

COURSE CODE:	APH403
COURSE TITLE:	Livestock Diseases and Control
NUMBER OF UNITS:	3 Units
COURSE DURATION:	Three hours per week

COURSE DETAILS:

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COURSE CONTENT:

Disease causing organisms – bacteria, virus, fungi, protozoa etc. Symptoms, diagnosis, treatment and control of common livestock diseases. Life cycle of parasites. Principles of parasite control, immune system of the body. Care of sick animal – isolation, quarantine and culling. Simple animal operations – castration, dehorning, drenching, drug administration. Public health, significance of animal diseases and common zoonotic disease.

COURSE REQUIREMENTS:

This is a compulsory course for all 400 level students in Colleges of Animal Science and Livestock Production and Plant Science and Crop Production as well as those in the Departments of Agricultural Economics and Farm Management and Agricultural Extension and Rural Development. Students are expected to participate in all the course activities and have minimum of 70% attendance to be able to write the semester examination.

READING LIST:

LECTURE NOTES

WHAT ARE DISEASES?

Diseases are processes, or conditions that may disrupt normal life functions of an animal. Such animals are said to be of 'ill-health', and in severe cases may die as a result of the disease. In practice, the term 'disease' is commonly used to describe such conditions that may arise when a lower organism causes the disease condition in a higher organism. But strictly speaking, any malfunction of the body process could be described as a disease condition, for example, an animal with a broken leg caused by an accident, or various nutrient deficiency disorders.

Diseases are of different types, and can be classified in several ways based on the

- a.) Cause
- b.) Nature of spread
- c.) Time course or duration of the condition
- d.) Age of animal affected.
- e.) Physiological status, or stage in life of the animal.

Disease Concepts

Diseases and related animal (Host) responses are described by certain concepts for better understanding of their nature. These concepts are based on the general principles mentioned above.

1. Infectious and Contagious diseases – These are commonly used interchangeable but mean different things. An infectious disease is one in which an animal is invaded by a foreign organism that originates from another infected animal. Such foreign organisms are termed ‘Pathogens’, and may include micro-organisms such as viruses, bacteria, protozoa, fungi, some parasites etc. Some infectious diseases require intermediary agents to aid their spread from one animal to the other. Such agents are termed ‘Carriers’ or ‘disease vectors’, e.g. the tsetse fly is an insect vector for the protozoan disease called ‘Trypanosomosis’. Other infectious diseases are described as being ‘Contagious’ because they do not require a Carrier or Vector for their spread e.g. Contagious Bovine Pleuropneumonia (CBPP) is spread when healthy animals inhale droplets discharged by a nearby clinical case.
2. Susceptibility, Resistance, and Resilience – These are terms used to describe the response of an animal (Host) to pathogens. An animal is said to be susceptible to a disease if all conditions about the animal favour the establishment of infection by the pathogen. Resistance is the ability of a host to prevent or limit the establishment or development of infection. Resilience is the ability of the host to maintain a reasonable level of production under a disease condition.
3. Venereal and Congenital infectious diseases – Venereal diseases are spread or transmitted during coitus (mating), and therefore are restricted to breeding adults. Transmission can be either way i.e. from an infected male to a susceptible female or vice versa e.g. Epivag i.e. epididymitis in Bulls or cervico-vaginitis in cows. Congenital infections are those transmitted from parents to offspring, commonly from the dam to the foetus during pregnancy (gestation) e.g. Hog Cholera virus in pregnant sows infect foetuses through the placenta. Foetuses may be aborted or born alive but deformed.
4. Acute or Chronic disease – Diseases are characterised by a sequence of events. Where the sequence develops rapidly, a disease is said to be acute. Whereas, a chronic disease develops over a prolonged period. Examples of acute diseases are Anthrax and Rinderpest. Trypanosomosis is usually a chronic disease with animals suffering for months.

5. Sub-clinical infections – These are situations when animals harbour potentially harmful organisms without showing any overt signs of disease. Such animals only become sick when the population of organisms reach significant levels. For example the presence of helminth parasites in the gut of grazing livestock in many part of the world manifests a sub-clinical infection, but may become a disease condition when animals are subjected to conditions that allow the number of helminth to reach significant levels. Other examples of sub-clinical infections are certain tick-borne blood infections such as Anaplasmosis, Babesiosis, and theileriosis.

FUNGI DISEASES

Fungi are non-green plants that are widespread in nature. They include common forms of mould that grow on stale food, different types of toadstools and mushrooms. Unlike most plants they do not have the chlorophyll in their tissues and therefore cannot derive their nutrition via photosynthesis. Hence they are found growing on materials from which they can derive nutrients such as organic matter, vegetation, and sometimes animals.

