



Livestock Production
Animal Anatomy, Physiology and
Animal Health

Handout 6
Livestock Handler Training
Manuals

1



Examination from the back

Follow a specific structure during examination of an animal

Taking the animal's rectal temperature is the first step when examining an animal showing signs of disease. Do a structured examination of the rest of the animal's backside simultaneously.

Tail

Lift the tail to insert the thermometer. The strength of the tail will also indicate the normal functioning of the tail muscles, which is an indication of normal functioning of the nervous system ending at the tail.

Temperature

Test the core body temperature with a thermometer inserted into the rectum. This is the best way to determine if the animal has a fever – an indication of infectious disease and a sign that the animal requires urgent attention.

Condition

While waiting for the thermometer, evaluate the condition score by feeling the fat reserves under the skin at the point of the pin bone and in the lumbar area (the area just in front of the hipbones). Condition is scored on a scale from 1 to 4.



Skin

Evaluate the skin and coat and condition score simultaneously. A healthy skin and coat is a very reliable indication of the general wellbeing of the animal. A dry skin or dull coat is an indication of a problem that has developed over a long time.

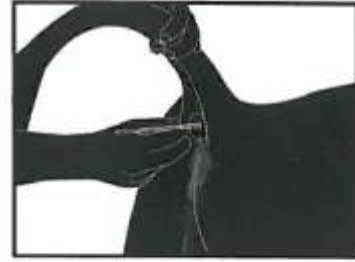
Below the tail

When removing and reading the thermometer, examine the rest of the backside including the vulva/sheath, udder/testicles. Examine specifically for any discharges, soiling, swelling, external parasites and wounds.

Taking the temperature

A thermometer must always be available when farming with livestock.

Use a digital or mercury rectal thermometer.



Digital thermometer

Mercury thermometer

The use and reading of a mercury thermometer is a specific skill, acquired through training.

1. Insert the clean thermometer into the rectum.
2. Hold the thermometer there for two minutes.
3. Take the thermometer out, clean it and read.
4. Store thermometer in a cool, safe place.

Average normal temperature early in the morning

38,5°C

Increased temperature – FEVER

≥40°C

A temperature of 40°C and higher requires urgent attention

Fever is the best indicator to distinguish between infectious diseases and other causes of disease. Body temperature may increase before other clear signs of disease become apparent.

Other causes of raised temperature that may be confused with a fever are:

- if it is very hot or the animal was lying in the sun
- if the animal was chased before examination
- if the muscles of the animal are contracting because of a disease caused by a toxin such as a dipping compound.

Evaluate the status of the blood supply by checking the colour of the lining inside the vulva. When the blood supply is normal, the lining will be light pink.

2



Examination from the front

Follow a specific structure during examination of an animal

Examining the inside eyelid is the second step in the examination of a sick animal. Do a structured examination of the eyes, nose and inside of the ears and mouth simultaneously.

Inside eyelid



Blood loss is one of the major causes of death. The early stages of this condition are not visible during daily observation. The blood supply status can only be evaluated by examining the lining (mucous membrane) of the inside eyelid, or vulva in the case of cows.

Eye



Examine the open eye for any lesions that were not very clear during observation from a distance. It is very important for an animal to have two normal eyes otherwise sight, grazing, herd pecking order and ultimately production will be severely affected.

Ears



Examine the deep inside of each ear for ticks and abnormal excretions. This is also not visible during daily observation from a distance.

Nose



Closely examine the nose and excretions from the nose, as it is the external opening of the whole respiratory system. Depending on other senses, such as smelling the air breathed out, this also forms part of the examination.

Mouth



Examine the inside of the mouth. Several diseases cause very specific lesions on the lips, tongue, hard palate and gums. Also, look at the front and back teeth. Because cattle eat coarse grass, obstruction of the mouth and throat is common, which presents as salivation during observation.



Examination of the inside eyelid

The colour of the inside eyelid is a visible indication of the status of the blood supply.

The correct method to open and examine the inside eyelid:



Lift the top eye bank with the fingers.



Gently close the eyelid with the thumb.



Push the closed eyeball inwards with the thumb.



Pull the lower eyelid down with the thumb of the other hand until the inside eyelid bulge out.

The normal colour of the inside lining of the eye is pink

Different disease conditions can cause a change in the colour of the inside eyelid:

White	An indication of blood loss and anaemia.	Yellow	Liver problems or disease that cause breakdown of red blood cells.
Red	If only one eye is affected, it is a sign of eye infection.	Blue	Animal doesn't get fresh air – suffocating owing to lung problems or can't breathe.
Red X2	If both eyes are red, the whole body system is affected.	Brown	Some plant toxins containing nitrates can cause this.

Examining of the inside of the mouth

Nose tongs are an essential tool in handling cattle but the user must be trained in the safe and correct use to prevent injury.

Safely catching the head, constraining to limit movement and examining the mouth are advanced technical skills, acquired through training and experiential learning.



When dealing with cattle, the head movement must be constrained to open the mouth safely and pull the tongue out to examine the inside of the mouth.

