CAHW

Community Animal Health Workers

A HANDBOOK FOR BASIC ANIMAL HEALTHCARE IN SIERRA LEONE

FOR TRAINERS AND COMMUNITY ANIMAL HEALTH WORKERS

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UNITY FREEDOM JUSTICE

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TABLE OF CONTENT

Session 1: Your Roles and Responsibilities as CAHW

At the end of the session, you will be able to explain:

- Who you are as CAHW?
- Your roles and responsibilities
- Your position in the veterinary service delivery system

Who are you as Community Animal Health Worker (CAHW)?

- Recommended by your community and trained.
- Receive certification and CAHW identity card.
- Submit your report of animal disease outbreaks and other activities, at least once a month.
- Identify and treat simple common diseases found in your area and dispense veterinary drugs
- Involved in disease surveillance for other priority diseases occurring in the area
- Livestock keepers pay for drugs and services provided
- Spread livestock extension messages for the community.

Your Roles and Responsibilities

Primary Roles

1. *Prevent disease occurrence through vaccination*
2. *Treat sick animals, record such treatments and make the necessary follow-up of the cases*
3. *Promote animal welfare*
4. *Report occurrence of livestock diseases, including notifiable diseases, to the nearest Veterinary Services authority*
5. *Refer difficult clinical and surgical cases to the Livestock Inspector or the supervising Veterinary Officer*
6. *Collect samples from sick animals and submit them to the supervising Veterinarian when necessary.*

Secondary Roles

1. *Provide extension messages on disease control and prevention*
2. *Advise communities on public health issues including meat and milk hygiene to avoid diseases that affect both animals and humans.*
3. *Promote sharing and conservation of natural resources and the environment*
4. *Sensitize communities on policy and legislative issues relating to the livestock sector emphasizing on handling of veterinary drugs, quarantines and livestock movement and their relevance to disease control*
5. *Provide advice on good animal management practices*
6. *Observe personal hygiene and tell same to livestock owners*

Socio-cultural background of the community

Different communities have got different traditions and cultures. They are associated with norms, values and beliefs which are cherished by the community members. These are highly considered when making community entries. To be able to fit well into these communities and work harmoniously with them, you should acquaint yourself with these traditions and cultures.

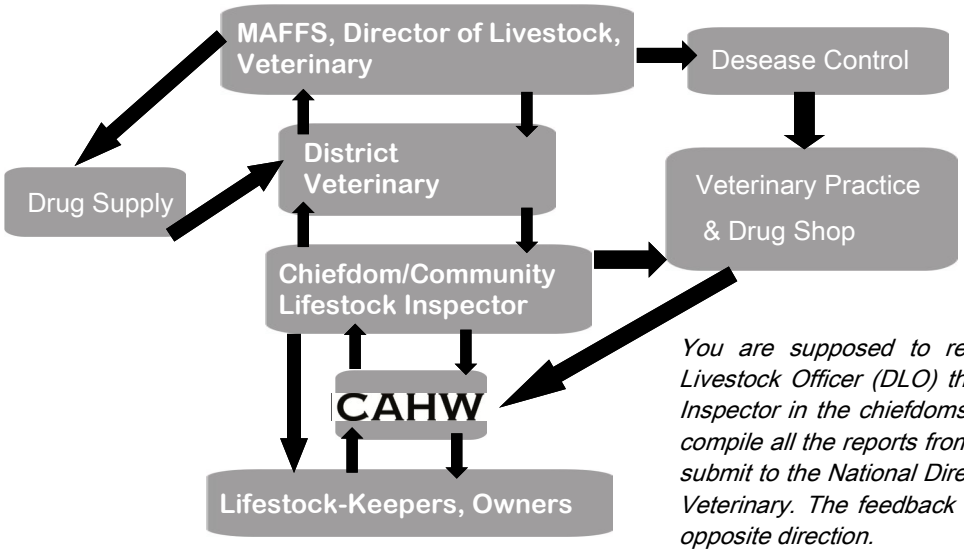
OBSERVE THE FOLLOWING!

- Norms are to be adhered to
- Values are to be kept in high standards
- Beliefs are to be respected
- Taboos are not to be broken

Benefits of knowing socio-cultural background

- ✓ You are fully accepted by community members
- ✓ Trust and friendship is built between you and the community members
- ✓ You are often called for animal treatment and therefore business flourishes
- ✓ Conflicts are minimised

Your position in the veterinary service delivery system



You are supposed to report to the District Livestock Officer (DLO) through the Livestock Inspector in the chiefdoms. The DLO will then compile all the reports from the Chiefdoms and submit to the National Directorate of Livestock/ Veterinary. The feedback loop comes through opposite direction.

LET´S LOOK BACK

- How can you qualify to work as CAHW?
- What does the CAHW get in return for his/her activities in the communities?

Session 2: Conflict Resolution

At the end of the session, you will know:

- Conflicts between livestock and crop farmers
- Causes and resolution of conflicts between livestock and crop farmers
- How to help resolve conflicts through Conflict Resolution Committees

What are Conflicts?

Conflict occurs when there is disagreement. When animals graze on a crop farm and destroy the crop, there is always disagreement between the crop farmer and the livestock keeper so there is conflict.

- Animals without herdsmen move to crop farms to graze on crops and destroy them.
- Crop farms may be located at areas which have been allocated to livestock farmers.
- Livestock keepers may graze their animals at areas which have been allocated to crop farmers.

- Land owners, traditional authorities and local government ensure proper allocation of pieces of land to farmers (crop and animal) with clear demarcations.
- All animals should be shepherded or put in paddocks
- Herdsmen should not cross their grazing field boundaries to graze animals in areas allocated to crop farmers.
- Crop farmers should not farm at areas allocated to livestock keepers.
- Contrary to any of the above should attract a fine

Conflict Resolution Committees

In order for the solutions listed above to work, conflict resolution committees have been formed in the areas, chiefdoms and district level. These committees have their respective composition and terms of reference for their operations. Land lease agreements, obligations of cropfarmers and livestock keepers, as well as bye-laws supporting these policies are clearly specified (See Annex).

LET´S LOOK BACK

- What is the main cause of conflict?
- How do you solve conflicts?
- Why you should solve conflicts?

Session 3: Types and Importance of Farm Animals

At the end of the session, you will know:

- Difference between ruminant and non-ruminant animals
- The benefits we get from farm animals

Difference between ruminant and non-ruminant animals.

Farm animals can be grouped into ruminants and non-ruminants.

RUMINANTS	NON-RUMINANTS
	
Stomach consists of four chambers	Stomach has only one chamber
They chew the cud	Swallow food at first time
Teeth continuously grow	Teeth stop growing
Do not have upper incisors (have thick dental pad)	Do have upper incisors
e.g. cattle,sheep, goats	dogs,cats,pigs, rabbits, poultry

Sheeps grazing on a field. The grass is digested in four chambers inside the stomach.

What benefits do we get from animals?

1. Source of good quality protein in food
2. Source of employment
3. Source of income
4. Source of energy
    - Draught power
    - Dung for fuel
    - Biogas production
    - Means of transport

1. Manure for soil fertility improvement
2. Animals may be used for research purposes
3. Industrial uses e.g. for the manufacture of leather, belt, shoes, etc.
4. Outlets for the utilization of industrial and domestic by products and wastes
5. Increasing animal production saves foreign exchange.
6. Store of wealth, and insurance against disaster
7. Livestock, particularly sheep, are efficient in controlling weeds.
8. For sacrificial purposes
9. For festivities
10. For payment of social dues eg. Dowry
11. Prestige
12. Livestock as a form of security
13. Payment of fines (at arbitration at chiefs/ traditional court)

Livestock is important. CAHW together with village community to ensure animal health.

Healthy livestock benfits the community alot.

Session 4: Structure and Functions of Body Organs

At the end of the session, you will know:

- The characteristics of farm animals
- The various body organs and systems
- The position of the main organs within the body.
- How the systems work

Characteristics of Farm Animals

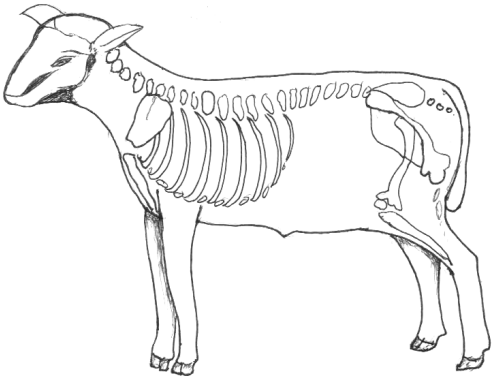
Animals are living beings which are not only aware of their surroundings but also react to them. If the surroundings are not good, the reaction will be negative; when they are good, the reactions are positive. These reactions or 'jobs' are done by body organs and body systems. If the structure of one organ is not good, it cannot function well. If one organ does not function well, it will cause other organs also not functioning well.

It is the responsibility of the livestock keeper to provide all the needs of the animals including good housing, feeding, water and good management. If any of these is not done or provided adequately, the animal undergoes stress and distress and therefore will not produce well.

Structure and functions of organs of Farm Animals

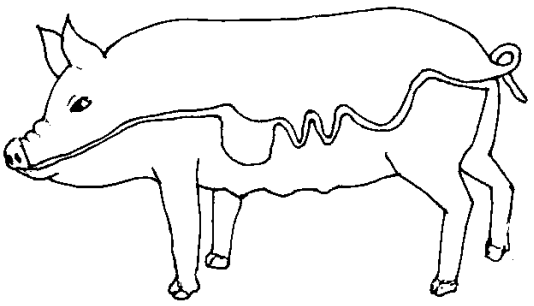
An organ is a complex structure with a special job or a number of jobs to do. A group of organs also come together to perform special jobs. These are called BODY SYSTEMS.

