently
- Accommodate 'worst-case operators.

For every system designed, there should be procedures in place for staff to give feedback to management. This feedback should include reports of maintenance requirements, breakdowns, areas where handling problems occur and suggested improvements.

Environmental factors

Systems should:

- Be quiet during operation (minimal air hissing, metal clanging, etc.) and incorporate noise absorbent materials where possible
- Provide adequate lighting, ventilation and thermal comfort
- Bandages and clean clothes for cleaning wounds and covering them and for holding broken legs in place
- Bottle for giving medicine by mouth. If a glass bottle is used, it is useful to put a rubber tube over the end to stop it breaking.
- Container for sterilizing equipment. A cooking pot with a lid will do. Sterilize equipment by boiling it in water.



- A sharp knife or scalpel. Scalpels have sterile blades that can be thrown away after use
- Pen and notebook for keeping records
- Rope. Ropes are essential for any livestock keeper! They are very useful for trying up animals, for making halters to lead animals during transport.
- Syringes and needles for injection. With the very great distance between vets, skilled farmers can learn to do basic treatment before the vet is called. Most useful sizes are 10ml, 20ml, and 50ml. Some syringes can be boiled to sterilize them for reuse-others cannot be boiled so need to be thrown away after use.
- A syringe without needle is useful for measuring liquids such as dewormers or medicines given by mouth, and for flushing wounds and abscesses
- Castration rings- mostly for goats and sheep but can also be used for small new born calves.
- A burdizzo castrator(no blood) is the best and cleanest tool for castrating bulls, rams, and bucks. The burdizzo should be used on the young animal.
- Needles and stitching Material (thread= suture) for stitching wounds.
- Tape measure for measuring animals to estimate their weight. When treating animals it is very important to know the approximate body weight in order to give correct dosage of medicine
- A trocar for making a hole into the rumen to treat serious cases of bloat.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

3. What is the advantage of tape measure?(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-2	Clean, maintain and store equipment, materials and facilities in line with manufacturer's specifications.
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- Buildings maintained in clean/sanitary condition
- Free of infestation by rodents, birds, insects, and other vermin
- Trash and organic waste held and disposed of in a timely and sanitary matter
- Written sanitation procedures to include schedules, methods, equipment materials for cleaning of buildings and facilities
- Written procedures for use of suitable rodenticides, insecticides, fungicides, fumigation agents and cleaning and sanitation agents to prevent contamination
- Sanitation procedures also apply to contractors and temporary employees as well as full-time employees during the ordinary course of operations.

Equipment used in the manufacture, processing, packing, or holding of a drug product shall be of appropriate design, adequate size, and suitably located to facilitate operations for its intended use and its cleaning and maintenance. Cleaning and maintenance activities are to prevent malfunctions which could lead to contamination of a drug product. Written procedures for cleaning and maintenance of equipment should be established and followed. Records SHALL be kept for cleaning, sanitizing, maintenance and inspection.

Disinfectants are chemical agents that kill pathogens on contact.

The choice of disinfectant depends on the purpose of disinfectant. In the case of notifiable disease, it must be active against a defined pathogen.

In the case of prophylactic disinfection, it must be active against a broad spectrum of microorganism. Disinfection in animals house/premises includes the following:

- Livestock buildings.
- Livestock/ their feed transportation vehicles.
- Incubators
- Hatching tray
- Milk tankers



- Milking machines
- Feeding and drinking utensils.
- Bedding materials etc....