3



Rest of the body

Follow a specific structure during examination of an animal

Examine the lymph glands and follow a structured examination of the rest of the body that couldn't be touched during observation from a distance.

Lymph glands

The lymph glands are not easily palpable by the inexperienced examiner except if they are enlarged. The easiest lymph gland to examine is the one at the point of the shoulder, just in front of the shoulder blade.

Chest

The movement of the chest is the result of breathing. The movement of the chest increases when there is an increased rate of respiration. Examination of the chest by a veterinarian includes the use of a stethoscope to listen to the heart and lung sounds.

Abdomen

When examining the abdomen, look for large swellings and an abnormal shape. Examine the hunger groove for any signs of bloating or if it is very sunken, it is a sign that the animal has not eaten for the past 24 hours.

Front legs and feet

Back legs and feet

Examine the front and back legs. Feel (palpate) for large swellings or any abnormality of all the joints if the animal showed lameness during observation from a distance. Always compare the left limb to the right one to determine if what you see and feel is normal or abnormal. Cattle may kick forward and sideways with the back legs; therefore, the examiner must be very careful when examining the lower legs. Take precaution by using a rope to limit the movement of the hind leg. Examine the hooves of cattle for any abnormal shape and swelling of the joint above the hoof or wounds/infection behind or between the claws. Use the correct ropes for lifting and examining the feet. This is an advanced technical skill, acquired through training and experiential learning.

Lymph glands

Swelling of the lymph glands is a specific indication of a number of important diseases such as cattle tuberculosis.

Although this is part of a specialised examination by a veterinarian, the livestock worker can also examine the size of the most accessible lymph nodes.

Examination of the lymph gland under the skin at the point of the shoulder (just in front of the shoulder blade).

Examine the other lymph glands at the inside corner of the jawbone during examination of the head.



Examining lame cattle

The hoof cannot be properly examined if the foot of the cattle can't be lifted and cleaned for examination.

Most hoof problems can be treated effectively if done as soon as lameness becomes apparent.

If not treated properly, it may progress to severe lameness, which will involve the joint, and cannot be treated effectively in most cases.



Examination checklist and record

1. Temperature:



Background Information?

Condition score?

1	2	2,5	3	4
Loin area				

Skin



Tail

Condition

Under the tail

2. Inside lining of the eyelid and head:



Background Information?

Eyes



Ears

Inside the mouth

Nose

3. Lymph nodes and rest of body:



Background Information?

Neck and chest



Abdomen

Front legs and feet

Back legs and feet

4. Background Information:

Actions taken?

Weight:

Product:

Dose:



1



HEAD

Follow a specific process during daily observation.

Looking at the head of an animal is the first step in daily observation. Even in a big group of animals, the head is the most visible part of the body. When observing sheep, it must be done early in the morning because when it becomes hot, sheep lower their heads making observation more difficult.

Behaviour

The head houses the brain, which controls behaviour and the body systems. Any disease that has a direct effect on the brain or on the whole body will affect behaviour in different ways.

Eyes

The eyes are a direct extension of the brain. It can be affected by damage to the eye itself or it can indicate diseases within the rest of the body.

Ears

The posture and activity of the external ear are very sensitive indicators of the well-being of animals. A change in posture and/or activity will often be the first non-specific sign indicating that the animal is not well.

Many different diseases can also cause swelling of the ears.

The inner ear can only be viewed when the animal is examined.