Fungi can be classified as Moulds or Yeast. Moulds grow as colonies made of many celled filaments, whereas yeasts grow as individual oval shaped cells. Some grow as either yeast or mould depending on conditions. As disease causing agents, fungi can be classified as being:

1. **Pathogenic:** These cause infections in animals directly. Example, skin infections of domestic animals such as ringworm and epizootic lymphangitis.
2. **Opportunistic:** These are otherwise harmless fungi that could become pathogenic when natural bacteria populations are destroyed by prolonged use of antibiotics. This may result in conditions favourable for colonisation by normally harmless fungi.
3. **Mycotoxicoses:** Some fungi produce toxins, called mycotoxins, which can be poisonous to livestock that consume stale or wet food that has become mouldy.

Ringworm

A fungal infection of the skin of domestic animals and man caused by *Trichophyton* and *Microsporum* species. They become infectious when animals are kept in close proximity in overcrowded conditions, which encourages spread by direct contact.

Symptoms – Lesions start as small areas of hair loss which enlarge to about three or four centimetres in diameter. They are typically round, raised, greyish-white and crusty in appearance.

Control – Ringworm can be tolerated but in severe cases affected animals should be isolated and treated with the fungicide, Griseofulvin, which is administered orally.

Epizootic Lymphangitis

A skin infection of horses caused by the fungus *Histoplasma farciminosum*. Commonly found where horses are kept in unhygienic conditions.

Symptoms – Nodules and abscesses develop in the skin of the head, neck, shoulders and legs. Lesions start as small swellings that eventually enlarge and rupture (ulcerate) discharging thick yellowish pus. Over a period of about ten days, the lesions form scabs, which slough off revealing a larger ulcer underneath still discharging pus. The eye and nostril may be involved and infection may extend to the lungs causing pneumonia. The disease is chronic and severely affected animals lose condition. Affected animals eventually recover by themselves.

Control – Isolation of affected animals is recommended to reduce spread, as treatment is rarely successful. Strict sanitary measures are required.

Aflatoxicoses

Aflatoxins are produced by *Aspergillus* species of fungi, which contaminate stored cereals, groundnuts, and other crops in warm, moist conditions.

Symptoms – They cause liver damage in all stock, but more commonly in young pigs and calves. Affected animals become weak and unthrifty and may die.

Control – Avoid feeding of contaminated feed.

Ergotism

The fungus, *Claviceps purpurea*, which contaminates cereal grains and ryegrass in warm, moist condition, produces ergotism. Ingestion over a period of time results in necrosis (tissue death) of the extremities as a result of constriction of the blood vessels.

Symptoms - Common in cattle and sheep, and characterised by lameness of affected animals.

Control – Avoid feeding of contaminated feed.

Facial Eczema

This is caused by a saprophytic fungus, *Pithomyces chartarum*, which contaminates dead pasture litter producing a liver toxin. The toxin sensitized the skin to ultra-violet rays of the sun, a condition called photosensitization. It is most common where sheep are reared intensively on pasture, e.g. New Zealand, Australia and South Africa.

Symptoms – Affected sheep usually have lesions on the face.

Control – Affected animals should be moved indoors. Secondary bacterial infections could be prevented by giving antibiotics.

Protozoan Diseases

Protozoa are single-celled organisms that can be considered to be the lowest form in the animal kingdom. There are thousands of species in nature but only a few are pathogenic to livestock. The pathogenic protozoa of animal health importance can be classified as either Flagellates or Apicomplexans.

The flagellates have whip-like structures called flagellae which the protozoa use for movement in fluid medium. Hence, they are found outside the cells, swimming in body fluids such as blood plasma, fluids of the brain, eye, or genitalia, e.g. *Trypanosoma* in the blood and *Trichomonas foetus* in the genitalia. In most cases, biting flies, e.g. Tsetsefly, transmits them.

Apicomplexans are complex intracellular organisms that have complicated life cycles with sexual and asexual forms of multiplication. Most of them invade and multiply inside the gut of animals, damaging them in the process. They produce infectious eggs (oocysts), which are passed out in the faeces and can be picked up by other susceptible animals, e.g. Coccidiosis and Cryptosporidiosis, both enteric diseases of young animals. Some other apicomplexans do not develop oocyst, but are spread via cyclical transmission in ticks, e.g. *Theileria* and *Babesia* species. The organisms invade blood cells in animals that have been bitten by an infected tick. Any ticks feeding on such animals become infected in turn so completing the cycle. Hence tick control is important in the control of theileriosis and babesiosis.

Coccidiosis

An infection of the intestine of domestic animals caused by *Eimeria* and *Isospora* species. The organisms are host specific, and transmission from one species of animal to the other does not occur. Organisms develop in the gut cells, damaging them in the process, and are expelled in faeces as oocysts. Oocysts can survive outside the host for several months, and are picked up by susceptible animal completing the life cycle.

