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Ministry of Labor and Skills

ANIMAL HEALTH

LEVEL – I

BASED ON MARCH 2022, VERSION 4 OCCUPATIONAL STANDARD

Module Title: Identifying Sick Animals

LG CODE: AGR ANH1 M05 LO (1-3) LG (18-20)

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Introduction to the Module

This module covers the knowledge, skills and attitude required to develop understanding of normal animal health indicators which can help in the identification and record of signs and symptoms of sick animals. It also covers differentiating between health and sick animals using basic diseases symptoms and behavioural changes that help for health management and keeping them in isolation pen with the corresponding holder.

LG # 18

LO # 1- Develop Understanding of Normal Animal Health Indicators

Instruction sheet

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

- Identifying normal physical condition and natural behavioral
- Normal feeding and drinking behavior of animals
- Characteristics of normal secretion and excretion

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

- Identify physical appearance, body conformation, and natural behavioural expression of animals
- Identify normal feed intake and drinking behaviour of animals
- Identify change in colour, volume, frequency and consistence of secretion and excretion

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks

Information Sheet 1

1.1. Identifying normal physical condition and natural behavioral expression of animals

1.1.1. Introduction

A sound management program to keep animals healthy is basic to production of any livestock. Producers must observe animals closely to keep individual animals and the whole herd or flock healthy and productive. If the health status of a herd is compromised, that operation will not be as efficient as possible. To recognize clinical signs of diseases common to livestock, it is important to be familiar with what is normal or healthy. The healthy animal is alert and aware of its surroundings. It is active and holds its head up watching what is happening around it. It should stand on all of its feet. Healthy animals exhibit normal posture. They are alert, having clear eyes and response to touch. With this practice, it is relatively easy to identify healthy animals. This will then enable us to tell when something is not right and take immediate action.

Natural behavior may be defined as behavior that animals have a tendency to exhibit under natural conditions, because these behaviors are pleasurable and promote biological functioning. Over the past few decades the relationship between behavior and animal health has emerged as a topic of active academic topic. Behavioral signs have long been considered indicative of illness. For example, hydrophobia (aversion to drinking) is used in the diagnoses of rabies. Valid behavioral indicators are those that clearly identify illness. These can be positive (i.e., behaviors that increase in frequency or magnitude when the animal is ill) or negative indicators (i.e., behaviors that reduce in frequency or magnitude with illness). Some measures may be useful for detecting intra-individual effects over time, and others may be useful for distinguishing sick and healthy individuals at a given time. Naturally occurring cases may share certain clinical signs but arise from different pathogens that have varied effects on behavior.

1.1.2. Normal physical appearance of healthy animals

The general impression of the health animals can be obtained by examination of an animal from a distance. Healthy animal is alert and aware of its surroundings. It stands squarely on all four

feet and holds its head high, watching what's happening around it. When, on being approached, an animal makes a normal response to external stimuli, such as movement and sound, the demeanors is said to be bright. Normal reaction under these circumstances may consist of elevating the head and ears, turning towards and directing the attention at the source of the stimuli, walking away and evincing signs of attack or flight.

The eye is bright and alert, with no discharge at the corners. The nose of a healthy animal is clean, with no discharge, and the muzzle is moist. Healthy ruminant animal lick its nose frequently. There should be no dribbling of saliva on the mouth. The hair coat of a healthy animal is smooth and shiny. The dung pat of a healthy animal is soft. Watery dung (diarrhoea) and difficulty in defecating (constipation) are signs of ill health. The urine should be clear and the animal will urinate with no sign of pain or difficulty. The cow should eat and drink normally. If feed is available, it will have a full belly. When a herd of healthy cows are at rest, most of them are ruminating. A poor appetite is an obvious sign of ill health.

1.1.3. Body conformation

Body conformation is shape and size of the different body regions relative to other regions. Points of conformation are included in the description of body regions. Animals' normal standing position (posture) and normal locomotion (gait).

- **Posture:** Posture denotes the anatomical configuration when the animals remain in stationary situation. When approached in the lying position, most normal animals will get up. Various abnormalities of posture may be shown by animals, some of which do not indicate disease, but if they occur in association with other clinical signs then a disease process should be suspected. Changes in posture take the form of curvature of the spine, high or oblique carriage of the head and neck, unusual position of the limbs, etc. Most of these postural aberrations may arise from a variety of abnormalities; their origin can, therefore, be determined only by appropriate further examination of the organs and systems concerned.
- **Gait:** Gait indicates the locomotors process (movement) of an animal. Healthy animal walks easily and steadily, with all four feet bearing its weight. Its steps are regular; irregular movement suggests pain in its feet or legs. A healthy animal that is lying down

will get up quickly. Limb movements can be assessed by reference to their rate, range, force and direction. In locomotion the limbs act synchronously in any one of a variety of patterns. Two forms of gait pattern exist, symmetrical and asymmetrical.

- ✓ In symmetrical gaits the movements of limbs on one side repeat those of the other side, but half a stride later. Symmetrical gaits include the walk, the pace and the trot.
- ✓ In asymmetrical gaits the limbs from one side do not repeat those of the other. Asymmetrical gaits include the various forms of the canter and gallop.

1.1.4. Behavioral expression of healthy animals

Animal behavior is the expression of an effort to adapt or adjust to different internal and external conditions, i.e. behavior can be described as an animal's response to a stimulus. In general animals express their natural behavior through the following ways.