Nose

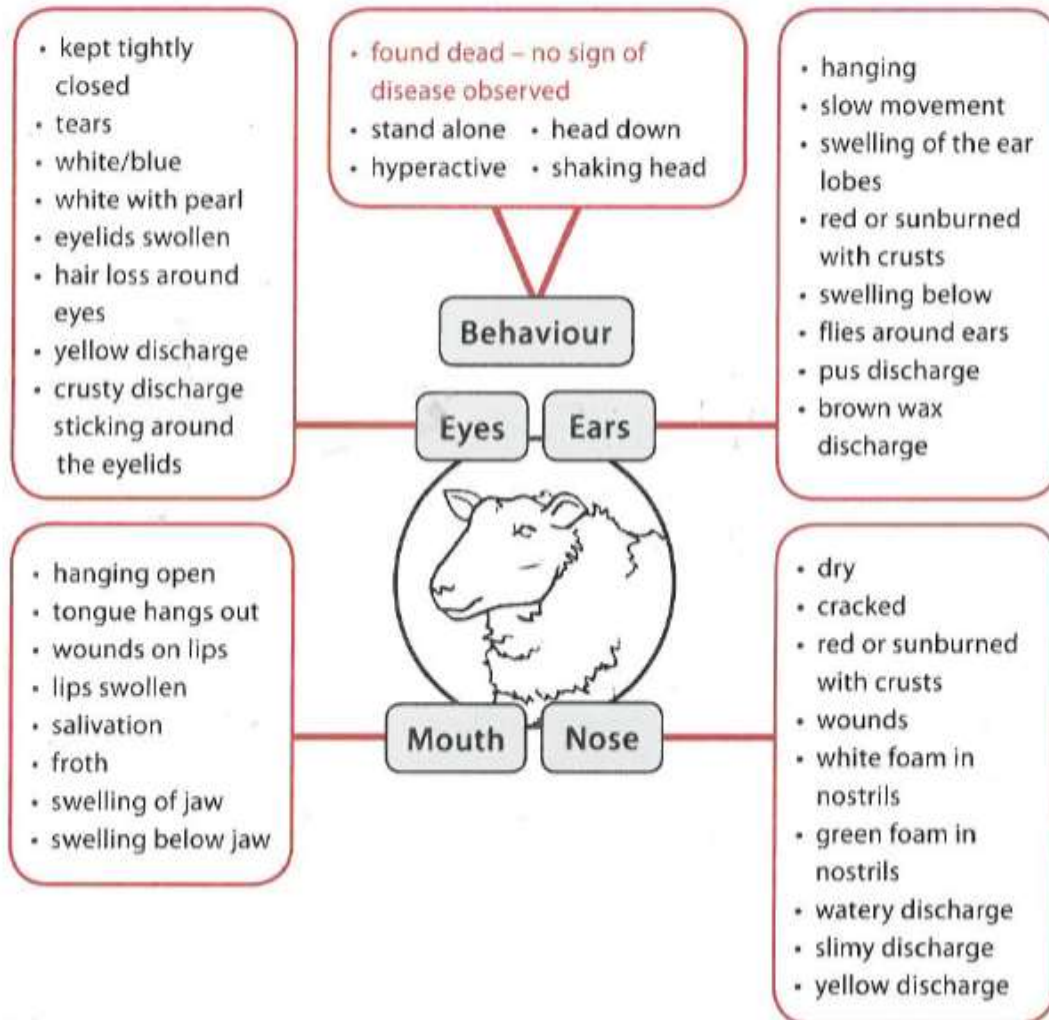
The nostrils represent the start of the respiratory system. Livestock normally breathe through their noses. The nose can show non-specific signs when the whole body is affected as in the case of fever.

Mouth

The mouth forms the first part of the digestive system. Signs of disease can be caused by lesions in the mouth or lower down in the digestive system up to the big stomach.

Most of the problems inside the mouth can only be viewed when the mouth is opened during examination of the animal.

Be very specific when describing the signs of disease observed.



Evaluating the head and behaviour in sheep is not as easy as in cattle.

Sheep lower their heads and change their behaviour when they want to avoid insects such as nasal botflies that deposit their larvae in the nostrils. Sheep also start to pant with a lowered head as soon as it becomes hot in order to cool down.

The livestock handler must understand the normal behaviour of his/her specific sheep flock very well in order to identify any change in behaviour as soon as it happens.

2



Rumen fill and body condition

Follow a specific process during daily observation.

The second immediate area of focus is the hunger groove and an overview of the whole body before dealing with specific observations that may be visible over time.

Rumen fill

Because of the unique digestive system of ruminant animals, the level of food intake during the previous six to 12 hours can be judged by observing the rumen fill in the area called the **hunger groove** on the **left flank**. This is one of the most direct and visible indications of the level of wellness in a period of 12 hours.

Condition

The body condition of the animal is a direct reflection of the wellness of the animal over a longer time (more than 24 hours). Body condition does not change overnight; therefore it is an observation that can identify longer term changes.

Skin/wool/hair

The skin is the largest organ and provides protection for the whole body.

Changes to or infection of the skin and the wool/hair normally occur over a longer period of time making this observation point important to evaluate longer term problems.

Very quick changes in the skin can also occur, as is the case at the start of sheep scab and blowfly infestations which can cause large lesions within days.

Sheep will aggravate these lesions by pulling on the wool with their mouths or rubbing against a fence or other objects.

Be very specific when describing the signs of disease observed.

- swelling/lumps
- fresh wounds
- infected wounds
- wounds with maggots
- maggots feeding on the skin
- tick infestation
- dull hair coat
- itchiness
- wool/hair loss
- hair standing up
- bleeding spots

Skin/wool/hair

Any sign of itchiness in sheep is extremely important and must be investigated immediately by closer examination.



- average condition
- bad condition
- losing condition very fast

Condition

It is difficult to observe the condition score of sheep with long wool from a distance, therefore it should rather be evaluated during a closer examination.

Rumen fill

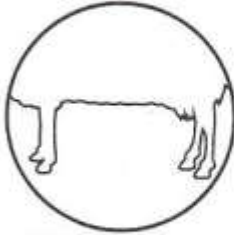
- very sunken in
- sunken in
- bloated



Ticks are not found on large parts of a sheep's body. Ticks have very specific attachment sites which are not visible during daily observation from a distance. Ticks must therefore be evaluated at the specific observation points where they normally attach such as under the tail, on the udder and between the hooves.

It is very difficult to observe the rumen fill in sheep that have long wool, therefore it is important to observe their eating behaviour more closely. If there is any suspicion that they are not eating well, sheep with long wool must be examined to evaluate their rumen fill.