Symptoms – include loss of appetite, bloody diarrhoea, and loss of condition.

Control – Medications include Sulfadimidine, Nitrofurazone and Amprolium, which are administered through feed or water. Avoid overcrowding and faecal contamination of feeds and water as clinical cases excrete millions of oocyst in their faeces. Clinical cases should therefore be isolated.

Theilerioses

Tick-borne infections caused by *Theileria* species.

Symptoms - Organisms localise and multiply in lymph nodes, which become enlarge and spread to other lymph nodes. Red blood cells are also infected, and animals become infective to ticks that bite them. Infected animals develop fever, difficult breathing, anaemia, and diarrhoea.

Control – Medications include Parvaquone and Buparvaquone, administered by injection, and Halofiginone through the mouth. Tick-control measures could also help.

Babesioses

Tick-borne disease caused by *Babesia* species, which infects red blood cells. It is also known as Redwater or Cattle tick fever.

Symptoms – Organisms invade red blood cells where they multiply, break out and invade more cells in increasing numbers, releasing large quantities of red cell pigments into the circulation. Affected animals are depressed, feverish, lose appetite, and jaundiced.

Control – Medications include Imidocarb and Diminazene aceturate. Tick-control measures could also help.

Importance of Livestock

- 1) What do you keep animals for?
- 2) Are the animals kept for meat or for work?
- 3) Do they provide you with milk?
- 4) What other things do you get from the livestock you keep?
- 5) If you keep animals for meat do you kill the young or the old animal for meat?
- 6) Do you keep some animals only for work or for meat, to give milk, or for other reasons?
- 7) Try to find out as much as you can about the use of animals in your community.

How good are your animals?

Are your animals providing you with enough milk or meat?

Are your livestock better than those of neighbouring communities or regions? How do your animals differ from those in neighbouring areas?

Communities in neighbouring regions can keep different types of animals. For example cows in one region can produce more milk or give better meat than those in another region. You should consider your livestock and compare them to those of your neighbouring communities.

You may already know of some health problems in your community's livestock. If you talk to others in the community you may find out about other animal health problems. There may be particular problems related to certain breeds or types and not others. Some of the health problems you may discover are:

- Animals die suddenly.
- Young animals are born sick or dead.
- Leg and foot problems.
- Skin troubles.
- Animals do not increase in weight.
- Livestock suffer from worms, ticks or lice.

The udders of milk animals become swollen and blood is found in the milk.

- Chickens stop laying eggs or die suddenly.

Problems of overstocking (too many animals)

- If we do not keep the numbers of livestock in relation to available feed and water then:
- Animals lose weight, become sick and disease spreads.
- Animals do not breed well and death of young occurs.
- Overgrazing and loss of pasture, bushes and trees occur.
- Loss of vegetation will result in erosion of soil and loss of good land.

Body temperature

The normal body temperature

The body can only work properly at a certain temperature. The animal body maintains itself at a constant temperature, within a small range, in order for the systems to work properly. This normal body temperature is different in different types of animals. There are a number of ways by which animals control the temperature of the body:

1. Hair, wool, walking, running, shivering and the burning of energy in feed keep the body warm.
2. Sweating, panting, wallowing in mud, and lying in the shade cool the body.

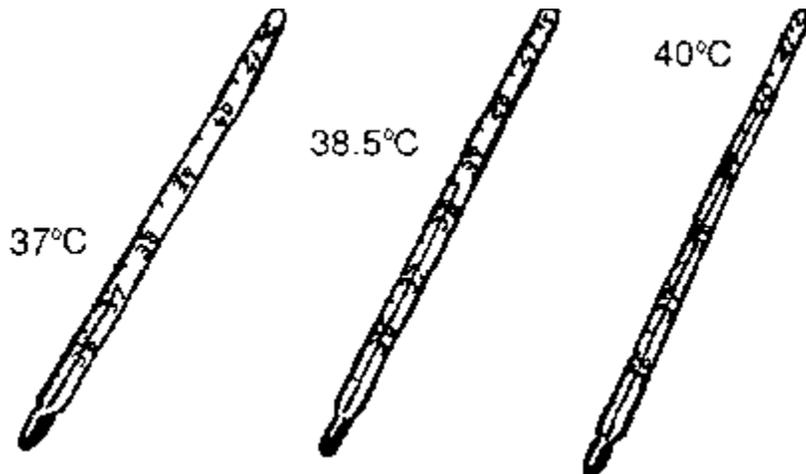
Measuring body temperature

We use a thermometer to measure the temperature of the body. The unit of measurement is degrees centigrade ($^{\circ}\text{C}$). The normal temperature of your body is 37°C . We measure the body temperature of animals by placing a thermometer in the anus.