- **Sexual:** pheromones or chemicals that attract the opposite sex present in vaginal secretions and urine of cows, ewes and mares and males respond to this with flehmen.
- **Care-giving:** Originates from sire or dam, but usually maternal. Mothers instinctively clean their young when they are born, Fight intruders. There is strong attachments especially cow/calf sheep/lamb.
- **Agonistic behavior:** Agonistic behavior is activities of fight or flight, and those of aggressive and passive behavior when in contact with another animal or humans. Intact males of all farm animals fight when they meet an unfamiliar male of the same species. This behavior has great implication in farm management.
- **Social behavior:** Animals fed together consume more feed than those fed alone. Due to competition and the dominant one eats more.
- **Shelter-seeking:** varies with species. During hot weather cows/sheep seek shade while pigs seek a wet area. Animals also seek shelter/shade during rainy weather.

1.2. Normal feeding and drinking behavior of animals

1.2.1. Feeding behavior of animals

Feeding involves a complex series of decisions and depends upon an elaborate array of mental, motor and digestive abilities. Foraging is the behavior of animals when they are moving around in such a way that they are likely to encounter and acquire food for themselves or their offspring. Patterns of eating, in which there is variation from nil to maximum rate, are characteristic of grazing behavior in horses, cattle and sheep. The actual duration of active eating is influenced by food quality and availability. Grazing activity is largely confined to the daytime, except when day temperatures are so high as to be aversive, and the onset of active grazing is closely correlated with the time of sunrise. Most of the daylight hours are occupied with grazing periods. These periods usually add up to more than half of total daylight time, but some night grazing is also practiced. Feeding behavior of animals is varies according to the species of animals.

a. Feeding and drinking behavior of cattle

Adult cattle ruminate for a total of 8 hours daily: there are between four and 24 ruminating periods, with each period lasting 10 to 60 minutes. There are 360 to 790 regurgitated boluses produced a day with each weighing 80 to 120 g. The boluses are chewed 40 to 70 times over a period of 60 seconds. Rumenal fermentation may produce up to 600 litres of gas a day which is removed by eructation. On hay diet there may be 15 to 20 eructations an hour, whilst on a grass diet this increases to 60 to 90 eructations an hour. Adult cattle defaecate 10 to 24 times daily, producing 30 to 50 kg of faeces. The passage time of faeces is 1.5 to 4 days. Cattle generally pass some faeces every 1.5 to 2.0 hours, and an absence of faeces for 24 hours is abnormal.

Cattle have to rely for food intake on the high mobility of the tongue, which is used to encircle a patch of grass and then to draw it into the mouth, where the lower teeth and the tongue are used to hold the bound grass while it is broken by a head movement. The nature of a cow’s eating process is such that it is virtually impossible for the animal to take pasture plants closer than 1 cm from the ground. After taking a series of bites, the cow manipulates the plant material, chewing only two or three times before swallowing. The head is swung and steps are taken so that the next bites can be taken from a new area. The bite size, rate of biting, number of head

swings and rate of stepping are affected by the pasture height. The time taken to consume food varies according to its volume, the concentrates that may be in it, whether it is wet or dry and the way it has been processed before being given to the animals. In intensive farming systems, cattle spend about 5 h/day eating and their rumination time is also reduced. If hay or silage is fed, 5 h/day may be spent on active eating, as in the loose-housing system. Eating time becomes reduced as roughage is reduced and the proportion of concentrate feed is increased.

In extensive farming systems, cattle graze mostly during the hours of daylight and cover, on average, about 4 km/day. The distance travelled increases if the weather is hot or wet or if there is an abundance of flies around. The time cattle spend grazing during the 24 h period is 4–14 h. The number of drinks taken per day is between one and four, and the time spent lying down is usually in the 9–12 h range. Cattle fed on foodstuffs with a high level of protein drink much more than those on a lower-protein supplement. The amount of water consumed by pregnant heifers has been calculated to be 28–32 liters/day, while the average daily intake of water by non-pregnant adults is about 14 liters.

Following ingestion comes rumination, which allows cattle to regurgitate, masticate and then swallow food that they have previously ingested into the rumen. Thus, animals can continue their digestive activities at leisure, when away from a preferred grazing area or sheltering during bad weather. Cattle prefer to lie down during rumination except in bad weather. Rumination starts in young calves of 4–6 weeks of age after they have eaten solid, fibrous food such as pasture plants. The growth of normal gut papillae and gut enzyme development, typical of a herbivore, does not occur unless such food is eaten. The duration of rumination increases with the amount of solid – especially fibrous food eaten. During the 24h cycle rumination takes place about 15–20 times, but the duration of each period may last only a few minutes or it may continue up to 1 h or more. Any incident giving rise to pain, fear, maternal anxiety or illness affects ruminating activities.

b. Feeding and drinking behavior of sheep

Grazing activity by sheep is largely confined to the daytime. The total grazing time usually amounts to about 8-10 hrs/day. The number of rumination periods may amount to 15 during the 24 hrs cycle. The length of each period varies from 1 min up to 2hrs. The amount of water

consumed varies according to breed, quality of pasture and weather conditions. The total number of urinations and defaecations is approximately 9 to 13 and 6 to 8/day respectively.

c. Feeding and drinking behavior of horse

Horses graze by cropping the pasture close to the roots with their incisors. While grazing, they cover large areas and seldom take more than two mouthfuls before moving at least one step further, avoiding grass patches covered in dung. Horses do not drink very frequently in a 24 h period and many may only drink once a day. When they do drink they typically consume very large quantities of water. Social facilitation strongly influences grazing in horses. Extremes of weather such as strong heat, wind or rain reduce the time that horses spend grazing.