3



Follow a specific process during daily observation.

The animals can move around slowly and observed as they leave the pen. This observation can also be done while the animals are being herded.

Walking and movement

Backline

A normal backline posture is an indication that the animal is not in pain. Bending the back while standing or walking is a very specific indication of pain in the body, limbs or feet.

Standing

Healthy animals stand comfortably with all four feet spaced under the four corners of the body and even pressure is placed on all four feet. They stand still without swaying from side to side.

Lying

When sheep are lying down they do so in an upright position, with their necks and heads forward or sideways and front legs bent underneath the chest. They will normally lie on their backsides. As with all ruminant animals, if sheep are lying flat on their sides they cannot get rid of the gas formed in their rumen and will bloat very quickly.

Front legs and feet, and back legs and feet

The front and back legs as well as the joints are smooth with no large swellings. There should be no marks on the skin, matting or loss of hair on the joints.

The hooves must be normal with no swelling or wounds above, in between or behind the hooves.

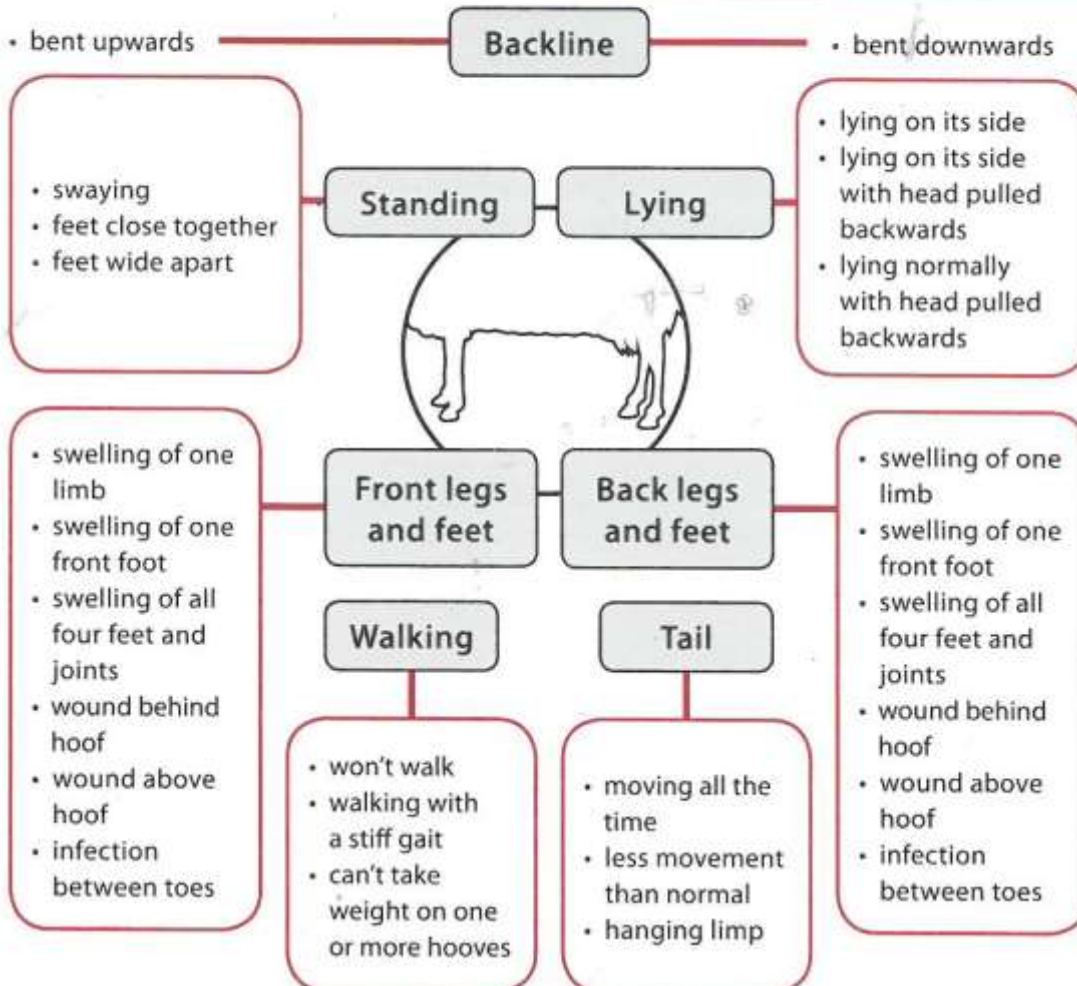
When animals are herded, their gait is steady with no jerky movement of the head. During walking the head is lowered in order for them to see where they are going.

Lameness is a very common problem and the first sign of lameness is when an animal won't put its full weight on one or more feet while walking.

Tail

The tails of sheep are less active than in the case of cattle and sheep will only move their tails if there are insects bothering them or other causes of irritation under the tail.

Be very specific when describing the signs of disease observed.



When working with sheep, you won't necessarily need a crush pen to examine the animal as when working with cattle. Sheep that show any signs of disease can and must be caught and examined as soon as the first sign of disease is observed.