The Thermometer

Look at your thermometer. Notice the silver line of the mercury inside it and the scale with numbers marked along it. Before you use it you must make sure that the mercury level is below 35°C . If it is not, shake the thermometer to make the level go down. Every time you use the thermometer clean it with cold water and soap or disinfect it afterwards. Do not wash the thermometer in hot water as this will burst it. Do not leave your thermometer in the sun as this may burst it. Carry the thermometer in a case in your pocket or bag. Do not use your veterinary thermometer for people.

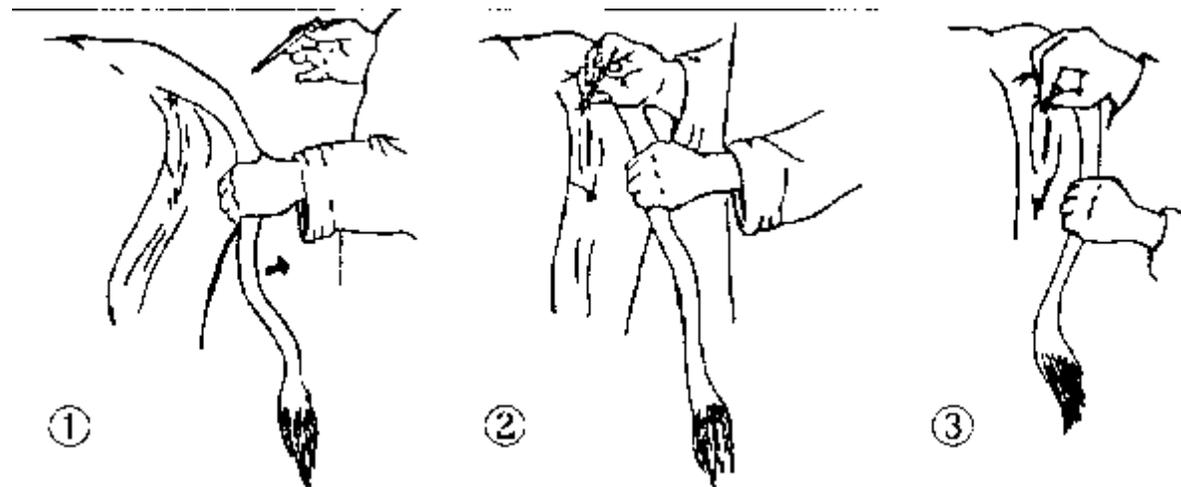
Thermometer



How to take the body temperature of animals

1. Control the animal.
2. Move the tail to the side.
3. Put the thermometer gently into the anus, as far as possible.
4. Hold the thermometer at an angle so that it touches the wall of the rectum. Keep a firm grip on the thermometer, if the animal defecates or coughs the thermometer could come out or go into the rectum.
5. Hold the thermometer in place for half a minute. If you do not have a watch count slowly up to 30 (one, two, three, thirty).
6. Remove the thermometer and wipe it if necessary and read it. Do not touch the bulb as this could change the reading.

How to take the body temperature of animals



Normal body temperatures

Animal	Normal Temperature °C	Normal Animal	Temperature °C
Cattle	38.5	Calf	39.5
Buffalo	38.2	Goat	39.5
Sheep	39.0	Camel*	34.5-41.0
Llama, alpaca	38.0	Horse	38.0
Donkey	38.2	Pig	39.0
Chicken	42.0	Piglet	39.8

Body temperatures may be 1°C above or below these temperatures.

* The camel's body temperature will vary with the time of day and water availability. When a camel is watered daily its body temperature rises from 36.5°C in the morning to 39.5°C at noon, if the animal has no water, the temperature range is 34.5°C to 41°C.

If you suspect that the animal has a high temperature use your thermometer to check it. Remember that a high temperature is one sign of ill health. When an animal has a high temperature it has a fever.

Appearance of the Healthy Animal

Appearance of the animal

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. The separation of an animal from the others in its group is often a sign of a health problem.

An animal which is not interested in its surroundings and does not want to move has health problems.

Movement (gait)

The healthy animal will walk easily and steadily with all of its feet taking its weight. Steps should be regular. Irregular movement results from pain in the feet or limbs. Horses normally stand during the day. If you go near an animal that is lying down it should stand up quickly otherwise it has health problems.

Eyes

The eyes should be bright and alert with no discharge at the corners.

Ears

Most animals have erect ears which move in the direction of any sound. Ear movements will also be quick to get rid of flies; the body temperature of the pig can be checked by touching the ear when an unusually high temperature will be noticed.

Nose and Muzzle

The nose should be clean with no discharge. In cattle and buffalo the muzzle should be moist not dry. In sheep and goats the nose should be cool and dry. Healthy animals frequently lick their noses with their tongues.

Mouth

There should be no saliva dripping from the mouth. If chewing is slow or incomplete there must be a problem with the teeth.