d. Feeding and drinking behavior of pigs

Rooting is a salient feature of ingestive behavior in pigs. Pigs are omnivorous and, at free range, eat a variety of vegetable materials. They may also eat some animals such as earthworms. Pigs space their eating and drinking periods throughout the day. Under normal conditions of management, fully grown pigs consume approximately 8 litres/day. Water intake is little changed when food intake increases. Both reduction of food supply to half its usual amount, and fasting, significantly increase drinking and water turnover rate. Pigs, therefore, consume more water when food is restricted, a behavior attributable to hunger.

e. Feeding and drinking behavior of poultry

Pecking and swallowing is the main, minor ingestive behavior of the fowl. Free-range poultry, when they grasp a large food object in the bill, may run with it while calling. Poultry drink frequently each day. Initially chicks peck and ingest both nutritive and non-nutritive substances. Free-living fowl are omnivorous, accepting a great variety of seeds, fruit and insects. Availability of feed is more important than the amount of feed present. Feed may be wasted as the birds search for some choice in the concentrate (Cauterization of beak is used to avoid feed waste). Pecking and feeding are directly facilitated by social stimulation (Order in distributing feeds in large scale farms). Dominance relations as well as degree of hunger influence the number of birds feeding at a given time.

Table 1.1: The normal range of water consumption for adult animals (Source: https://assets.accessagriculture.org/s3fs-public/Animal_nutrition_and_feed_rations_infonet_biovision.pdf Accessed on 27/08/2022)

Livestock type	**Water consumption in litres/day**
Camels	Every 5-8 days as much as they can drink (up to 100 liter or one third of body weight) daily about 15-30 litres)
Beef cattle	35-60 per head
Dairy cattle	30-80 per head
Horses	24-36 per head
Donkeys/mules	Twice a day as much as they can drink (10-25)
Pigs	15-25 per heads
Sheep and goats	5-20 per head
Chickens	40-50 per 100 birds = 0.5 litre per bird
Turkeys	40- 75 per 100 birds = 0.75 litre per bird
Rabbit	50- 150 millilitre (=0.1 litre) water per kilogram bodyweight (small cup)

1.3. Characteristics of normal secretion and excretion

1.3.1. Introduction

Excretion is the processes of removing the waste products derived from the cellular metabolism. It is a process essential at all levels of living systems organization. It involves transport of molecules across the plasmatic membranes of cells that form the wall of compartmentalized structures present in specialized excretory organs. The main difference between secretion and excretion is that secretion is the movement of materials from one part of the body to the other part of the body whereas excretion is the removal of waste material, which has no further use for living organisms. Secretion is an active process and excretion is a passive process. Tears, sweat, carbon dioxide, urine, and feces are excreted from the animal body while saliva, hormones, and enzymes are secreted. Secretion and excretion are involved in the movement or passage of materials in the body. Both processes are important in maintaining the homeostasis of the body.

1.3.2. Characteristics of normal excretion

Excretion is the process by which metabolic waste products like urea and carbon dioxide are eliminated from the body. Excretion helps to control osmotic pressure by balancing inorganic ions and water and by maintaining acid-base balance. Thus, the main purpose of excretion is to maintain homeostasis in the internal environment of an organism. Normal characteristics of excretions are explained as follows;

a. Faeces

The droppings of the healthy animal will be firm. A very soft dropping (diarrhea) is a sign of ill health. If the animal has difficulty in defecating (constipation) this is also a bad health sign. Any deviation of the faeces i.e. too hard, too watery or stained with blood. Contaminated with worm segments, is an indication of ill health. When you see that the animal begins to defecate on its body it is an indication that it has a problem in its alimentary canal and immediate attention need to be given to the animal.

b. Urine

The normal color of urine is pale yellow. Much deviation like deep yellow, blood stained or cloudy urine shows ill health. When your animal show pain urinating shows that there is something wrong with its urinal system and any other color a part from pale yellow is a sign of ill health**.** The urine should be clear and the animal shows no signs of pain or difficulty in urinating. Horses, mules and donkeys can have thick yellow urine which is normal. Characteristics of the urine change, depending on influences such as water intake, exercise, environmental temperature, nutrient intake, and other factors. Some of the characteristics such as color and odor are rough descriptors of state of hydration.

Table 1.1: Normal Urine Characteristics (**Source:** Peter G.G. and Peter D. C. 2009)

Characteristic	**Normal values**
Color	Pale yellow to deep amber
Odor	Odorless
Volume	750–2000 mL/24 hour
pH	4.5–8.0
Specific gravity	1.003–1.032

c. Tears and sweat

The functions of tears are lubrication, nutrition of the cornea, flushing debris from the corneal surface, and antibacterial action. Reduction in tear production causes increasing corneal inflammation and ultimately permanent damage that may prove blinding.

1.3.3. Characteristics of normal secretion

a. Saliva

Saliva is a clear tasteless, odourless, slightly acidic (pH 6.8), viscid fluid, consisting of secretion from parotid, sublingual and sub-mandibular salivary gland and the mucus glands of oral cavity. The oral cavity is a moist environment; a film of fluid called saliva constantly coats its inner surfaces and occupies the space between the lining oral mucosa and teeth. Saliva is a complex fluid, produced by the salivary glands, whose important role is maintaining the wellbeing of mouth.

b. Hormones

Hormones are molecules that are produced by endocrine glands, including the hypothalamus, pituitary gland, adrenal glands, gonads, (i.e., testes and ovaries), thyroid gland, parathyroid glands, and pancreas. Generally speaking, hormones control the growth, development, and metabolism of the body; the electrolyte composition of bodily fluids; and reproduction.

c. Enzymes

Enzymes are biological catalysts (also known as biocatalysts) that speed up biochemical reactions in living organisms, and which can be extracted from cells and then used to catalyse a wide range of commercially important processes.