Lameness

The progression of lameness in sheep is very fast, therefore the cause must be established in order to immediately start the treatment.



4



What goes in?

Follow a specific process during daily observation.

Observing animals breathing, drinking and eating should take place during the day. Because these animals have large stomachs, they eat or graze and then rest while they ruminate the food accumulated in the big stomach.

Breathing

Observation of the ease, speed and depth of breathing should be done before animals are disturbed. In sheep it must be done early in the morning while it is still cool.

Very close observation of the chest and abdomen movement is needed to evaluate breathing. When breathing is difficult, increased chest and abdominal movement is obvious.

Drinking

Animals with large stomachs (ruminants) drink a large amount of water at a time. The drinking process involves the normal working of the muscles of the mouth, tongue and throat to suck the water and to swallow it effectively. Diseases that affect any of these will cause the animal to drink less or not at all.

Eating

A very specific sign of health is the eating (grazing) behaviour of animals. This can be evaluated throughout the day because these animals spend most of their time taking in food to the large stomach. Any change in eating behaviour is important to record. Most diseases that affect the whole body will decrease or stop food intake.

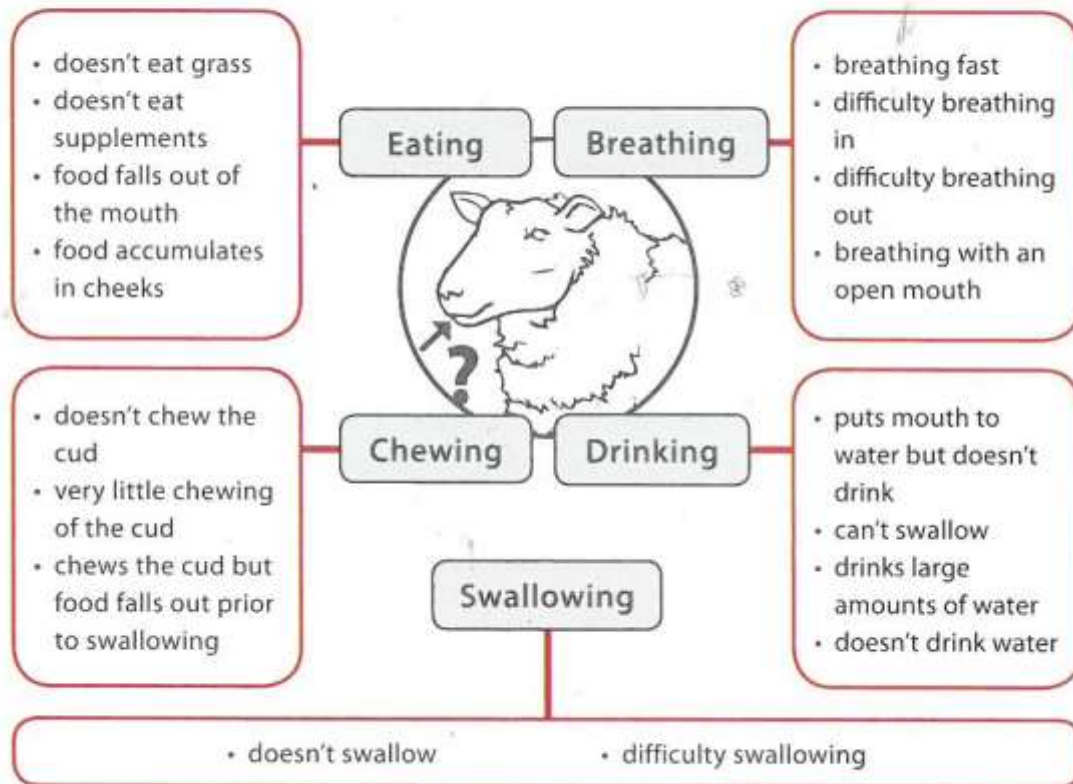
Chewing

When animals are resting, their well-being is best evaluated by the number of animals ruminating. Unhealthy animals stop ruminating.