The musculo-skeletal system



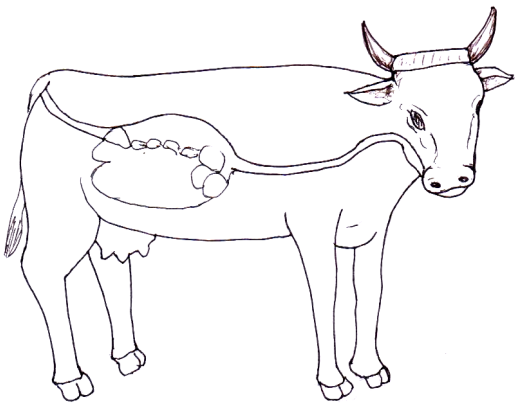
This system is made up of the bones and the muscles (meat).The bones form the skeleton which is the framework within the body. It carries weight and supports the body. Bones are connected together so they can move. The places where this happens are called JOINTS. The bones are held together at the joints by elastic strands called LIGAMENTS. Between the bones is a softer material called CARTILAGE (gristle) which cushions the bones at the joints when the body moves. Bones are very hard and contain minerals. Each bone has a name such as the SCAPULA (shoulder blade) and SKULL (head). There are about 200 bones in the body. Muscles are joined at both ends to the bones. The muscles are the meat of the body and when they contract (shorten) or relax (lengthen) they make the bones move. If you bend your arm you can see and feel the muscles in your arm working.

The digestive system



The digestive system consists of the mouth, teeth, gullet (oesophagus), stomach, liver, intestine, pancreas, and rectum. Animals are divided into ruminants and non-ruminants based on their stomach system. The stomach of ruminants has four chambers. They are:

- Rumen
- Reticulum
- Omasum and
- Abomasums

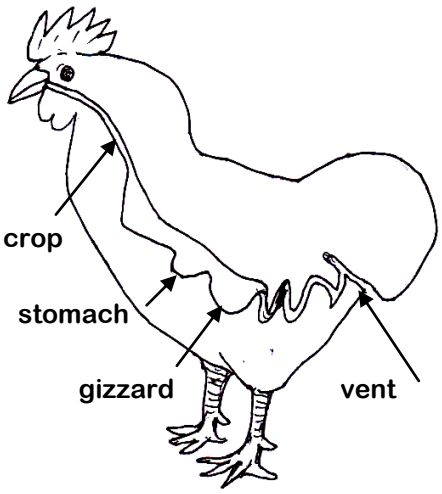


The rumen is the largest compartment and the abomasums is the true stomach. In young ruminants, the rumen does not function because the animals depend on milk instead of grass. Non-ruminant animals have one-chambered stomach e.g. pig . Digestion begins in the mouth where feed is broken down into small pieces by the teeth and mixed with saliva before being swallowed.

In the stomach feed is mixed with the juices to form a soft paste. This then passes into the intestine where bile from the liver and juices from the pancreas are added. The action of these juices is to break down the feed and allow the nourishment it contains to be absorbed by the blood in the walls of the intestine. Waste matter collects in the rectum and passes out of the body through the anus (or cloaca in birds).

The digestive system of the bird

The bird has no teeth, food is swallowed whole and goes into the crop where it is stored and mixed with saliva. If you feel the crop you can tell if a bird has been feeding or not. The feed passes from the crop into the stomach where it mixes with the juices before passing into the roundish, thick walled, muscular organ called the GIZZARD. The gizzard contains small stones which the bird has eaten to help the gizzard to grind up the food for digestion. Nutrients are absorbed as ground-up feed passes along the intestine.

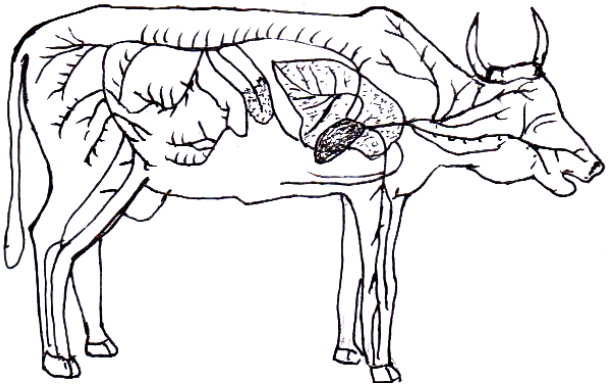


The droppings (faeces) are mixed with urine and both pass out through the cloaca. The duck produces wetter droppings than the chicken.

The circulatory system and blood

The organs of the circulatory system are the heart and the blood vessels (tubes). The heart is found in the chest cavity. It is a muscular pump which sends blood around the body.

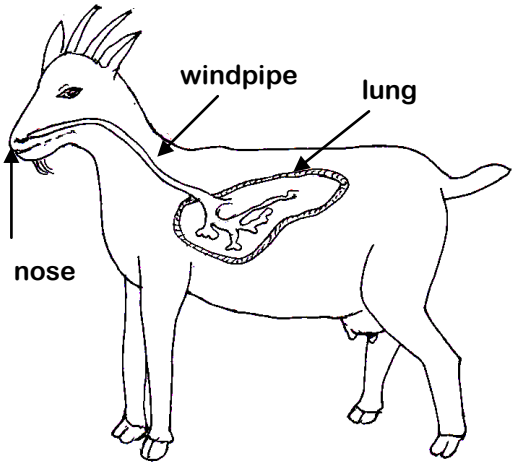
The blood vessels which carry blood away from the heart are called arteries. Blood returns to the heart in veins. When the heart beats its muscles contract and sends blood out through the arteries. When the heart relaxes blood flows into it from the veins. You can feel this on your wrist.



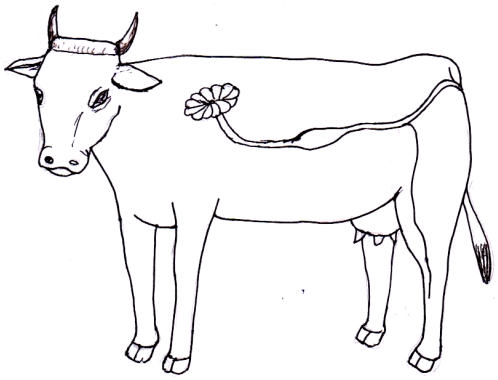
The breathing system

Breathing (Respiration) consists of breathing in (inspiration) and breathing out (expiration).

There are two lungs which are found in the chest. The windpipe carries air from the nostrils to the lungs which have air spaces in them. As the animal breathes, air moves in and out of the lungs. Inside the lungs oxygen needed by the body passes into the blood in the walls of the lungs and water and carbon dioxide pass out of the blood into the air which is then breathed out.

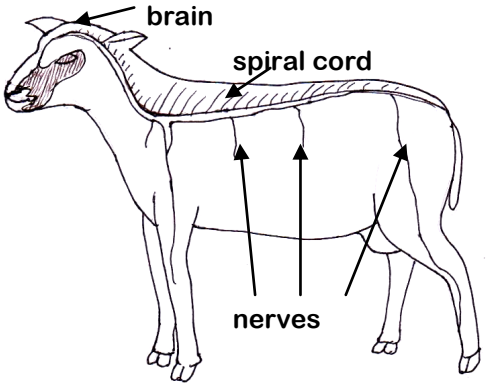


The urinary system



The main organs are the two kidneys, which lie against the backbone, and the bladder.
Waste materials and water are taken out of the blood in the kidneys. This forms urine. Urine collects in the bladder then passes out of the body. Birds do not produce liquid urine. Waste from the kidneys forms a thick white material which is mixed with the faeces (droppings).

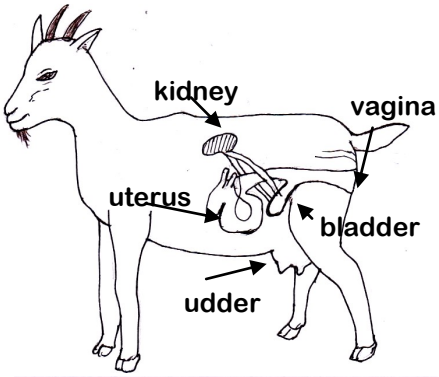
Nervous system and sensory system

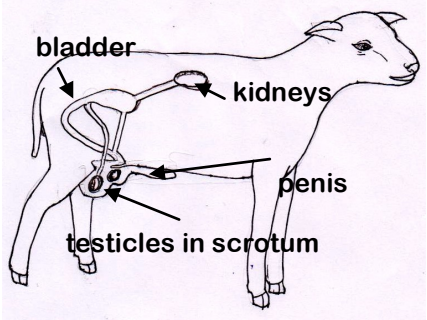


The bones of the skull and backbone protect the soft brain and spinal cord. Fibres called nerves pass from the brain and spinal cord to all parts of the body
Messages pass from the various parts of the body along the nerves to the brain. The brain sends a message back telling the different parts of the body what to do. Through this system the animal can feel pains. The brain also controls the sense organs such as are:

- The eyes for sight
- The ears for hearing
- The nose for smell

Reproductive system (breeding)





The male reproductive organs, the testicles, lie in the testes (scrotum) behind the penis. The testicles produce sperm which are contained in the fluid semen. A tube passes from each testicle and joins to form a tube which runs down the centre of the penis. In the bird the testicles are inside the body. The female reproductive organ consists of two ovaries, one in each side of the lower abdomen. The ovaries produce eggs which pass into the womb (uterus). Below the womb is the vagina which opens to the outside surrounded by the vulva. After birth the young are fed on milk produced by the udder. During mating (mounting) sperm passes from the male into the womb and joins with the eggs there. When the sperm joins the egg it forms the embryo which develops into the young animal inside the womb.