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

Test I: Choose the best answer from the given alternatives (3 points each)

1. _____ is the expression of an effort to adapt or adjust to different internal and external conditions

   a. Animal behavior b. feeding c. care giving to the offspring d. social behavior

2. Which one of the following characterizes normal physical appearance of healthy animals

   a. When, on being approached, an animal makes a normal response to external stimuli

   b. Demeanors of healthy animal is said to be bright

   c. The eye is bright and alert, with no discharge at the corners

   d. all

3. Animals normal standing position is known as;

   a. Gait

   b. Locomotors process (movement) of an animal

   c. Posture

   d. Physical body condition

4. One of the following is true regarding to normal grazing time of sheep

   a. 4- 14hrs/day b. 8-10hrs/day c. 5hrs/day d. 24hrs/day

Test II: Short Answer Questions (3 points each)

1. Write the difference between secretion and excretion
2. Explain characterics of normal animal feaces

Note: **Satisfactory rating - 9 points** **Unsatisfactory - below 9 points**

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

LG # 19	LO # 2- Identify signs and symptoms of sick Animals

Instruction sheet

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

- Identifying changes to physical condition
- Identifying abnormal feeding and drinking behaviour
- Identifying signs and symptoms of sick animals

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

- Identify changes to physical condition of sick animals
- Abnormal feeding and drinking behaviour of sick animals
- Identify signs and symptoms of sick animals

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks
5. Perform Operation Sheets
6. Do the “LAP test”

Information Sheet 2

2.1. Identifying changes to physical condition

Physical condition is recognizing body build of an animal and judged by inspection and digital palpation of all body prominences, ribs, shoulder, and blade, spinous process of cervical, thoracic and lumbar vertebrae. Besides, dewlap, brisket, thigh muscles and perineal regions should be viewed and judged. From the patho-physiological and nutritional stand point, the physical condition can be demarcated as follows:

- Normal- in normal animals, all the body prominences of the skeleton are adequately covered with well-developed muscles and cushioned fat. The body has normal symmetry.
- Fatty (obese) - it is a pathological deposition of fat. There is abdominal protrusion and the body assumes round shape.
- Lean (thin) - in lean or thin animals, various parts of the skeleton are prominent (e.g., ribs and pelvis) and the supra orbital fossa are deepened.
- Emaciation- in emaciated animals, there is wasting or atrophy of the muscles and bones are very much prominent with depression of supra-orbital fossa. The difference between thinness and emaciation is only of degree.
- Hide bound- there is prolonged emaciation, lusterless with dry leathery skin and reduced elasticity of the skin.
- Cachectic (walking skeleton) - prolonged muscular atrophy with deeply sunken eyes. The animal remains with skin and bones, due to this fact it is also termed as “the walking skeleton”.

2.1.1. Changes to physical appearance of sick animals

- Change in behavior in response to illness

Behavior is an important means of influencing energy expenditure; sick individuals usually decrease feeding and reproductive activities while increasing time at rest, likely as a means of conserving energy for the febrile response and for mounting an immune response. Behavioral manifestations of abdominal pain include kicking at the abdomen, reluctance to get up and down,

and movements made with care. Grunting may be audible. Animals may adopt abnormal postures such as lowering the back and stretching the forelegs forwards and the hind legs backwards. This is called the rocking horse posture and is seen with intussception. Grinding of teeth or bruxism may be observed. Demeanor is behavioral change/ response to external stimuli. The Abnormal demeanors in diseased animals are as follow:-

- Decreased response (depression). This has three stages;
  - ✓ Dull (apathetic): this state is appreciated by the reactions to normal stimuli being sluggish or retarded, or even somewhat suppressed.
  - ✓ Dummy state: This state is an advanced degree of failure to respond to external stimuli although the animal remains standing, and is capable of movement.
  - ✓ Comma: the most advanced degree of apathy (depression) is comma, in which the animal is unconscious and fails to respond to painful stimuli, as in the cow in the advanced stages of parturient paresis (hypocalcaemia) and pregnancy toxemia.
- Excitation or increased response. This excitation state has four stages. These are;
  - ✓ Apprehension (mildly anxious): - the animal appears alert, looks about constantly, but exhibits normal movements. It may arise due to slight constant pain, in serious defects of vision and the early stage of parturient paresis or hypocalcaemia.
  - ✓ Restlessness: - it is a more severe state in which movement is almost constant, consisting of lying down, rolling, getting up again, looking at the flanks, kicking at the belly and groaning or bellowing. This form of behavior is usually caused by sharp intermittent or constant pain, as in colic syndrome in horse.
  - ✓ Mania: in mania the behavior aberrations appear to compulsive and include vigorous licking of some specific parts of the body surface. Pressing forwards with the head (meningitis) or licking or chewing inanimate objects.
  - ✓ Frenzy**:** - when frenzied, the animals' actions are uncontrolled. E.g in case of acute poisoning.
- Abnormal posture – check the animal's recumbence (i.e. any sign of the animal assuming an abnormal posture). Recumbence can be either sternal or lateral. Check the backbone curvature (any abnormality could signal a health problem and its magnitude). There are different forms of abnormal posture. These are;
  - ✓ Kyphosis: it is dorsal bending of the spinal column.

Figure 2.1: Kyphosis in cattle

- ✓ **Lordosis:** it is ventral bending of the spinal column.