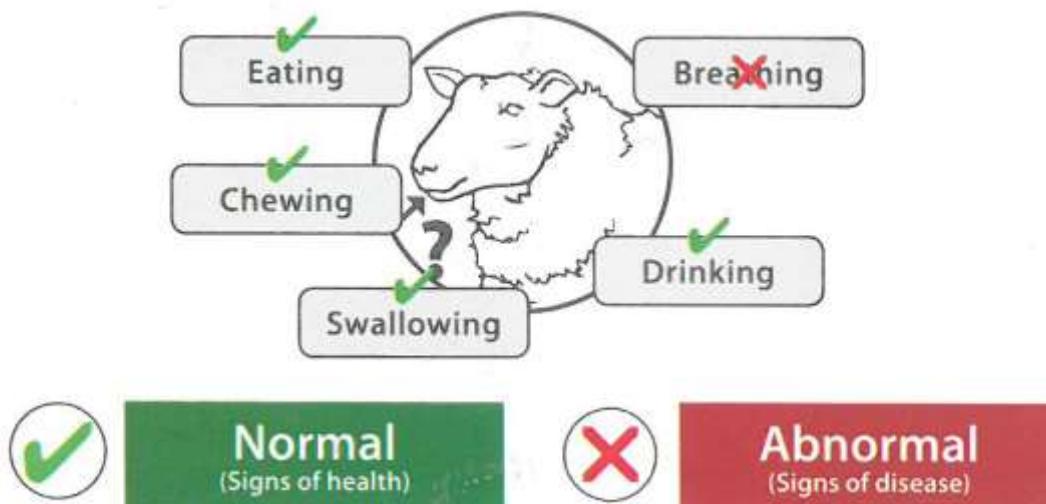
Swallowing

Normal swallowing can be evaluated when the animal is drinking or swallowing the cud. The observer should then also focus on the neck and breastbone while evaluating the swallowing process.

Be very specific when describing the signs of disease observed.



The first step in reporting observations is just to make a cross over the affected areas on the Daily Observation Card (DOC).



5



What comes out?

Follow a specific process during daily observation.

Because the animals are eating and drinking large amounts of food and water, they produce a lot of dung and urine during the day, which can be observed.

Dung

The consistency and colour of the dung give a good indication of the health and functioning of the digestive system. Sheep dung is in the form of loose pellets. If pellets are sticking to each other or the dung is soft (same as cattle) or watery, it is not normal unless the pasture they feed on is very lush and soft.

Urine

The only evaluation of the functioning of the kidneys and urinary system can be done by observing the animal while it is urinating. The specific colour and clarity of the urine is also a very good indication of the general or specific health of the animal. Any change in the urine is an important observation to make.

Vulva

Observation of the external opening of the reproductive tract of female animals is important before breeding and after birth. This is a specialised observation and is used for breeding management and identification of problems just before, during and after the birth process.

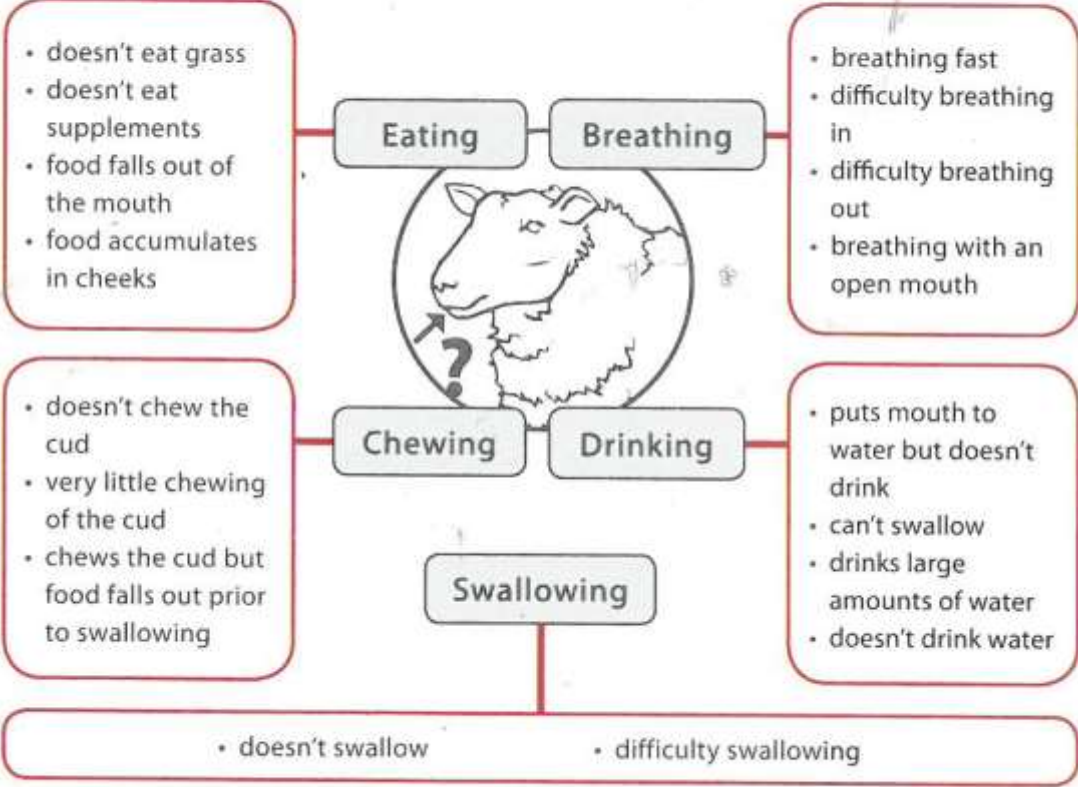
Teats and udder

The observer cannot see the milk but can evaluate the health of the teats and udder on a daily basis. This observation is not as easy as in cattle and if there is any suspicion that something is wrong, the animal must be examined more closely.