The coat

In short-haired animals, e.g. goat and cattle, the hair or coat of the healthy animal will be smooth and shiny. Healthy cattle, buffalo and their calves lick their coat and the lick marks will show. Horses should not sweat when resting. In poultry the feathers should be smooth and glossy and not ruffled. In pigs a curly tail is a sign of good health while a scaly skin points to health problems.

Behaviour

If a horse, cow or buffalo keeps looking at its flanks or kicks at its belly it has a pain in the stomach.

Breathing

Breathing should be smooth and regular at rest. Remember that movement and hot weather will increase the rate of breathing. If the animal is resting in the shade it should be difficult to notice the chest moving as it breathes.

Pulse

Taking the pulse is important when examining an animal. In man the pulse can be easily taken but in animals it is more difficult and requires practice.

1. In sheep and goats you can feel the pulse on the inside of the top of the back leg. The rate of the pulse is 70 - 130 per minute in the adult.
2. The pulse of cattle is taken at a point on the underside of the base of the tail; the normal rate is 40 - 80 per minute in the adult. In buffalo the pulse rate is 40 - 60 per minute.

3. The pulse of the horse is taken on the inside of the cheek. The normal rate is 35 - 40 per minute.
4. The pulse of the camel is taken at a point on the underside of the root of the tail. The normal rate is 35 - 45 beats per minute.
5. In the llama, alpaca and the pig there is no point at which the pulse can be taken. In these animals the beat of the heart itself must be felt for.

Remember that the pulse will be higher in the young animal. To take the pulse you should feel for it with the first two fingers of the hand.

Droppings or dung

The droppings of the healthy animal will be firm. Very soft droppings (diarrhoea) are a sign of ill health. If the animal has difficulty in defecating (constipation) this is also a bad health sign.

Urine

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.

Appetite and rumination

The animal should eat and drink normally. Failure to eat is an obvious sign of ill health. If feed is available the healthy animal will have a full belly. Pigs will naturally rush at their feed, if they do not something is wrong. Sheep, goats, cattle, buffalo and camels chew the cud (ruminate) for 6 to 8 hours each day. It is a sign of ill health when these animals stop ruminating.

Milk

In the milking animal, a sudden change in the amount of milk produced can mean a health problem. Any sign of blood or other matter in the milk points to infection in the udder. There should be no swelling of the udder and no sign of pain when it is touched. There should be no injury to the teat.

Body temperature

If you suspect that an animal is sick you should take its temperature. Taking the temperature may show a higher than normal body temperature which is sign of an infection.

SPREAD OF ANIMAL DISEASES

The main causes of disease

Dis.....ease= Not at ease or departure from state of well being.

Disease can be classified as acute or chronic. An acute disease starts quickly and lasts for a short period when the animal either recovers or dies. A chronic disease lasts for a long time and weakens the animal. Diseases are said to be infectious (will spread from one animal to another) or non-infectious (will not spread from one animal to another).

Non-infectious diseases can be caused by poor feed and the lack of minerals, salts and vitamins that the body needs. Non-infectious disease can also be caused by poisoning with chemicals or plants, by cuts, burns and broken bones. Some diseases pass from the parent to the young (hereditary).

Many non-infectious diseases are chronic but they can be acute. They can cause large losses of meat, milk and wool. Working (draught) animals do not work well and the rate of reproduction can be low with the young being born dead or dying before they are weaned. Chronic diseases are often thought to be "normal" but when the cause is known and eliminated, production can be greatly increased.

Infectious diseases are caused when the body is attacked by tiny living germs.

The spread of disease

- Infectious diseases can be spread by:
- Direct contact between animals.
- Germs in feed and water.
- By faeces and urine from sick animals.
- By flies, ticks, lice and fleas.
- By dirty housing or shelters.
- Young and old animals become infected more easily.

Preventing infectious diseases

- Animals, like humans, must be clean in order to be healthy. The animal must be provided with clean feed, water, bedding and shelter.
- Sick animals should be kept separate from the others.
- Some diseases can be cured by drugs.
- Vaccination can protect animals against some diseases.
- Dead animals and waste should be disposed off

Remember:

- The spread of disease can be avoided by good livestock management. Keeping animals together increases the chance of disease spreading by contact. New livestock should be kept separate from the others for two weeks so they can be checked for signs of disease.
- Avoid mixing herds. Try to keep herds separate at watering and feeding points.
- You should separate and isolate any animal which shows signs of disease.

Preventing non-infectious diseases

The chronic non-infectious disease may not be recognised as a disease. The affected animals may not die but will not produce as much milk, meat or wool, or work as well as could be expected.

If we continually look for ways of improving feed, water, mineral and vitamin supplies we will find the way to control the non-infectious diseases. This will lead to greater production of wool, meat and milk, draught animals will be stronger and more young will be produced. Poultry will produce more eggs and get fatter.