Summary of body systems and organs and their functions

System of the Body	Organs in the Body	Job or function
Musculo-skeletal	muscle (meat) bones	Support and move the body
Digestive	stomach, liver, intestine, pan-creas	Digest and absorb feed
Circulatory	heart, blood vessels	The brood carries substances around the body
Respiratory	muzzle, windpipe, lungs	Breathing
Urinary	kidneys, bladder	Get rid of poisons and waste (urine)
Nervous	brain, nerves spinal cord	Pass messages around the body, control the body
Sensory	eyes, ears, nose skin	Sense and detect things outside the body
Reproductive	testes, penis ovaries, uterus, vagina, vulva, udder	To produce and feed young

The animal body is a complex system. The health situation must be governd regularly.

Session 5: Animal Management Systems

At the end of the session, you will know:

- The three main types of animal management systems
- The advantages and disadvantages of the different management systems

Introduction

Animal management practices are the various ways by which animals are kept and their needs adequately provided for. This is done in order to get maximum benefit from them.

The management of animals requires some skills. Only propper management guarantees good production.

Systems of production

Broadly speaking there are three main types

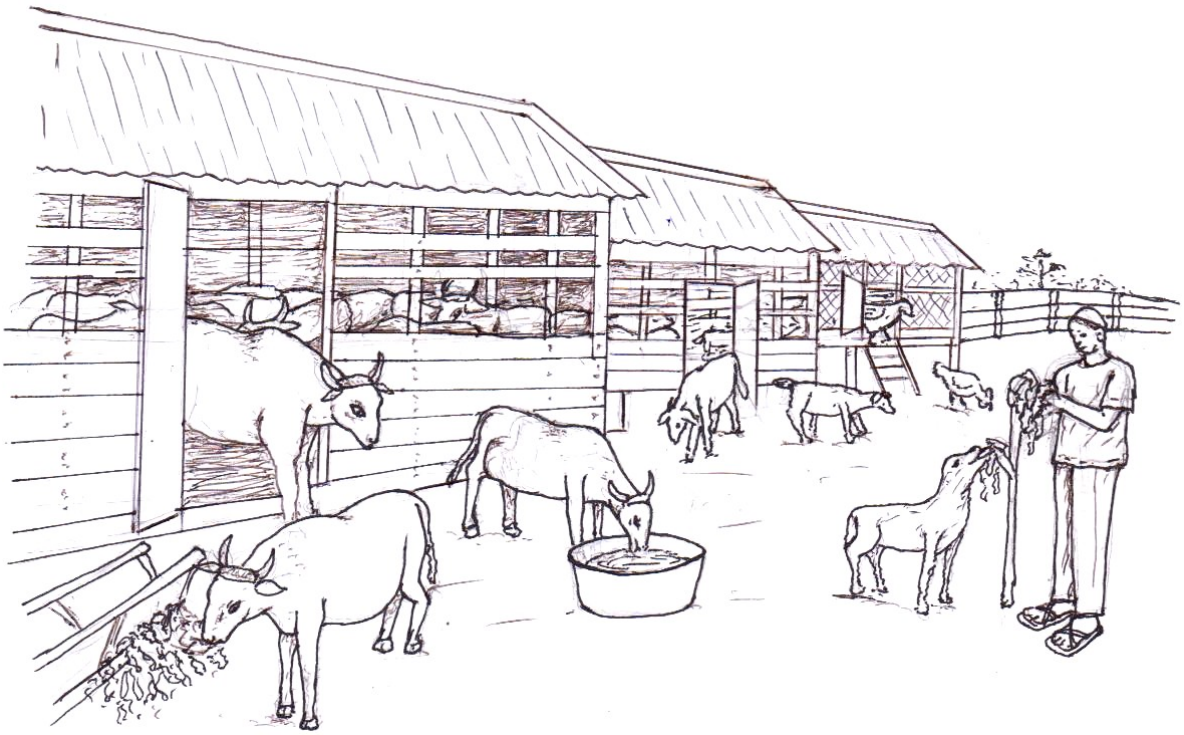
INTENSIVE

EXTENSIVE

SEMI-INTENSIVE

Intensive System

Animals are mainly confined and their needs are consciously provided for e.g. zero grazing of ruminants (animals are always in their house and feed and water are provided for them).



Advantages of Intensive System

- Animals are protected from bad weather.
- Animals are well protected against diseases,
- pest and accidents.
- Efficiency of feed utilization is enhanced.
- Likelihood of higher profit margin.
- Enhances the keeping of good records for
- proper planning and assessment of livestock
- performance.
- Manure can be harvested for soil fertility
- improvement.
- Easy to detect sick animals.
- Confined animals are easier to handle and man
- age.
- Controlled breeding is possible to practice.

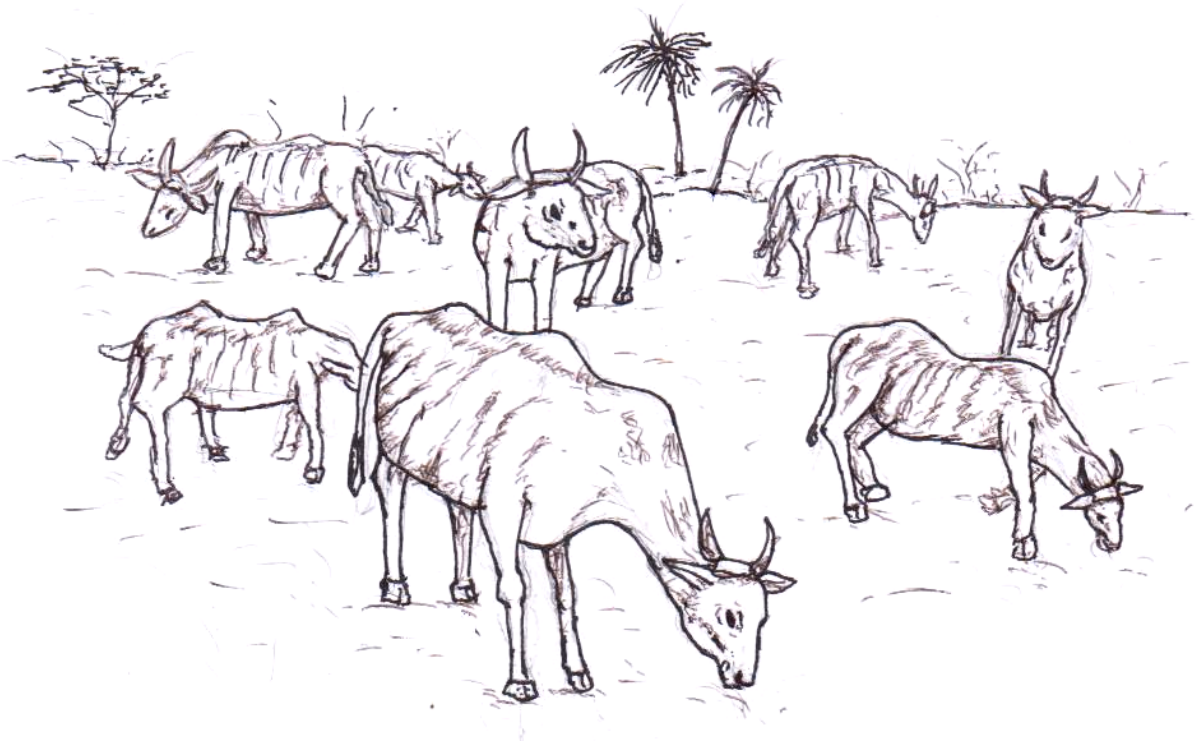
Disadvantages of Intensive System

- System is capital intensive.
- It is also labour intensive.
- Low Animal welfare
- Skilled labour management is required.
- Minimum access to exercise by animals.

LESS MOVEMENT, FATTER ANIMAL!

Extensive System

Animals not kept in confinement, and little or no attention is given e.g. free range.



Advantages of Extensive System

- Less capital intensive.
- Less labour intensive.
- No skilled labour is required.

WORST SYSTEM FOR ANIMAL!

Disadvantages of Extensive System

- Animals exposed to harsh weather conditions.
- Animals exposed to theft, injuries and accidents.
- Lower feed conversion as more energy is spent walking long distances.
- Animals exposed to disease and pests.
- Difficulty in keeping proper records.
- Higher mortalities and consequently lower profit margins.
- Difficult to practice controlled breeding.
- Selectivity during grazing could cause land degradation.

Semi-intensive System

Animals are in partial confinement and allowed access to the outside. This is a system which is intermediate between the intensive and extensive types.

Advantages of Semi-intensive System

- Moderate to low capital required to invest.
- Animals have enough exercise.
- Some level of record keeping possible.
- Low labour intensive.
- Level of theft is reduced.

Disadvantages of Semi-intensive System

- Animals are exposed to accident.
- Medication becomes a problem.
- Conscious breed improvement cannot be done.

Session 6: Housing of Animals

At the end of the session, you will be able to:

- Explain the importance of housing animals to livestock keepers.
- Determine the location and the space requirements of housing for the various species and age groups of livestock.
- Construct simple structures (housing, fencing, paddocks, holding pans) using local materials.
- Assist the livestock keepers in minor repair and periodic maintenance of their structures.

Introduction

It is estimated that about 50% of new born lambs, kids, calves and piglets die as a result of inadequate protection from direct effect of the weather. It is therefore important to provide shelter and shade for the animals.