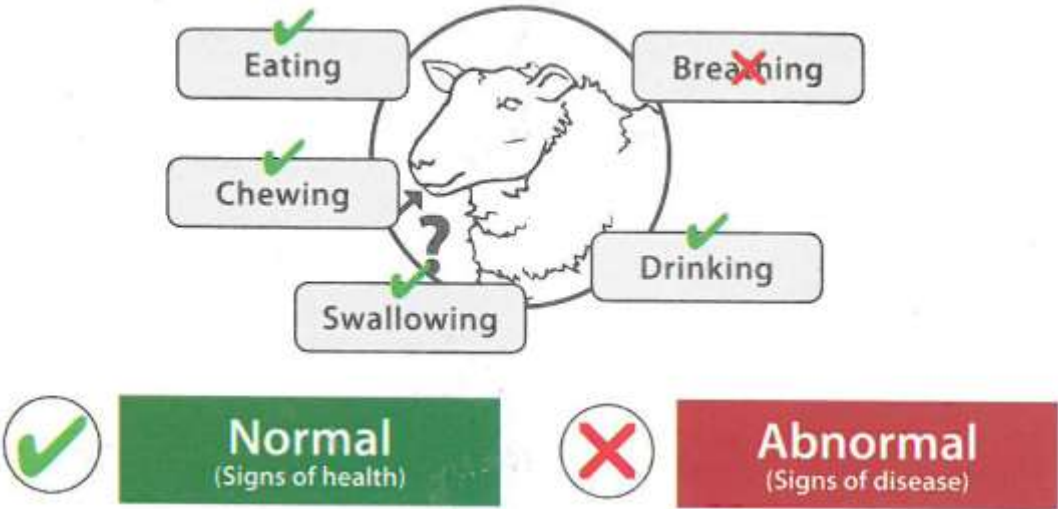
Testicles and sheath

In male animals the semen is not visible, but the important male reproductive organs must be observed daily. Ticks, swelling or wounds call for immediate action.