Figure 2.2: Lordosis in dairy cattle (source: https://www.google.com/search?q=abnormal+posture+in+dairy+cattle&client=opera&source=lnms&tbm=isch&sa=X&ved=2ahUKEwif-M_NuT5AhX0gv0HHTORDMMQ_AUoAXoECAIQAw&biw=1326&bih=627&dpr=1 (Accessed on 26/08/2022)

- ✓ Dog-sitting-position: in acute gastro-distention in the horse, pain and pressure on the diaphragm cause the animal to adopt the "dog-sitting-position".

- Abnormal Gait- Locomotors disturbances are seen when the animal moves about voluntarily, or is led or driven at various paces, towards or away from the clinician
  - ✓ Walking in circle: disease like Otitis(dog/cat) and listrosis (cattle /sheep)
  - ✓ Lameness: is an abnormal gait or stance of an animal that is the result of dysfunction of the locomotor system. It is a common problem in all animals and can greatly affect the welfare and productivity of the animals. Lameness is not a single disease but a symptom associated with a range of different conditions

Figure 2.3: Sign of abnormal gait due to lameness in dairy cow

(source: https://www.google.com/search?q=lameness+in+dairy+cow&client=opera&hs=aRY&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiDm8bq7vj5AhVKfMAKHa-MDL0Q_AUoAXoECAEQAw&biw=1326&bih=627&dpr=1 Accessed date 26/08/2022)

- **Skin changes** – sick animals tend to have soiled bodies with faeces, blood, or pus.

2.2. Abnormal feeding and drinking behaviour of sick animals

The appetite of the animal can be assessed by observing its reaction to the offering of feed or by the amount of feed available that has not been eaten. It is important to determine the total amount of feed that the animal is eating per day. In a patient that has retained its appetite, there may be abnormality of prehension, mastication or swallowing and, in ruminants, of belching and regurgitation. Prehension may be interfered with by inability to approach feed, paralysis of the tongue in cattle. Mastication may be slow, one-sided or incomplete when mouth structures,

particularly teeth, are affected. Periodic cessation of chewing when feed is still in the mouth occurs commonly in the dummy state. Water is an essential nutrient for both animal welfare and business. Amount and quality of water required vary between species of livestock, between classes of stock within the species, and in response to the environment in which the stock are running.

Abnormalities in feeding (appetite) and drinking water include the following;

- Inappetance: Reductions of feed intake, caused by unsuitable feed, inability to prehend, masticates or swallow due to pain in the digestive tract and GIT diseases.
- Anorexia: complete loss of appetite, caused by dietary and due to fear, excitement or severe pain), toxaemia and GIT problems.
- Polyphagia: increased appetite, caused by diabetes, abnormality in absorption, excess starvation.
- Polydypsea: increased water intake, caused by loss of body fluid, in the diabetes mellitus.
- pica: consumption of substances, which don't fall in the normal diet of that specific species of animal (Eating of foreign materials)

  Causes - nutritional deficiency: P, Ca, salt, protein and bulk fiber

  -Nervous diseases: rabies, ketosis
- Anophagia or A phagia is decreased feed intake. It may be due to painful conditions of the mouth and pharynx or to any bacterial or viral infection producing toxemia or septicemia.
- Starvation: It is complete deprivation of feed as in drought, flood, bushfire or human intervention. Starvation may lead to hypoglycemia; acidosis, & ketosis.

2.3. Identify signs and symptoms of sick animals

2.3.1. Introduction

Though signs and symptoms describe the same conditions, these two are different in many characteristics. While signs are what a doctor (experts) sees, symptoms are what the animal owner or attendants experiences. A symptom can be defined as one of the characters of a disease. Meanwhile, sign is the definite indication of a specific disease. A high temperature, a rapid

pulse, low blood pressure, open wound and bruising can be called as signs. Chills, shivering, fever, nausea and shaking are the symptoms.

2.3.2. General Signs and symptoms of sickness

Farmers and pastoralists know that animals are sick when they notice changes in behavior such as refusal to eat, keeping to shady areas, or physical signs such as different breathing, coughing, body swellings and weakness etc. The following list of symptoms intends to help in recognizing disease and to also describe the disease signs to others:

- Abnormal body temperature – Temperature is the measures of how hot or cold the animal body is. Temperature can be measured by thermometer such as: digital and manual or mercury thermometer and its unit is explained by degrees Celsius or degree Ferinaite. Any deviation from normal (i.e. either fever or hypothermia) could indicate a disease condition. Evaluation of body temperature is one of the oldest known diagnostic methods and is still an important sign of health and disease.

Table 2.1: Normal range rectal temperature of domestic animals (source: Tagesu A. 2018)

Animal species	**Temperature/ ^{o}C**
Cattle/ Adult	37.8 – 39.2
Calve	38.5 – 39.8
Horse/Adult	37.2 – 38
Foal	37.5 – 38.5
Sheep	39.5 – 40
Goat	38.6- 40.2
Pigs/Adult	37.8- 38.9
piglets	38.8- 40
Large dog	37.5- 38.6
Cat	37.8 – 39.2
Chicken	41.7