Names of animals by age and sex

Species	Adult male	Adult female	Young animals
Cattle	Bull	Cow	Calf
Sheep	Ram	Ewe	Lamb
Goat	Buck	Doe	Kid
Pig	Boar	Sow	Piglet
Fowl	Cock	Hen	Chick
Rabbit	Buck	Doe	Young rabbit

CAHW inspecting goat housing in Koinadugu District

Commercial poultry shed in Koinadugu District

Importance of Housing/Fencing

1. Protection from the effect of climate (rain, cold, wind, sun etc).
2. Facilitate feeding of supplements and watering.
3. Protection against theft, accident and predators.
4. Effective disposal and proper use of manure.
5. Easy handling and treatment of sick animals.
6. Facilitate record keeping.
7. Prevent straying and easy identification of sick animals.
8. Nest boxes can be provided to make it easy to collect eggs.

Propper housing of cattle in a paddock in Koinadugu District.

Types of Housing for Ruminants

1. Simple:- A structure with a roof, with or without a fence or wall.
2. Complete/Complex:- A house or building with partitions for various classes of animals and other activities such as lambing pen a feed store.

Site Selection

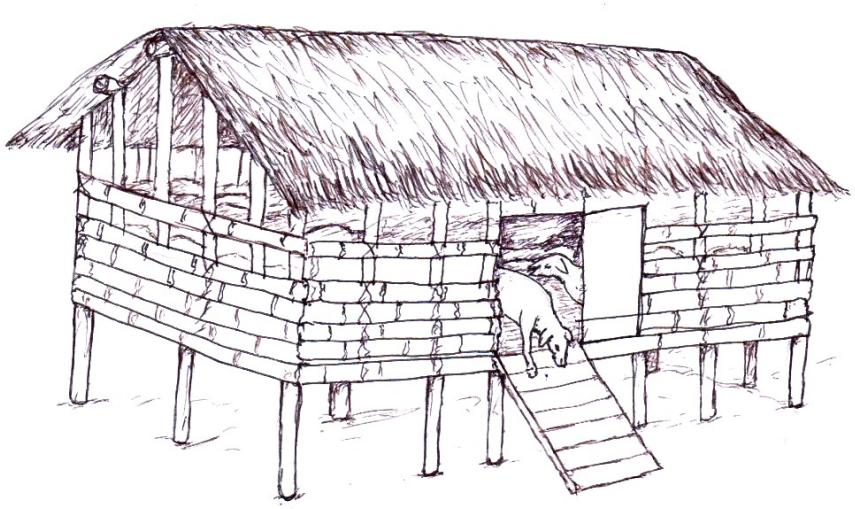
1. The pen should be built on well drained site preferably on a higher ground.
2. Should be preferably closer to a permanent source of drinking water.
3. Site should be accessible.

Important Features of a Good House

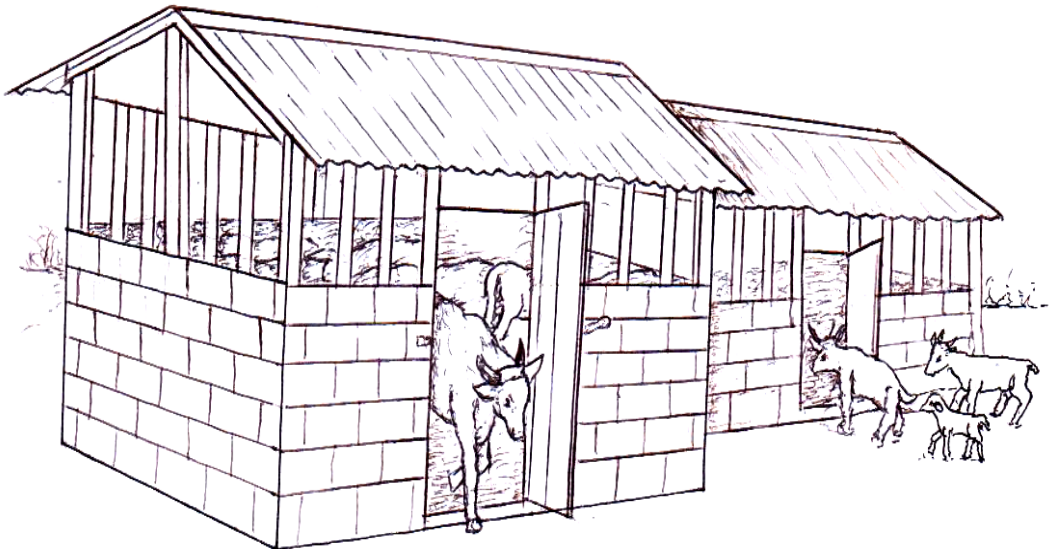
1. The orientation of the house should be east-west.
2. Should have a gabled roof.
3. Should be well ventilated.
4. Should be well partitioned (lambing/farrowing pen)
5. Should have enough floor space.

Additional Features

1. Foot bath.
2. Crush pen.
3. Feed store.
4. Run way.
5. Watering/Feeding troughs & hay racks.



A simple goat house constructed from local materials like wood, bushropes and hay.



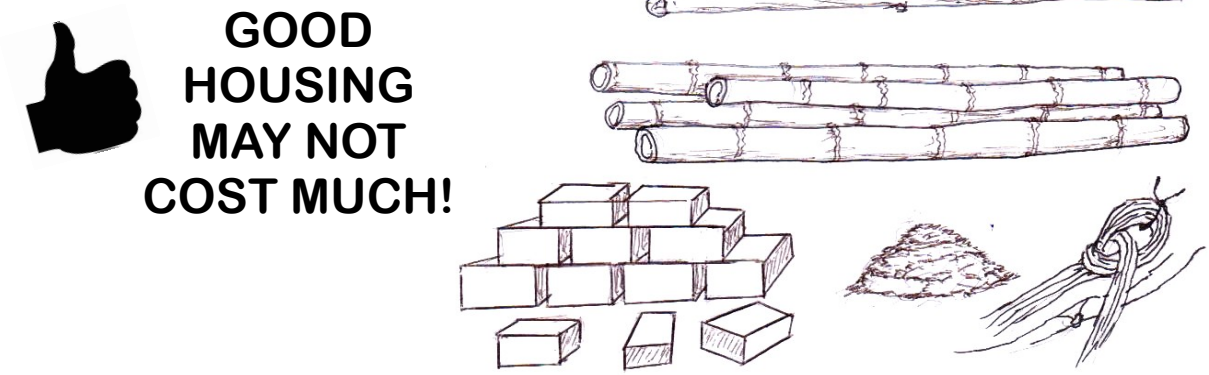
A strong complex structure for keeping cattle.

Floor Space

ANIMAL SPECIE	FLOOR/ANIMAL
Cattle	4 – 5m^2
Sheep &Goat	2.5 – 3.5m^2
Pig	0.3 – 0.8m^2
Birds	16m^2 for 50 birds

Construction Materials

Use local materials as much as possible. Examples are wood, bamboo, burnt bricks, mud (swish), bush ropes, bush sticks. These are cheap, always available and reduce costs.



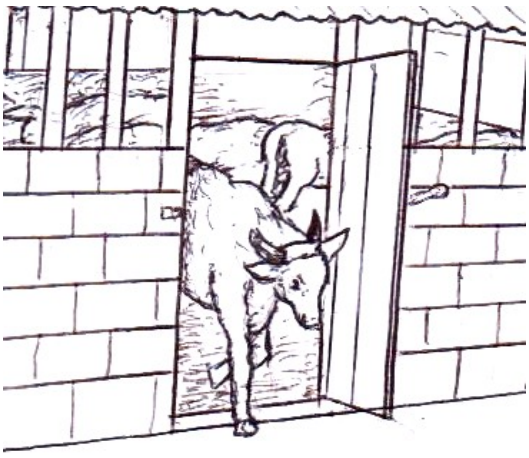
Local materials that are suitable for construction.

Well done shed for goats and sheeps in Koinadugu District.

Paddocks

1. A paddock is enclosed or strong fence where animals can walk about, feed and rest.
2. Paddock is made out of posts, branches or thorns.
3. It contains feed troughs, watering troughs where animals feed and drink freely.
4. There can be trees to provide shade
5. It is easier to keep the animals under watch.
6. They can't get out and damage the crops, and they make better use of all the grass of the pasture.

Paddocks are mostly used for commercial livestock and trading post.



Paddocks are strong constructions mostly made with brickstones.

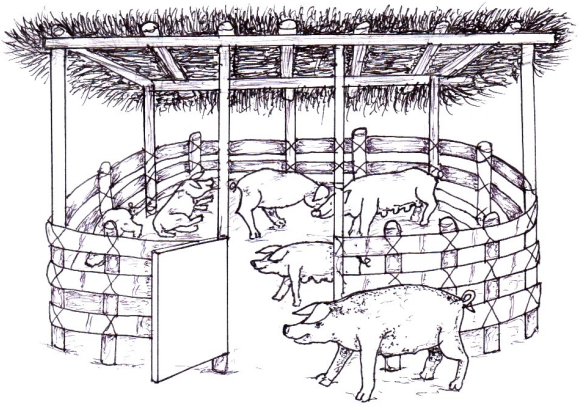
Housing and pens for pigs

Pigs can be kept alone or in small groups in a pig sty, a concrete or solid floored pen with a low shelter.

- Site should be dry and away from houses
- The floor should be concrete or wooden boards and sloping away from the sleeping area so that urine flows out and away.
- The concrete floor should be laid on a 5 - 6 cm thick foundation without cracks.
- The walls should be fairly smooth and without cracks.
- Given plenty of bedding in the shelter.
- Pigs will always dung away from their sleeping and feeding areas.
- Remove dung daily to keep pen clean.