Dehorning calves, lambs and kids

Animals which have been dehorned are quiet and do not fight and cause injury to others.

The best time to remove the horns (disbudding) is when the animals are less than one week old.

Why do we remove the horns?

Removing the horns from the animal means that:

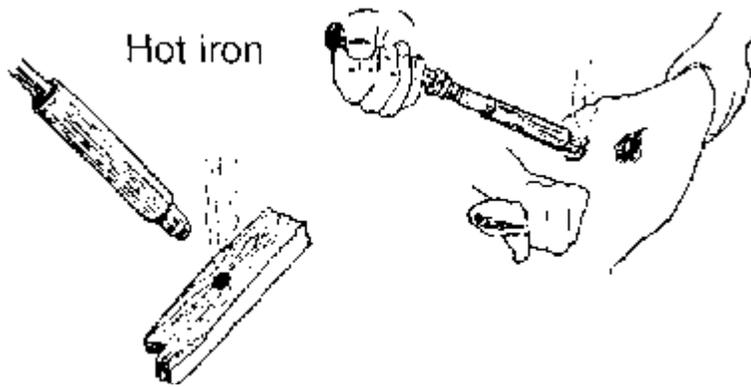
- There is less chance of it injuring other animals.
- There is less risk of injury to people.
- An animal without horns needs less space at the feeding troughs.

The horns are best removed when still buds (buttons) on the animal which is less than one week old. This is called disbudding.

The tools used to disbud animals

To dehorn an animal you will need a dehorning iron which can be heated by electricity or over a direct flame. The end of the iron is round and hollow and will fit over the bud of the horn. Using a hot iron is better than using caustic soda to remove the buds.

The tools used to disbud animals



You may have an iron, but if you do not, ask a blacksmith to make one for you. To test the iron, heat it until hot and then hold the end against a block of wood. A complete, even ring should be burned into the wood. You will need to test the iron each time you use it to make sure it is hot enough.

Disbudding

You will need someone to help you. Take care with the hot iron.

- Restrain the animal. Your helper must hold its head and pull the ear nearest the bud you are going to remove, down and away from the bud. He must hold the head very still.
- Cut the hair away from around the bud of the horn.
- Test the hot iron and when ready put the iron over the bud and twist it around for about 10 seconds. Continue until the bud feels loose, reheating the iron if necessary.
- Push the bud out by pressing with the iron.

Castration of animals

Castration of pigs

Castration, or the removal of the testicles, is carried out on the male pig which is not needed for breeding.

Why are pigs castrated?

Male pigs (boars) can fight causing injury to one another. Castrated pigs are quieter and easier to handle. Castrating the pig makes it put on more fat and the meat does not have a strong piggy smell. Young pigs should be castrated at 2 to 3 weeks of age.

Restraining the pig for castration

You will need someone to hold the piglet for castration. The pig should be held by the hind legs with its head down and its body should be firmly held between the handler's knees.

Castrating the pig

- You will need a very sharp, clean knife, scalpel or razor blade. Remove the sow from the litter and if possible put her where she cannot see or hear them.
- Clean the scrotum with warm water and soap and dry it.
- Move the testicle into the scrotum with your finger and then firmly grip the scrotum below the testicle between your thumb and index finger.
- Make a cut 1 - 2 cm long in the bottom of the scrotum. The testicle should pop out through the cut.
- Pull the testicle out of the scrotum and cut through the white cord leaving the red blood vessel uncut.
- Pull the testicle out slightly further and twist it around several times before cutting the twisted blood vessel by scraping up and down with the knife. This helps to reduce bleeding. Do not pull to break the vessel.
- Do not put your fingers in the scrotum. Apply either tincture of iodine, gentian violet, Detol or an antibiotic powder or a sulpha powder to the castration wound. Remove the second testicle in the same way.
- Put the piglets and their mother on clean bedding. Watch piglets for signs of infection in the wound for the next week. Infected castration wounds swell; piglets do not want to walk or are lame.

Castration of ruminants

Traditionally farmers or animal raisers do not castrate animals and both males and females are allowed to mix together. The result is that poor male are allowed to mate with the females and the young stock produced are not very good. Uncastrated males also fight so it is better to castrate the animals which are not the best for breeding.

The best time to castrate animals is when they are very young (a few days old). If castration is carried out then, the operation is easier and more successful and the wound heals (gets better) very quickly.

Holding and controlling animals for castration.

You will need another person to help you. It is best to put young lambs and kids on a table covered with sacks. Calves can be castrated when they are standing but the animal must be restrained very well.