- ✓ Abnormal body temperature can be expressed as follows;
  - Hyperthermia or over heating- is an increasing of body temperature above the normal
  - Hypothermia or sub-normal temperature- is decreasing of body temperature below the normal range.
  - Fever- denotes the elevation of body temperature of animal above normal. Fever is a general reaction of animals to the action of harmful and most frequently infectious agents known as pyrogens. Shivering is often a sign of fever.
- Abnormal sign in Mouth: Difficulty in opening the mouth may be caused by excessive muscular activity in some disease. E.g. tetanus. Damage to the tempero- mandibular joint or degenerative changes affecting its articular surfaces may also result in an inability to open the mouth. Other sign of illness in the mouth include inability to co-ordinate lip movements, inability to move the tongue, inability to swallow and immobile tongue.
- Abnormal sign in Nose/Nostrils: The muzzle or nose is normally moist with numerous small droplets of fluid being present. A dry nose may be indicative of ill health, especially in pyrexic animals. It may also be found in normal animals which have been resting. The nose may also be very dry in cases of some disease. Abnormality in the nose also include (running nose: watery fluid, pus or bloody fluid). A clear mucoidal nasal discharge is often seen in normal animals, but a muco-purulent discharge can accompany infection in most parts of the respiratory system. The nose is often dirty in very sick animals. A blood-stained nasal discharge may indicate damage to the nasal mucosa. Profuse nasal haemorrhage may be seen as a terminal event in cases of thrombosis of the caudal vena cava.
- Abnormal sign in body condition**:** weak, thin and emaciated
- Skin and coat abnormalities: Patches of hair loss, reddening, crusting, or excess scurf (dandruff) may be indicative of skin disease. The following are the major skin and coat abnormalities
  - ✓ Pruritis (itchiness): Pruritis is a characteristic sensation, having much in common with pain, but it creates the desire to scratch.
  - ✓ Maculae or spot: it is a circumscribed area of discoloration of the skin which is not elevated above the level of the surrounding skin

- ✓ Papule or pimple: it is a solid elevation on the surface of the skin, ranging in size from a pinhead to a pea, caused by a cellular infiltration.
- ✓ Ulcer: it is the result of localized destruction of breakdown of tissue, which may occur as part of an inflammatory reaction
- ✓ Crust (scab): is a firm mass, consisting of dried inflammatory exudates and epithelial debris, or blood. Characteristic crusts occur in ringworm in cattle.

- Abnormal sign in abdomen: Distension of abdomen caused by advanced pregnancy, ascites, frothy bloat, gas bloat, neoplasia in the liver and spleen. Hernia swelling is also another cause of increase in the size of the abdomen.
- Abnormal sign in mucous membranes: (these are white skin areas inside the eyelids below the eyeball, and the inside of the mouth, nose and vagina): They can be pink, dark-red, bluish, yellow, whitish-pale; with vesicles, with pustules/ulcers/blood/, cheesy deposits, sloughing off and stinking.
- Sign of illness in Eyes: Tear production is often increased when the conjunctiva is inflamed, and excessive tears may spill down the animal's face**.** Abnormality in eyes can be cloudy/milky, inflamed, discharging water or pus, bulging out, sunken, bloodshot or blind (not reacting to movement of the hand). Tight closure of both lids (upper and lower) is also indication of illness.
- Lymph nodes: easy to locate under the skin: can be enlarged
- Abnormality in Feeding (Appetite): Appetite is the first aspect to be affected when the animal is unwell. The animal can exhibit capricious appetite that goes over the normal level, reduced below the normal level or even anorexic. The animal could suddenly develop pica (craves soil/uncommon feed). This can indicate deficiency for a particular mineral in their system. Off-feed, failing to chew the cud and vomiting

  - ✓ Drinking: more//less water than normal or refusal of drinking water
  - ✓ Salivation (drooling): It is excess discharge of saliva usually associated with oral lesions, foreign body in the oral cavity and oesophagus and paralysis of pharyngeal area.
  - ✓ Grinding the teeth
  - ✓ Restlessness: Looking at the flank, rolling and convulsions
  - ✓ Staring - not reacting

- ✓ Staggering, turning in circles
- ✓ Arching of the back
- ✓ Stiffness of the legs, unable to rise, paralysis and coma

- Urine: abnormal color (red-brown), clear or cloudy
- Abnormal discharge from vagina: continuous or intermittent, clear, watery, cloudy or purulent, watery, yellow, pink, blood-streaked, foul-smelling and visible parts of placenta are sign of illness
- Faeces: Cattle faeces are usually the consistency of a thick milk shake, although it is always more meaningful to compare the faeces of a sick animal with the other healthy cows in the group. Animal pass feaces containing blood clots, shreds of mucous membranes and worms are said to be abnormal.
- Mucus membrane –normally mucus membrane is bright pink color. A yellowish mucus membrane, Paleness, congestion (the membranes become deep red, which indicates high vascularization) indicates illness.
- Defecation – the animal could be constipated and produce hard faeces. It could also diarrhea or develops dysentery (produce diarrhea with blood). Straining during defecation.
- Micturition (urination) – Cattle normally pass urine 8 to 12 times per day. They produce approximately 1 ml of urine per kilogram of body weight per hour. Normally urine consists of golden and clear color. Red, brown or yellow discoloration may indicate the presence of disease. Urine may appear cloudy if pus or blood is present. Increase or decreases in the frequency of urination, difficulty in urination and in the quantity of urine produced are sign of renal disease. In other cases, the animal has urine incontinency (constant dripping of urine), which may be due to paralysis of the bladder or the sphincter muscles that fail to close properly.
- Pulse rate – is the elongation and expansion of the arterial wall imparted by arterial blood due to contraction of the left ventricle. It tells us useful information about the cardio-vascular system. It could be fast or slow depending on the health of the animal and other external conditions. Pulse rate is the number of elongation and expansion of arteries per minute. Heart beat is measurement of heart beats per minutes. The results of pulse rate and heart beats are almost the same but the difference is the site of measurements.