Housing for piglets

- Plenty of bedding should be given to help keep the young animals warm and it must be changed frequently.
- If a litter is raised in a sty, the sty should be thoroughly cleaned and scrubbed out after the litter has been weaned and moved elsewhere.
- Provide creep area for piglets.
- The bottom rail of the creep is about 30 cm from the ground



Sketch of a propper pig housing unit.

Real life pig housing in Sierra Leone.

Housing for chickens and ducks

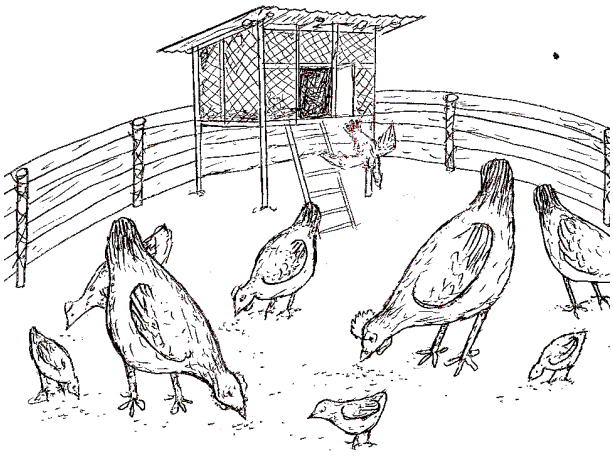
Space Requirement

- There must be enough space to hold birds together with the feed and water containers (troughs).
- Overcrowding causes pecking (biting).
- Ground or floor area required is 16 square metres for 50 birds
- Provide perches for chickens to roost on at night (1m per 5 adult birds).

Housing for chickens

Suitable housing for chickens should be:

- Built on high ground close to the home of the owner so that he can keep an eye on it.
- The house should be 2 metres high
- The first 50 cm height of the walls should be solid while the rest is wood or mesh



Allow enough run for the chicken in order to pick food from the ground.

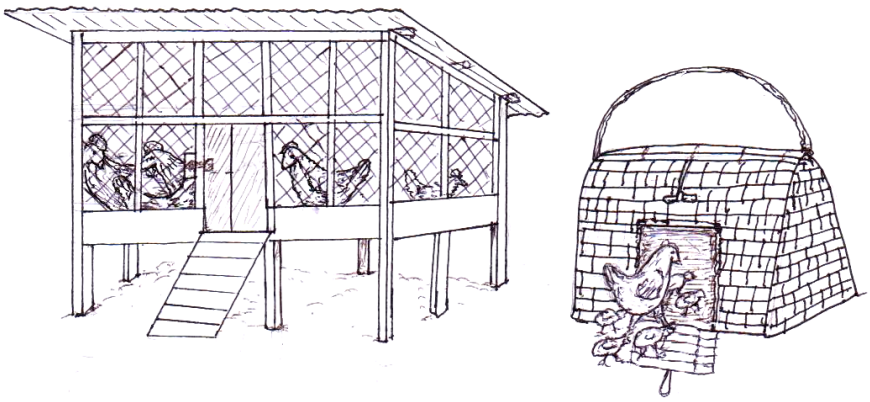
Good example of commercial poultry farm with over 800 chickens.

Importance of Fencing (Runs for birds)

- Run is good for the birds to be able to exercise in, pick up grass, insects etc.
- Plant trees to provide shade, and cover part for rainy days
- Divide run into two areas to allow fresh grass to grow in one area
- 50 chickens require 500 square metres of run.

Nesting boxes (for laying eggs) :

- Nesting boxes are boxes in which the hen can lay her eggs.
- You can make them from wood, baskets or pottery.
- Line them with straw or hay as a nest.
- Wooden boxes can be built on to the side of the house and opened from the outside to remove the eggs.

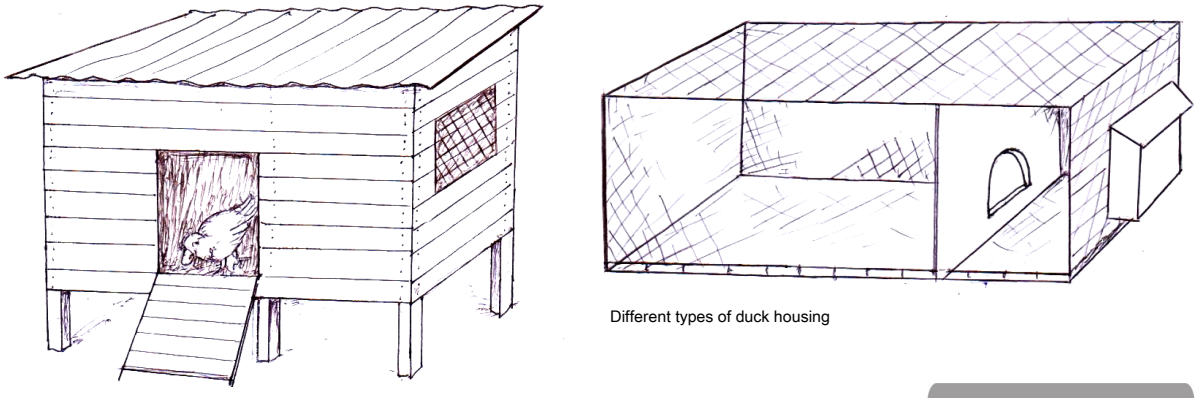


Chickens need a place where they can lay eggs.

Housing for ducks

Housing for chickens can be used for ducks. However if you keep ducks you should remember:

- Ducks do not require perches and nesting boxes will need to be low to allow ducks to use them, or sloping ramps must be placed to allow ducks to get to the boxes.
- You will need to provide ducks with a container of water at least big enough for them to put their heads and necks into the water.
- Laying ducks must be kept in the house each morning until they lay their eggs.



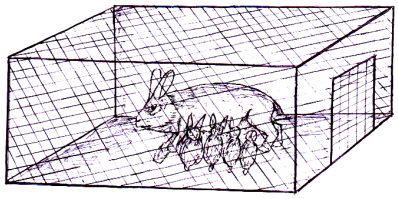
Different types of duck housing

Housing rabbits

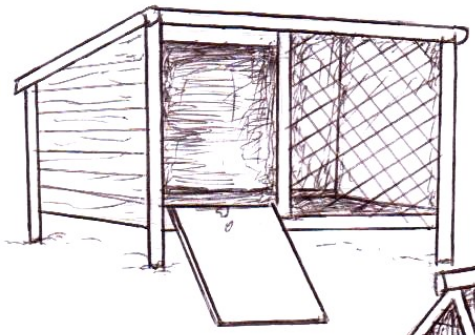
- A small wooden house (hutch) will be sufficient for a buck.
- You can make hutches to contain more than one rabbit.
- The floor size could be 70cm x 70cm, and the height 80cm
- The hutch must be clean, dry and well ventilated.

Nesting box rabbits

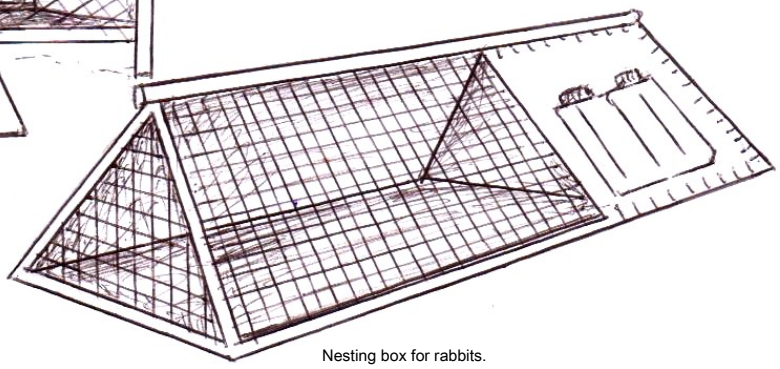
- This is cardboard or wooden box or even a basket.
- It is open only at the top so the mother cannot take the young out of the nest.
- The nest box should be lined with hay.



Nesting box with rabbits



Propper rabbit housing



Nesting box for rabbits.

Good local rabbit housing constructed from wood and cyclone fence.

LET´S LOOK BACK

- Why do we fence our animals?
- What system do we prefer for animal keeping?
- Do the animals get sick when we fence or house them?

Session 7: Feeding of Animals

At the end of the session, you will be able to:

- Explain the importance of animal nutrition in maintenance of good health.
- Identify appropriate types of feed for the various livestock species.
- Know how to prepare feed for the various farm animals.
- Water requirements for the various animal species

Feed nutrients:

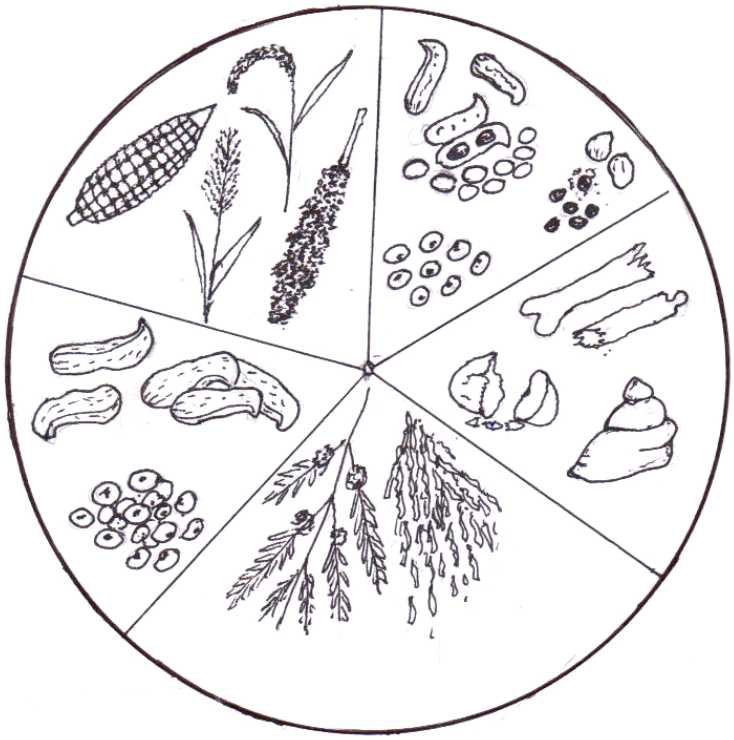
In order to get the most out of livestock you must always give animals enough good feed and clean water. Good feed is high in nutrients and provides everything that the body needs in order for the animal to grow and reproduce.