Castration with a knife (blood)

- Use a very sharp knife, razor or scalpel.
- Check that the knife, razor or scalpel is very sharp and clean.
- Clean the blade with a disinfectant such as alcohol, iodine, Detol or gentian violet.
- Use warm water and soap to wipe the scrotum and wash your hands.
- Cut the bottom end of the scrotum. Squeeze the testicle above the cut end of the scrotum and it will come out.
- Pull each testicle out as far as possible, twist the testicular cord around several times. Cut the cord in cattle and buffalo by scraping the knife slowly up and down. Pull to sever the cord in lambs and kids.
- Do not put your fingers inside the open scrotum. Put either tincture of iodine, gentian violet, Dettol or antibiotic powder on the wound.

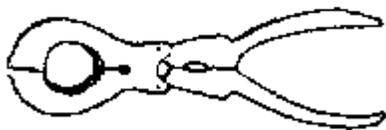
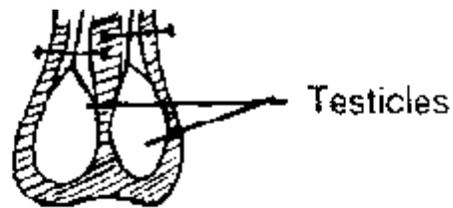
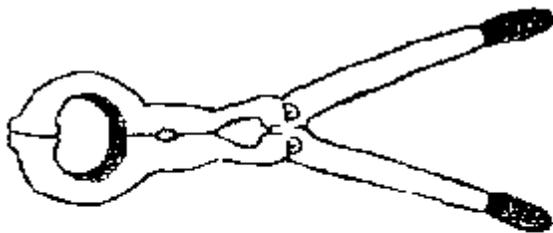
Castration with Burdizzo (no blood)

The Burdizzo should be used on the young animal. There are Burdizzos for animals of different sizes. You should always remember that the Burdizzo is a valuable instrument and keep it clean and oiled. Do not drop it.

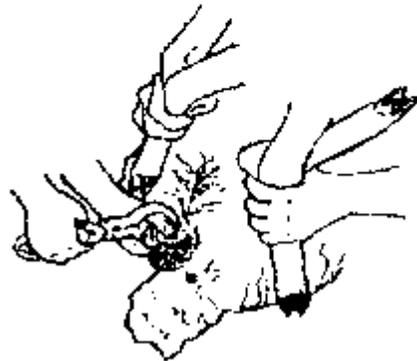
To castrate with the Burdizzo:

- Feel the scrotum with your hand and you will feel the two rope-like testicular cords inside.
- Take the Burdizzo in your right hand and with your left hand push the cord to the side between the jaws of the Burdizzo and squeeze hard.
- Now take the Burdizzo in the left hand and crush the other cord.

Burdizzo for calf



Burdizzo for sheep

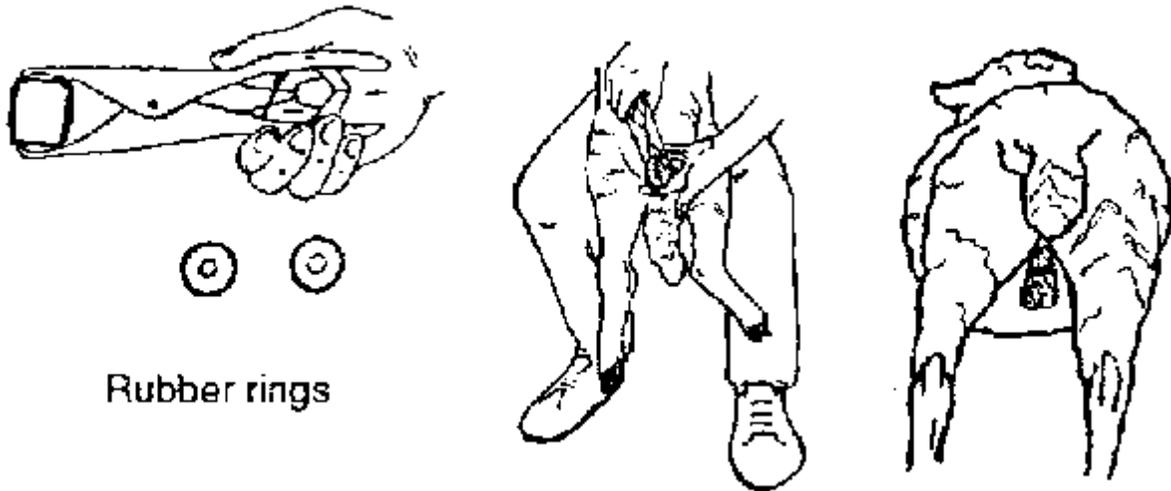


Castration with rubber rings

- To castrate with rubber rings we use a tool called an elastrator. It can only be used to castrate ruminants which are a few days old.
- Put a rubber ring around the four teeth of the elastrator and squeeze the handle. The rubber ring will be stretched open.
- Pass the scrotum of the animal through the ring making sure that it goes over the two testicles.