Types of disinfectants: They are grouped in to 5 chemical categories

1. Soap and detergents
2. Oxidizing agents
3. Alkalis
4. Acids
5. Aldehydes

- 1. Soap and detergents:** Are essential components of cleaning procedures prior to many of decontamination procedures. The primary aim is the removal of organic material, dirt, greases from the surface to be disinfected. Mostly important in hospitals, surgeries, dairies, food – processing areas. Soapy combination of phenolic or quaternary ammonium (QUATS) & iodophors are used.
- 2. Oxidizing agent:** These are disinfectants recommended for most application. E.g. Chlorine, hypochlorite sol -Virkon[®], a modern disinfectant with outstanding virucidal properties.
- 3. Alkalis:** Effective against wide range of pathogens. E.g. sodium hydroxide (caustic soda) & sodium carbonate (washing soda). Ideal agent for decontaminating animals housing, yards, drains, effluent waste pit & sewage-collection areas.
- 4. Acids:** Generally highly virucidal. E.g. Hydrochloric acid, a strong acid & less toxic than others. - Citric acid, a milder acid Acids particularly useful for the inactivation of FMD virus, when they added to detergents.
- 5. Aldehydes:** Glutaraldehyde are very effective disinfectant against all virus family & other micro organisms in concentration of 1 to 2 percent. Formalin is effective to kill various Bacteria, virus, Fungi & including anthrax spore. Also effective against mycobacterium vitro. Gaseous formaldehyde are products used as fumigants for poultry houses. As long as the houses are empty. Because they are toxic to birds. E.g. wavicide[®] Also important to decontaminate:
 - Air space
 - Equipments such as electronic device
 - Inside motor of vehicles.



Basic principles to consider for disinfection are listed below:

- Some disinfectant solution may only be active for few days after mixing or preparing
- Not use expired or contaminated disinfectant by manures.
- Not to be applied to animals & feeders directly unless labeled for such use.
- There must be sufficient concentrates & contact time, to have effective result.
- Important to rotating low PH & high PH compatible disinfectant, to reduce the possibility of microbial resistance in continuous use of same disinfectant.
- Microbes can acquire resistance to disinfectants, just as they can to antibiotics.

Acid & Alkalis:

When diluting concentrated chemicals, the concentrate should always be added to water never water to concentrate. Do not mix acid & alkali disinfectants. Apart from the resulting chemical remix, the effect of both chemical is nullified. Read all labeled instruction & use all personal protective equipments properly. If contact occurs:

- Wash with copious amount of water immediately.
- Alkali burns, apply vinegar;
- Acid burns, apply bicarbonate soda
- Eyes wash the eyes copiously with eye wash & refer to hospital.

**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 5 chemical categories of disinfectants? (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-3	Dispose of livestock residues and waste in an environmentally responsible manner.
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Disposal: Sanitary removal of animal carcasses and other infected material by burial, burning or some other process, so as to prevent the spread of disease.

Waste disposal:

Only animal waste from the keeping of domestic animals is accepted. A maximum of two bin liners can be deposited per household per day, and waste must be double bagged before disposal. Please inform site staff of the waste type before placing in the household waste bin for final disposal. Waste from livestock, breeding, boarding, stabling or exhibiting of animals is not accepted.

Disposal of dead animals:

Like most business enterprises, every farm produces some type of waste material. Like manure, these waste materials must be disposed of in an environmentally acceptable manner to minimize the likelihood of contaminating soil and water. Common waste materials found on farms include:

- dead animals;
- animal health care products;
- general packaging (for example, boxes, bags, plastics);
- petroleum products such as used motor oil;
- paints and preservatives;
- pesticides;
- machinery and equipment including inert components, tires and restricted use
- components such as batteries;
- farm structures such as old buildings including building components; waste forage; and,
- Waste fruit and vegetables (including organic waste dumps).

Disposal of dead animals



Commercial livestock operations are normally subject to mortalities and therefore generate many carcasses for disposal. Proper disposal of dead livestock is extremely important to protect the health of both people and livestock. Any animal carcass may contain bacteria and other disease organisms that can infect humans directly or through contamination of a residential water supply. Disposal of dead livestock must be in accordance with the Waste Materials Disposal Act.

Mortalities must be kept in a secure and frozen state if not disposed of within 48 hours of the time of death. A secure state would be one where scavenger animals such as coyotes, wolves (in Labrador), dogs and birds, are prevented from access to the mortalities. Disposal is specified to be by delivery to a rendering plant, burial, composting or incineration. Leaving mortalities outside for scavengers to feed on is not an acceptable method of dead animal disposal.

Methods of disposal:

Rendering

Delivery of the carcasses to a rendering company is the preferred method for disposing of dead animals. Currently, a rendering plant (Roth say Rendering Plant) operates at Fox trap.

Rendering companies may have certain restrictions regarding the condition of the carcass. In general, the animals must be brought in as quickly as possible in the summertime. Smaller animals that die during the winter can be frozen and delivered to the renderer at convenient intervals. Rendering companies will generally not accept dead animals that do not remain intact when handled. Depending on the end product of the rendering process, there may be restrictions on carcass quality and condition.