What an animal needs in its feed

All animals and humans need the nutrients called carbohydrates, proteins, fats, vitamins and minerals in their feed in order to stay healthy, have energy, grow and reproduce.

Nutrient	Benefit	Sources
Carbohydrates	Energy	maize, sorghum, rice, grass
Protein	Body building blocks	Leuceana, beans, groundnuts
Fats	Energy	Palm kennel cake, groundnuts
Mineral salts and vitamins	Strong bones, fight diseases	Soil, plants

Optimal feed for all kind of animals



Maize, sesame, sorghum, beans, palmkernels, crushed bones, snail shells eggs and fresh green leaves are a very gfood feeding for all kind of animals.

Nutritional Deficiencies – consequences of malnutrition

Deficiency of Fat, Protein, Carbohydrates

- Stunted growth
- Weight loss
- Decreased milk production
- Low fertility

Deficiency of Minerals salts

- Failing to come into heat
- Poor bone growth
- Loss of hair and feathers

Deficiency of essential vitamins

- Blindness
- Swollen joints

BAD FEEDING = SICK ANIMALS!

Types of feed for Ruminants

A good, rich feed contains more energy than a poor feed and a cow gets as much energy from 1 kg of sorghum, barley or corn as it does from 6 kg of grass. Some feeds are very poor and of little use to the animal. For example old straw contains little energy, most of it cannot be digested and passes out of the animal as dung.

- Roughage is bulky and low in energy-giving carbohydrates. Examples of such feeds are grasses, maize stalks and sweet potato tops.
- Concentrates are feeds which are rich in proteins and carbohydrates, e.g. grain crops. 1 kg of concentrate contains as much energy as 6 kg of roughage.

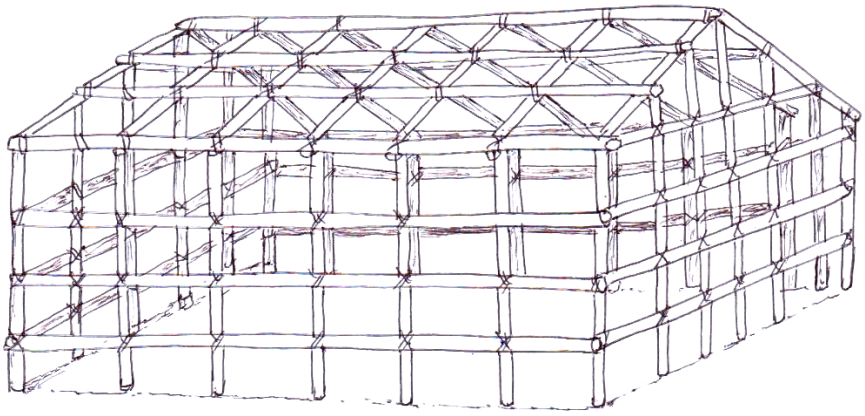
Ruminant's last stomach helps it to live mainly on roughage. Animals with single stomachs need more concentrates than ruminants.

Dry season feeding

In the dry season grass becomes scarce and is low in nutrients. When grass is plentiful in the wet growing season you can cut grass and store it until it is needed in the dry season. The grass can be kept as hay or silage.

Hay preparation

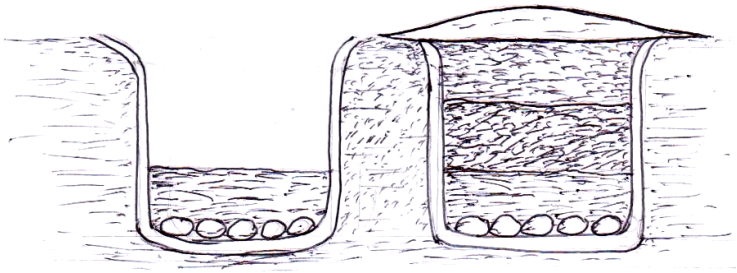
- Hay is dried grasses prepared from young grasses.
- Cut the grass and leave it to be completely dried
- Store on platform with enough ventilation, and feed it in dry season



Hay driers are very useful to dry grass fast. The hay must be treated with Urea for animal digestive reasons.

Silage preparation

- Silage is grass or other plants which are cut while green and stored without air.
- Dig a pit 2 metres deep and 1.5 to 2.0 metres wide.
- Put a base of large stones in the bottom of the silo.
- Cut grass and fill the silo with it, stamping down the grass with your feet.



Simple way of preparing quality feeding for ruminants.

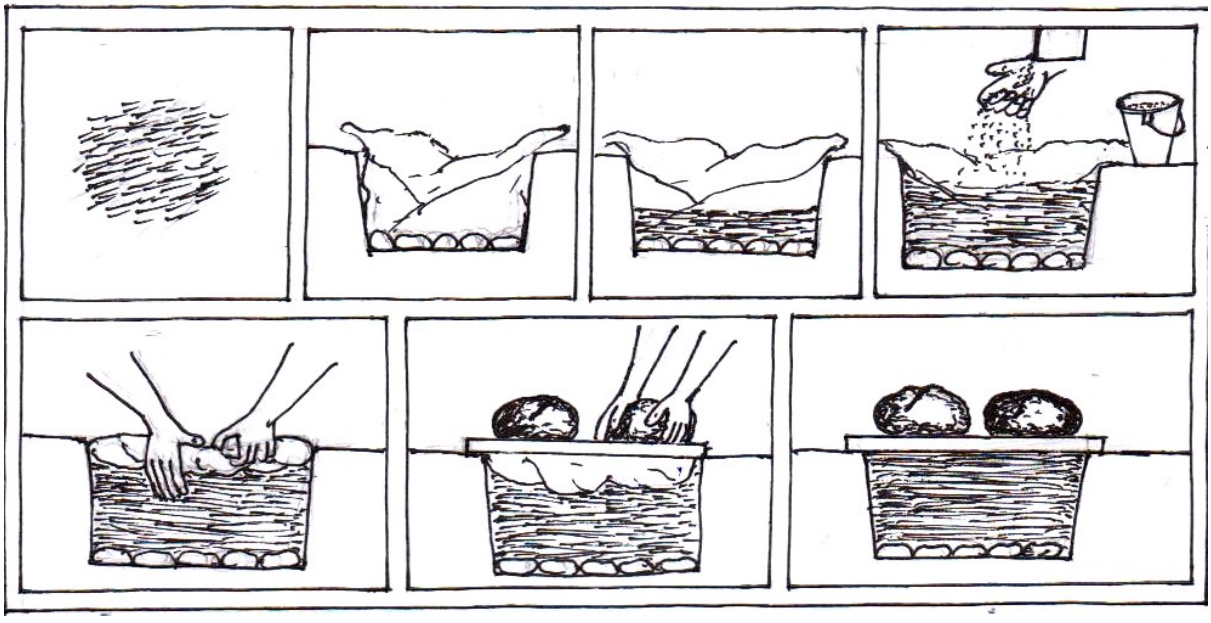
Urea treatment of straw

Advantages :

- Helps the breakdown of cellulose for easy digestion
- Improves the nitrogen content of straws
- Increase palatability
- Increases amount of straw consumed

Method:

- Chop the straw into pieces (3-5cm) e.g. using 20kg straw.
- Line the treatment chamber with polythene sheets
- Spread the first uniform layer of a known quantity of straw on the floor of the chamber or pit (a layer should be approximately 15-20cm thick)
- Dissolve 1 kilogramme (1 margarine tin full) urea in medium size bucket with water and sprinkle the solution evenly on the straw in the chamber/pit using watering can
- Cover the top layer with polythene sheet to prevent the escape of ammonia gas.
- Put concrete blocks/boards/stones to keep firm.
- Allow minimum of 7-10 days before usage



Fodder trees

- Fodders are tree branches and leaves cut to feed animals.
- The best trees are leguminous trees (Leuceana).
- These trees can be grown in rows 4 m apart in alley farming.

Supplementary feeds

- Supplementary feeds are given when the grass is poor and dry or when an animal is pregnant, giving milk or is a working animal.
- The best supplementary feed is cake from the processing of coconuts, ground-nuts, cottonseed and palm oil.
- Peels from cassava, yam, plantain, etc.

Zero grazing

It is a system whereby livestock is kept in an enclosed, shaded area and fodder and water are sent to them instead of letting them wander in the open where they are more likely to catch diseases or damage the environment.

Look back to Session 5: Intensive System

Water:

- Animals need plenty of fresh clean water every day.
- Always give water before feeding animals
- Allow animals to drink at least three times a day.
- Water needs will vary according to the feed they eat and the weather.
- A pinch of salt can be added to the drinking water to provide minerals.

Always provide fresh and clean drinking water for your animals.