Table 2.2: Normal pulse rates (beats/minute) (source: Tagesu A. 2018)

Animal	Range	Animal	Range
Horse	28-40	Cat	110-130
Cattle	55-80	Rabbit	120-250
Calf	100-120	Chicken	250-300
Sheep/goat	70-90	Chick	350-450
Pig (adult)	60-90	Camel	25-32
Dog (large)	65-90	Ass	40-56
Dog (small)	90-120	Elephant	22-53

- ✓ Abnormal pulse rates
  - Tachycardia is increased number of beats per minute
  - Bradycardia is decreased no of beats per minute

- Abnormal respiration or breathing: In normal cattle there is relatively little movement of the rib cage during respiration. Some movement of the abdominal muscles is usually seen just behind the rib cage during each inspiration, and this should be symmetrical. Signs of illness observed with breathing include depression, frothing at the mouth, increased respiratory rate, mouth breathing, dilation of the nostrils, puffing of the cheeks, purulent nasal discharge, abdominal breathing, laboured breathing, cyanosis, coughing, Tongue protruded, Mouth breathing, Frothing, grunting and pyrexia. The abnormality of respiration rate is known as dyspnea. That means when the measurement of the respiration rate is above or below the normal range.

Table 2.3: Normal respiration rate of animals (breaths/minute) (source: Tagesu A. 2018)

Animal	Range	Animal	Range
Horse	10-14	Dog	15-30
Ox (adult)	10-30	Cat	20-30
Ox (yearling)	15-40	Rabbit	90-100
Sheep/goat	15-30	Cock	12-20
Pig	8-20	Hen	20-36

- ✓ Abnormal respiratory noises (stridosis) are;
  - Hiccup (singultus) is a short, jerky inspiration, caused by stimulation of the phrenic nerve producing sudden contraction of the diaphragm.
  - Wheezing or blowing is stenosis of upper air passages, more pronounced on inspiration.
  - Snoring: due to fluttering of the soft palate in open mouth breathing, from various interference of air flow through the upper respiratory tract
  - Sneezing: an explosive expiration through the nose due to irritated nasal mucous membrane.
  - Groaning or grunting:a long inspiration followed by a prolonged audible expiration through a partially closed glottis. This sound is audible only on expiration. This sound occurs in traumatic gastritis, peritonitis, and vaginal and rectal prolapse

- Milk: thick, watery, yellow, pale-white, pink, with pus or clots, blood clots, abnormal color and abnormal smell
- Absence of sensitivity: is detected by palpation and pain percussion or pinching or picking of the most sensitive skin (around the eyes, perineum).
- Vomiting: The act of forceful emptying of stomach contents by vigorous contractions of diaphragm and abdominal muscles. Vomiting is sign of illness in ruminant and equine species but can be considered as normal condition in small animals i.e cat and dog

Self-check 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

Test I: Choose the best answer (2 points each)

1. Changes to physical appearance of sick animals in which response to external stimulus decreased is known as;

   a. excitation b. depression c. restlessness d. frenzy

2. _____ is abnormal posture occurs due to dorsal bending of the spinal column

   a. Dog-sitting-position b. lameness c. kyphosis d. lordosis

3. Inappetance means;

   a. complete loss of appetite

   b. reductions of feed intake

   c. increased water intake

   d. consumption of substances, which don't fall in the normal diet

Test II: Short Answer Questions

1. Explain the difference between sign and symptoms(3 points each)

2. List at least six sign and symptoms of illness in animals (5 points)

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

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

Operation Sheet – 2

2.1. Steps of taking body temperature

A. Tools and equipments used

i. PPE
ii. Restraining rope and/or Crush
iii. Thermometer (i.e. either digital or clinical)
iv. Disinfectants (Alcohol or Savlon)
v. Cotton or gauze

B. Procedures of taking body temperature

1. The thermometer should be sterilized by disinfectant (antiseptics) before use
2. It should be well shaken before recording of temperature to bring the mercury column down below the lowest point likely to be observed in different species of animals.
3. The bulb end of the thermometer should be lubricated with liquid paraffin or glycerin or soap especially in case of small pup and kitten.
4. Care should be taken so that the bulb of the thermometer remains in contact with the rectal mucous membrane.
5. The thermometer should be kept in site for at least 3-5 minutes.
6. Read the thermometer

2.2. Steps to measure pulse rate

A. Tools and equipments used

i. PPE
ii. Restraining rope and/or Crush
iii. Stethoscope
iv. Disinfectants (Alcohol or Savlon)
v. Cotton or gauze

B. Procedures of taking pulse rate

1. Restrain the animals properly
2. Appropriately disinfect the stethoscope
3. Place the ball part of one or more fingers on the skin over the selected artery and applying gentle pressure until the pulse wave can be detected or use the stethoscope
4. Then count for 30 seconds and multiply by two to obtain the total

2.3. Steps to measure respiration rate

A. Tools and equipments used

i. PPE
ii. Restraining rope and/or Crush
iii. Stethoscope
iv. Disinfectants (Alcohol or Savlon)
v. Cotton or gauze

B. Procedures of taking pulse rate

1. Restrain the animals properly
2. Appropriately disinfect the stethoscope
3. Stand on the right side position of the animals
4. Identify lung area where the respiration rate is counted
5. Put the stethoscope on the appropriate area and count for 30seconds and multiply the result by two or counting for 15 seconds and multiplying by four to obtain the total result

LAP TEST-2	**Performance Test**

Name……. ID……..