- Release the elastrator and the rubber ring will tighten over the cords. After two weeks the scrotum will fall off.

Elastrator



Check all animals which have been recently castrated for signs of infection.

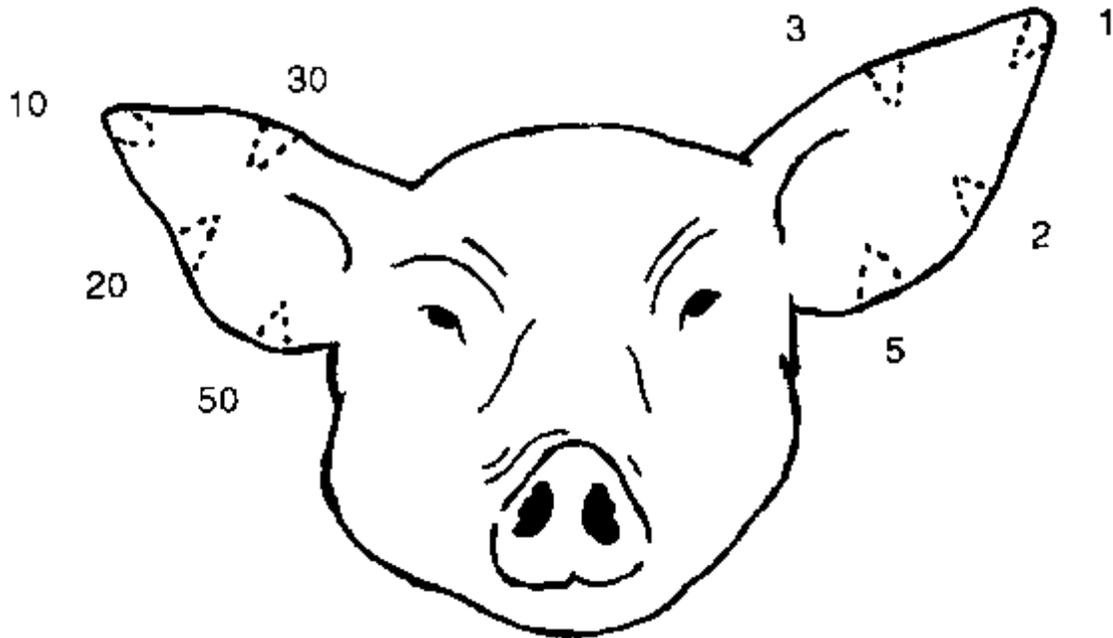
IDENTIFICATION OF LIVESTOCK

If you have a few pigs or other animals, identifying them is no problem. You will be able to identify them by sight and may well have given them a name. You will need some way to identify a large number of animals especially if you are going to keep records. There are many ways to identify animals including numbered collars, tattoos, and plastic tags. Notching the ear is easy and is the cheapest way.

Notching the ear

A V-shaped notch can be cut out of the edge of the ear using a pair of clean scissors. Make the notch a few centimetres deep so in future you will be able to read it from a distance.

The notches on the left ear are for single numbers and on the right ear the notches are for tens.

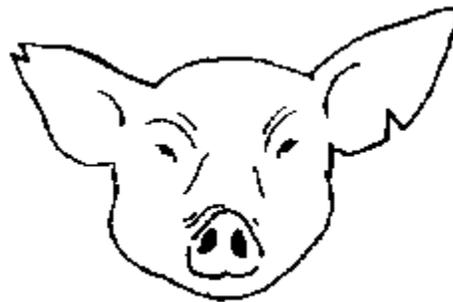


Recording the number of the pig

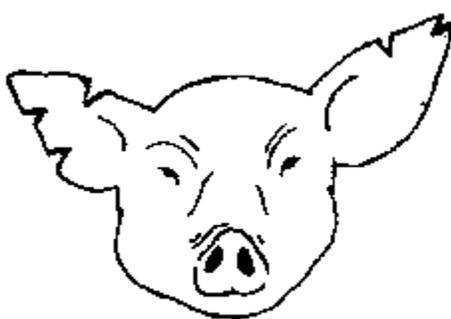
Look at the notches on the right and the left ears then add up the number on each ear to give the number of the animal.



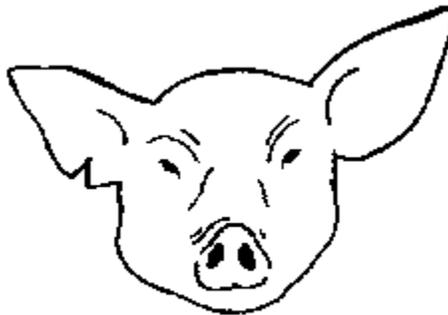
Number 8



Number 15



Number 104



Number 50