Water Requirements for Farm Animals (Litres/Animal/Day)

Age and Sex	Cattle	Sheep/ Goats	Pigs
Adult female	40 – 50	8	5 – 9
Adult Male	45 – 55	11	9
Young	15 – 25	2 – 4	4 – 5

Poultry	Per 100 Birds
Layers	20 – 40
Broilers	10 – 15
Chicks	8 – 11

Feeding pigs

The pig is omnivorous and can eat meat and plants. The digestive system of the pig can also use bulky feeds containing a lot of roughage. Pigs must have plenty of clean, fresh water every day.

The types of feed and water for pigs

- Pigs will eat anything.
- They will eat grass and all types of plants.
- Pig's will grow and get fat more quickly if they are fed concentrate feed.
- Grain which has been well ground into meal is a good feed.
- Waste vegetables and household scraps can also be given to pigs.
- Household scraps, especially those containing meat, must be well boiled (pig swill) before being given to the pig.
- Give fresh clean water to pig to drink.

How often will a pig need feeding?

- Feed pigs twice a day
- Feed pigs in the field once a day or give extra feed, e.g. vegetable waste or swill
- Pig should rush to eat its feed.
- Lack of interest in feed is a sign of ill health so examine it.

Weaning

Piglets show an interest in solid feed when they are 1 or 2 weeks old. They can be offered a handful of cereal, sugar or powdered milk to start with. Piglets will take milk from the mother until they are about 7 weeks old. They will gradually take less milk and eat more solid feed until they are weaned. Piglets in the field will naturally start to eat solid feed but it must be offered to those that are housed. The young animals need to be gradually given new feed to avoid digestive problems.

Feeding chickens and ducks


What the bird needs in its feed

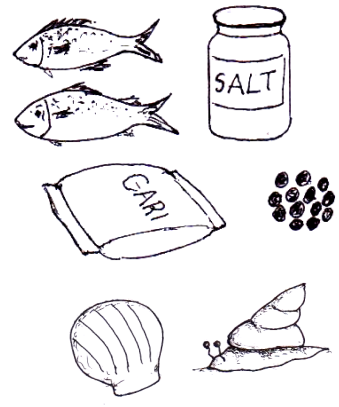
At different times of their life birds will require rations that contain different amounts of carbohydrates, proteins, fats, minerals and vitamins:

- From hatching (1 day old) to 3 months of age, birds need feed which contains large amounts of protein for body growth.
- When birds are laying eggs minerals are important in producing good eggs.
- Birds kept for meat will need a lot of protein in their feed.

Feed materials for birds

Different feeds are important for the nutrients which they contain.

Nutrient	Feed
Carbohydrates	corn, rice, maize, sorghum, millet, or bran from rice or other grains.
Proteins	Cakes from groundnuts, soya bean or palm kernel; fish meal
Fats	groundnuts and soya beans
Minerals	Bone meal (ground bone) egg shells, snail shells and old seashells
Vitamins	Green plants, commercially produced vitamins



Good birdfood can be prepared easily at home. Just use gari, salt, palmkernel cake and fishmeal. Snail and seashells give vital minerals.

GOOD BIRDFOOD IS EASY TO PREPARE!

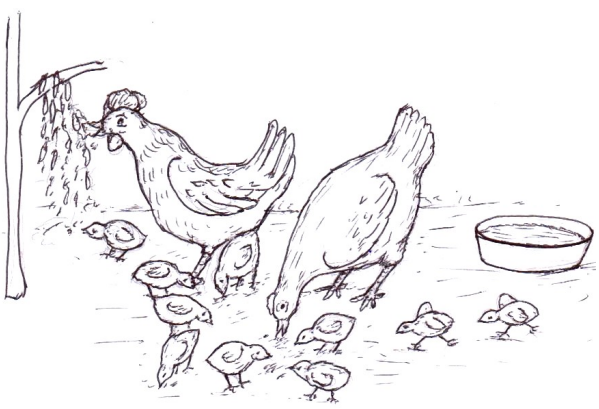
- Birds must not be given too much animal protein. Not only is it expensive but too much of it may cause some diseases to occur in the animals. Too much fish meal can make eggs taste fishy.
- Waste food can be fed to birds if it is cut up and boiled. It can then be mixed with meal and fed to the birds.

Rations

The ration will change with the requirements of the bird. Young birds need a ration which is rich in protein while laying birds need plenty of minerals. Some examples of rations are given in the table below.

Age of Bird	Whole & ground grain	Cake plant/ animal	Protein	Minerals
up to 8 weeks	7 parts	2 parts	1 part	0.25 part
8 - 12 weeks	8 parts	1.5 parts	1 part	0.25 part
Laying	8 parts	1.5 parts	0.25 part	0.50 part

- For chickens whole grain can be scattered over the run encouraging birds to scratch as they feed and so take in minerals from the soil.
- Ducks can be offered whole grain in a trough of water or given dry.
- Always clean out unused feed daily.
- Hung green vegetables up in the run for birds so that they don't peck at each other.



Hung up leaves in your chickenrun.

Clean out feaces daily.

Water

- Birds need clean fresh water at all times.
- Give water 250 ml/bird/day and this will double as the weather becomes hotter.
- Ducks need more water than chickens each day.
- Ducks do better if they have enough water in which to dip their heads and necks.

Watering unit used in commercial poultry

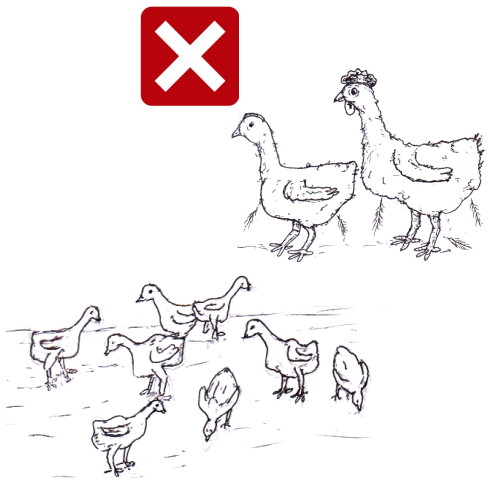
Nutrient Deficiencies

A deficiency means that the bird does not get enough of a particular nutrient. All animals can suffer from deficiency problems but in birds a deficiency very quickly shows signs of:

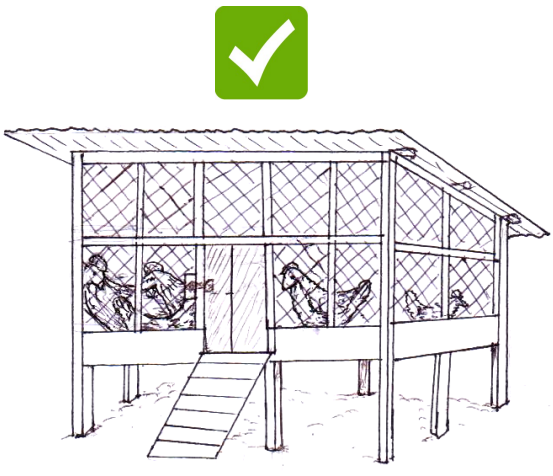
- poor health leg problems
- poor feathering
- egg production drops
- eggs have thin shells
- birds easily take infections

MALNUTRITION CAUSES HEALTH PROBLEMS!

Chicken with poor feathering according to lack of minerals.



Poor chicken without propper nutrition.



Propper housing and daily feed and supply of nutrients for good chicken production

Lack and prevention

Nutrient	Deficiency signs and syndrome	Prevention
Protein	• Birds become weak and may develop infections. • They do not grow well and meat production is badly affected. • Egg-laying decreases or stops.	Give feed with high protein content e.g. fish meal, groundnut cake
Minerals	• The bones of the leg can curve making the bird unable to walk properly • Soft shelled eggs or eggs without shells are laid	Give powdered shell or bone Allow birds to scratch for grain and pick minerals from soil
Vitamins	• Birds do not grow well, are weak, cannot move properly and the feathers are ruffled. • Chest problems can occur and birds have nose and eye discharges. • The toes curl inwards and birds have difficulty in moving. • Birds to start feather-picking (cannibalism)	Add commercially prepared vitamins to feed Give green leaves as feed supplements

Healthy chicken picking food in the run.

Feeding Rabbits

You can buy ready-mixed rabbit feed (pellets) made from grain, plants, minerals and vitamins. However this may be expensive or not available. Rabbits can be fed the following:

- Vegetables such as carrots, sugar beet, potato and other root vegetables
- Green leaves
- Grains such as sorghum, millet and maize
- Dry bread
- The waste skins or tops of vegetables from the kitchen
- Dry sunflower heads (the rabbit will eat the seed)
- Young branches from trees such as acacia
- Rice or wheat bran mash

Feeding during the dry season

The following can provide for dry season feeding:

- Hay, preferably from green leafy plants. Bind the plants into bundles and hang them to dry in the wind but avoid putting them in the direct sun.
- Carrots, potatoes, Chinese yam and other root vegetables can be kept for a long time in dry sand in a bin, barrel or wooden box.

Eating the droppings (faeces)

- Rabbits produce both hard and soft droppings.
- It is natural for the rabbit to eat the soft droppings it produces because they contain nutrients and water.
- When the soft droppings pass through the gut for a second time the nutrients and water can be absorbed (taken into the body).
- The droppings produced then will be hard.

Water for rabbits

A supply of drinking water is necessary at all times. Make one or two holes in the bottom of a cleaned plastic bottle, fill it with water and screw on the top. Place this in a shallow container.