Date…….

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 30 minutes. The project is expected from each student to do it.

Task 1- Perform measurement of animal body temperature

Task 2- Measure respiration rate of an animals

Task 3- Measure pulse rate of an animals

LG # 20	LO # 3- Isolate sick animals and report the problem

Instruction sheet

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

- Isolating sick/abnormal animals
- Recording and reporting health condition and problems

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;

- Isolate sick/abnormal animals following standard OHS procedures
- Record and report information related to the health condition and problem of animal

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks

Information Sheet 3

3.1. Isolating sick/abnormal animals

Isolation is the process of segregation of affected and in contact animals from the apparently healthy ones, in the event of outbreak of a contagious disease. Although the term quarantine applies to isolating new or returning animals that are not known to be ill, and isolation refers to keeping sick animals separate from healthy ones, in both cases a space is needed that meets the definition of an isolation area. Isolation of sick animals is one of the ways of effectively handling sick animals on a farm. Isolation is the process of segregation of affected and in contact animals from the apparently healthy ones, in the event of outbreak of a contagious disease.

Such segregated animals should preferably be housed in a separate isolation shed situated far away from the normal animal house. If a separate shed is not available the animals for isolation should be tied at one end of the shed as far away from the apparently healthy stock as possible. Attendants and equipment for sick animals should be ideally separate. If due to practical reasons this is not possible the sick animals should be attended only after the healthy stock.

Prompt removal of sick animals from the general population is the single most important step in controlling a communicable disease outbreak. This significantly decreases opportunities for transmission to other animals and reduces the infectious dose in the environment. Leaving sick animals in the general population guarantees the spread of infection to others and perpetuation of the outbreak. A common and dangerous belief is that mildly ill animals are not as contagious as those that are sicker this is a myth because the severity of the illness is more dependent on the individual animal's response to the pathogen. Ideally, the animals should be housed in a physically separated and enclosed room for full containment of the pathogens. When animals get sick, they may change their behaviour, becoming less active. Separating sick animals in your herd or flock from healthy animals can prevent disease spread. Isolation allows sick animals to rest and recover and prevents disease spreading around the pen, group or wider farm. Infected animals should be isolated for the duration of pathogen shedding. Confirmation of shedding

cessation can be determined by testing for the pathogen in the same manner as for the initial diagnosis.

3.2. Recording and reporting health condition and problems

A record is a permanent written communication that documents information relevant to a client's heath care management. There is multiple purpose of record keeping. These are;

- Supply data that are essential for a programme planning and evaluation
- Records are tools of communication between workers and other concerned bodies
- A record indicates plans for future
- It provides baseline data to estimate the long-term changes related to services

Maintaining accurate, up-to-date records for all animals under your care is critical to animal health. Incomplete and/or incorrect records of any kind could result in unnecessary treatment or diagnoses, both serious animal welfare concerns, and lead to the collection of invalid research data.

3.2.1. Animal Disease Recording Form

1. **Sample Animal Health Record #1**

S.no	Date ____/____/___	Animal ID	Species	Breed	Sex	Age	Signs/problems	Treatment Given

2. **Sample Animal Health Record #2**

- **Permanent Individual Animal Record**

Record all health management practices and/or treatments given to this project animal. It should include any vaccinations, treatment of diseases, de-worming, etc. This permanent record can be added to each subsequent year and attached to animals thus eliminating additional writing. This record is NOT locked allowing you to cut and paste additional pages, as you need them and enabling you to more easily add to this record each year.

Animals name _____ case no _____

Sex _____ Breed_____

Birth date_____ Tatoo_____

Sire _____ Dam_____

Date _____/_____/_____	Condition/problem	Treatment given

3.2.1. Reporting animal Health Problems

Disease reporting is an integral part in the prevention and control of diseases which various professional bodies, national and international organizations play important roles. In essence, one of the relevant priority of disease reporting is targeted at the prevention and control of disease situation which if left unchecked can turn out to be disastrous. Reasons for disease reporting are;

- Prevention and control of diseases
- Maintaining a disease free status
- For maintaining Public Health
- Maintaining animal Welfare
- Implementation of rapid response mechanisms
- Helps for planning and budgeting

Templates for reporting animal health problems

Name of veterinarian or technician:_____

Vet Clinic Name:_____

Address:_____

Telephone Fax E-mail:_____

- **History of the animals**

Date of onset of first symptoms_____ Date of presentation_____

History (include vaccine history, if applicable):

- **Clinical Findings**

Normal Comments

General: □ Yes □ No _____

Skin: □ Yes □ No _____

Head Area: □ Yes □ No _____

Respiratory: □ Yes □ No _____

Cardiovascular: □ Yes □ No _____

Abdomen/digestive: □ Yes □ No _____

Urogenital: □ Yes □ No _____

Musculoskeletal: □ Yes □ No _____

Nervous: □ Yes □ No _____

Lymph nodes: □ Yes □ No _____

Other: □ Yes □ No _____

Self-check 3	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

Test I: Choose the best answer (2 points each)

1. _____ is the process of segregation of affected and in contact animals from the apparently healthy ones

   a. sick animals b. quarantine c. isolation d. all

2. One of the following is not the purpose of animal health record keeping and recording

   a. Prevention and control of diseases b. maintaining a disease free status

   c. affecting animal Welfare d. Helps for planning and budgeting

Test II: Short Answer Questions

1. Write the difference between isolation and quarantine of animals (2 points)

2. Define recording and reporting (2 points)

3. Develop a sample format used for recording animal health problems (2 points)

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

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

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