Rendering companies that produce meat and bone meal and inedible tallow will usually accept mortalities regardless of the course of death; companies that produce an edible material may not. If a processor is not nearby, however, the time and expense for travelling may make delivery impractical for small numbers of dead animals or farms located far away from the plant.



If this is the case and the dead animal is small in size (for example, piglets), you must freeze and store mortalities until such time as the animals can be buried or incinerated. Fur farms in Newfoundland and Labrador accept mortalities and cull or off-sex animals as feed. Fur farmers are also feeding fish waste, meat cuttings and some wild animals killed on roadways (such as moose). Disposing of birthing mortalities is not considered a major issue in the province as adult animals often disposes of these naturally.

Burial

During the summer months, the carcass can be buried if a rendering service is not available. The Waste Materials Disposal Act prohibits the disposal of waste materials on any lands which are not waste disposal sites approved by the Government Services Centre. Place dead animals in a trench that is backfilled each time animals are added. Caution is required for burial of dead animals. While at one time carcasses could be brought to sanitary landfills, this is no longer possible in many areas. Municipalities that bury their refuse on a daily basis may allow animals to be deposited in landfill sites. Check with your local municipal office to determine if this is allowed in your area.

Ensure that the burial pit is or has:

- at least 90 metres (300 ft) from wells or domestic water intakes;
- at least 30 metres (100 ft) from any other surface water;
- constructed such that the bottom of the pit is 1.2 metres (4 ft) above the high water table;
- sized for a maximum of 700 kilograms (1,500 lb);
- hydrated lime (quick lime) to speed up decomposition and deter scavengers and insect infestation; and,
- A minimum 0.6 metre (2 ft) of soil covering the carcasses (offers protection from scavengers that will drag the carcasses around, creating both a nuisance and a possible health hazard).



Dead animal burial pits need the approval of a Government Services Centre, Department of Government Services and Lands. Contact the regional Government Services Centre for details. During the winter it is advisable to put dead animals in a holding area, such as a covered trailer, where they can remain frozen until burial is possible in the spring.

Composting

Composting dead animals is becoming more popular in Canada and, as local experience is gained, it is anticipated that some farm composting facilities will be constructed in the future. Operations using composting of mortalities must be designed and managed in such a way that they do not cause pollution. An aerobic environment must be maintained, and all material must be heated throughout to a temperature of 55C (130? F) for at least three days for adequate reduction of pathogen levels.

Where composting is employed for dead animal disposal, they must:

- be of sufficient capacity to dispose of normal mortality rates;
- have all contaminated runoff collected, and clean surface water directed away from the composting facility;
- be located to take the farm residence and any neighbouring residences into account. While offensive odours are not usually generated in the composting process, the handling of dead livestock and compost on a daily basis may not be aesthetically pleasing. When locating a composter, consider traffic patterns required in moving dead livestock to the composter, moving the required ingredients to the composter, and removing finished compost from the composter; and,
- be situated on a well-drained site and must provide all-weather capability for access roads and work areas. Where this is not a common practice in Newfoundland and Labrador, such composting would be appropriate if



initiated on a small scale in consultation with the appropriate agricultural and environmental agencies.

Fully composted animals, where there is no sign of bones or other materials, can be added to manure for eventual land spreading.

For the proper design of a composting facility for dead animal disposal, qualified professionals should be consulted.

Incineration

Incineration is an acceptable method of disposal if performed properly. For the dead animals to be burnt without creating an odour problem, the temperature of the incinerator must be sufficiently high.

Where incinerators are employed for dead animals' disposal, they must:

- where possible, be located so that prevailing winds carry exhaust fumes away from neighbours;
- have sufficient capacity so that all odour levels stay within tolerable limits;
- be 50 m (160 ft) minimum from wells or domestic water intakes;
- be fire safe; and,
- Consume all material fed into them.

The installation and operation of any incinerator must be in compliance with the Environment Act. Generally, a single chamber-two burner type of incinerator, or equivalent, will be required. Single burner incinerators are not recommended.

For the proper design of an incinerator for dead animal disposal, qualified professionals should be consulted. An incineration shall be operated to meet the maximum requirements of 0.5 hour retention time in the chamber at 1400-1600oF.

Disposal at an approved landfill site or incineration at an approved waste disposal site with the consent of the owner/operator is acceptable.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

5. Define the Methods of disposal? (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: _____



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