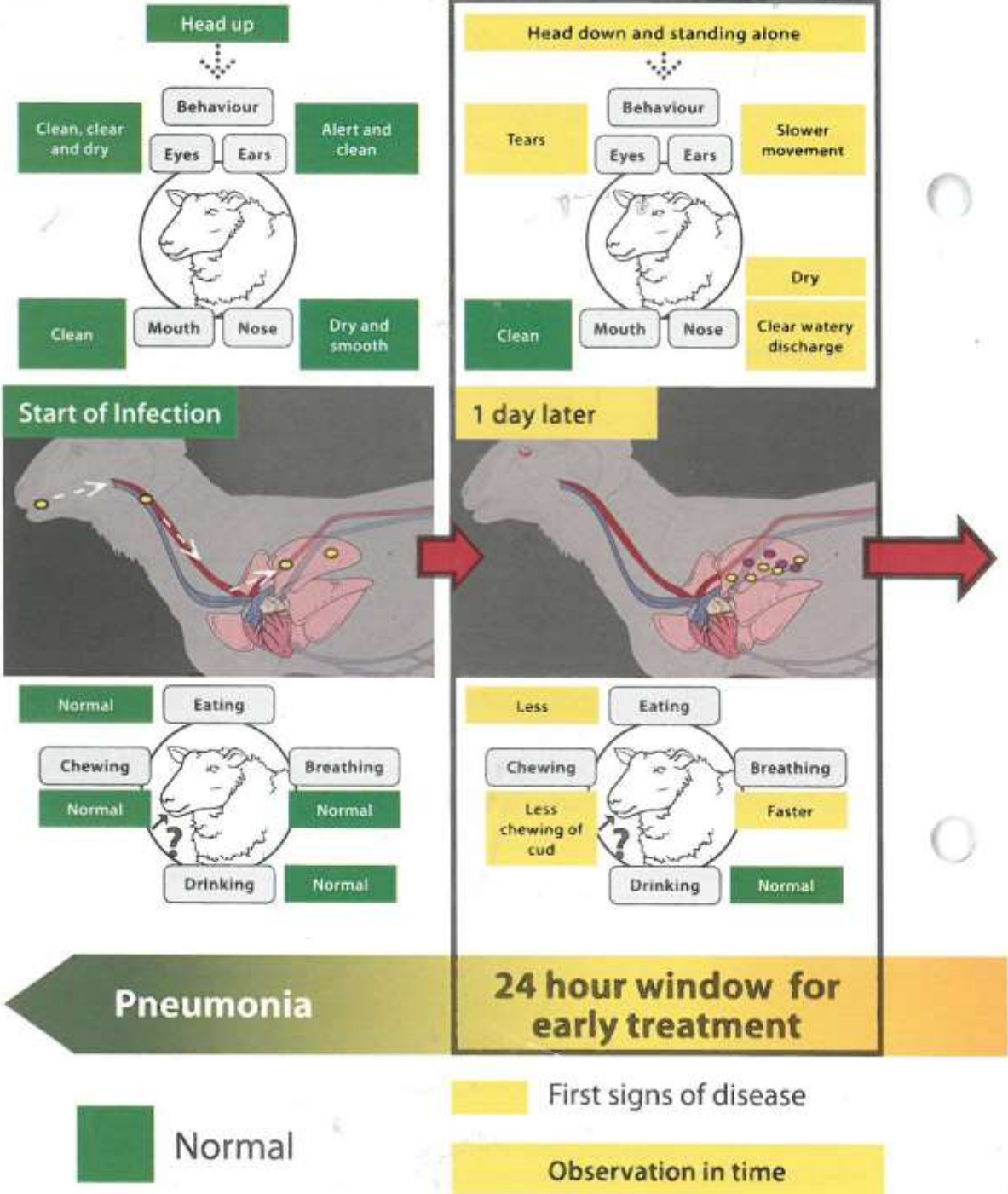
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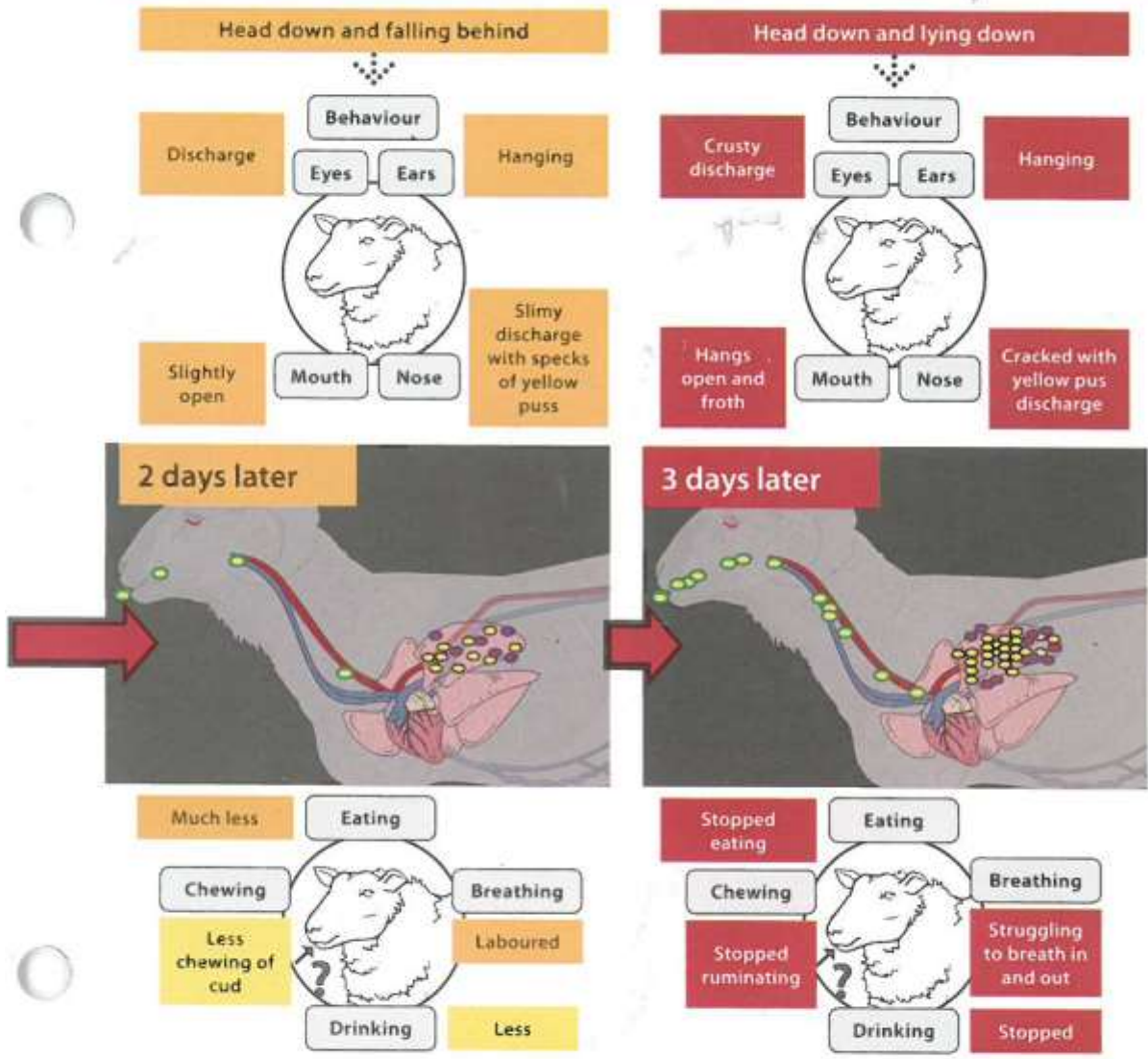
The first step in reporting observations is just to make a cross over the affected areas on the Daily Observation Card (DOC).



The observer will not miss the first signs of disease if he/she uses a structured observation system every day.



Severe production loss will occur if the first signs of disease are missed and/or no action is taken after the observation.



Bacterial infection of the lungs

Advanced signs of disease Very advanced signs of an animal dying
Observation too late Observation far too late