LET´S LOOK BACK

- Make a feeding plan for small and large ruminants
- What happens if animal doesn't get enough feed?
- What is supplementary feed? Give examples

Session 8: Reproduction of Farm Animals

At the end of the session, you will know:

- The number of females to a male.
- Heat and mating periods in animals
- Management of pregnant animals.
- Signs of parturition in different species of farm animals
- Care of lactating mother and the young animals.
- Brooders and brooding in poultry

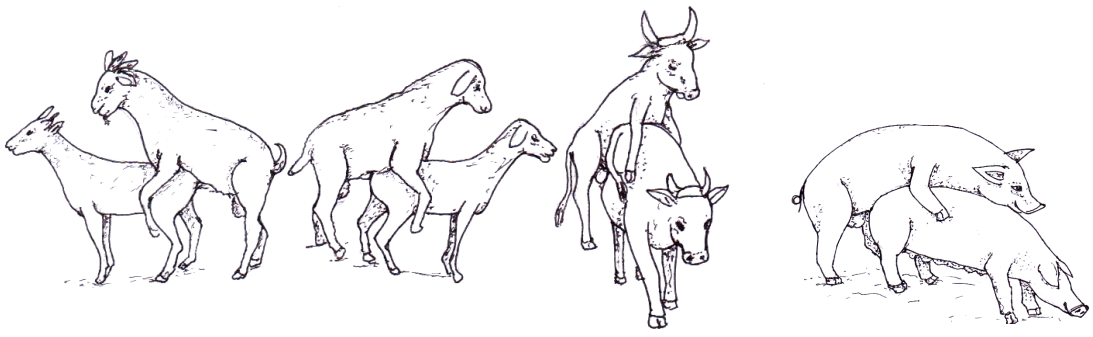
Signs of heat (oestrus) in animals

What is heat?

- Heat or oestrus is the period when the female will accept the male and mate.
- Cattle regularly come into heat all year round.
- Sheep and goats come into heat when there is plenty food in the pasture (breeding season)

Signs of heat in cattle, sheep, goat and pigs

- Vulva is swollen, discharge comes out.
- Loss of appetite
- Milk yield suddenly drops
- Restlessness and loud calls especially goats.
- Cows in heat allow other animals to mount them or mount one another, from the rear or from the front.
- However the cow on top may not be on heat.
- If cows sniff each others' vulva and urine they may both come into heat.
- Cows rest chin on the back of another.
- When pig is pressed hard with the hands on either side of her back she will stand still



Animals in heat.

When do animals come into heat for the first time?

Animal species	First time heat	Duration	Second time if not mated
Cattle (cow)	10 – 20 months	Less than a day	About 3 wks
Sheep (ewe)	6 – 12 months	1 – 3 days	About 17 days
Goats (dame)	6 – 12 months	1 – 2 days	About 17 days
Pigs (sow)	5 – 6 months	8 – 36 hours	About 21 days

Mating and Care for Breeding Males

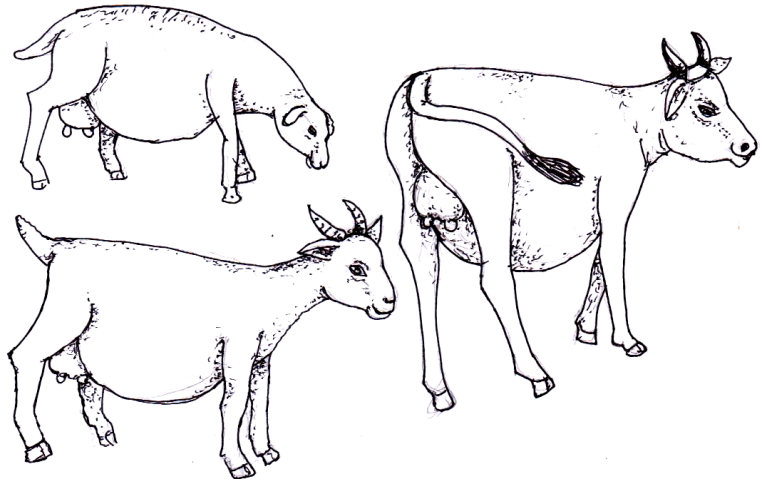
- Do not disturb animals while they are mating.
- Wait until a male is strong and well grown before you use it for mating.
- It is a good idea to mate animals so they have offspring in a wet season when there is plenty to eat.

Animal species	Best time to mate	No. of females to a male	Additional information
Cattle	Within 12 hrs of heat		Males kept away from females all night don't mate too soon
Sheep	Second day of heat	40	
Goat	Second day of heat	20 – 25	
Pig	First and second day if still on heat	15 – 20	Males over 3 yrs are usually too large and aggressive to use
Rabbit	1 month after giving birth (not earlier)	15	Take female to male Can use male for 7 yrs
Fowl		10	Keep more males for larger group of females

Pregnancy in animals

What is pregnancy?

- When the male mates with the female he deposits sperm in the vagina.
- The sperm joins with the egg and forms the embryo which becomes attached to the wall of the womb.
- The embryo grows within a bag of fluid (water bag) and is attached to the wall of the womb by a navel cord.



Pregnant animals

Signs of pregnancy

- Heat stops when pregnancy begins.
- The animal becomes quieter and the belly grows bigger.
- In milk animals the production of milk will gradually drop.

Length of pregnancy

Animal Species	Length of Pregnancy (Days)	Possible Range (Days)
Cow	280	270-300
Sheep	150	140-160
Goat	150	145-160
Pig	115	105-120
Dog	63	60-70
Rabbit	31	29-31

How to care for pregnant animal

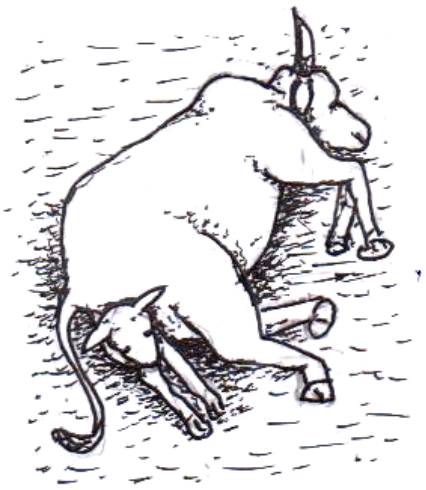
- Give adequate quality feed but not too much to make it fat. Make sure she moves around
- Watch them twice a day for signs that parturition is close.
- Cattle need a clean, well ventilated place, preferably with a sand or grit floor on which suitable bedding is placed.
- Do not keep a pregnant animal constantly tied up or with little room to exercise in.
- Give the sow access to clean soil or grass with roots to get the minerals she

The signs of giving birth (parturition)

- The belly has increased in size, especially on the right flank.
- The udder is filling up and the teats are stiffening.
- The vulva is red and swollen with the presence of mucous and blood-coloured fluid.
- The animal is restless (pig will start making nest).
- The animal develops a hollow on each side of the tail as the muscles around the pelvis and vagina start to relax.
- She often lies down for a short time then gets up again
- The sheep will lie down and stretch the neck back to look at the sky (star gazing) and lick its lips.
- In pigs, if small greenish pellets appear the first piglet will appear within an hour.
- Rubbing the udder gently will make the pig relax and lie on her side in the position to give birth.
- The water bag appears at the vulva.

Normal way of giving birth

- The water bag appears through the vulva.
- The animal will strain more.
- The head of the baby will appear and this breaks the bag.
- Both of the front feet will be seen.
- It takes 4 - 6 hours for the calving to reach this stage. In heifers it might take longer.
- As the chest comes through the vagina, the new-borne starts to breathe.
- In pigs it takes 2 to 3 hours



Difficulties in calving/lambing/kidding

- Only the head of the baby has appeared.
- The head and one foot has come out.
- Two front feet showing but no head.
- In pigs, if there is no sign of second piglet 45 mins after the first.

Checklist for birth

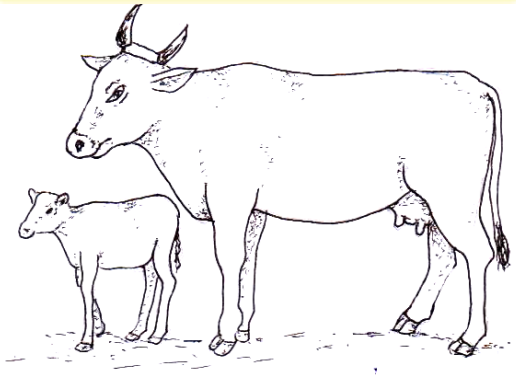
How to help in difficulties of giving birth

- You will need a bar of soap, warm water, a clean rope and clean vegetable oil such as olive or groundnut oil.
- Lift up the tail and wash around the vulva
- Oil or soap your hand and insert it in the vagina.
- Is the cervix open?
- Is the baby in the correct position for birth?
- If not, what position is it in?
- Feel the legs. Are they back or front legs? If the first joint you feel bends the same way as the next one it is a front leg, if the next joint bends the other way it is a back leg. (Look at the mother to remind yourself what the joints look like.)
- Do both the legs you can feel come from the same animal? There may be twins (sheep and goat). Twins cannot come at the same time, one must come first.
- Sometimes the foetus is in the wrong position. Before you can move the foetus into a better position push it back in a little first. This makes more room to move the legs and body into a good position for birth.
- Tie a clean rope around both feet, get help and pull gently on the rope (in cattle).

After birth caring

Caring for the mother after giving birth

- Give clean water to drink immediately after she has given birth.
- If the water bag (afterbirth) stays for long (24 hrs in catle, 14 hrs in sheep and goat), help to remove it by gently pulling it.
- If the afterbirth remains in the womb, call your livestock inspector
- If the teats of a goat are fat with milk the young may have difficulty in suckling.
- Squeeze a little milk out so the kids can suckle easily.
- If she has produced triplets try to foster one on another mother.
- There will be afterbirth for each of



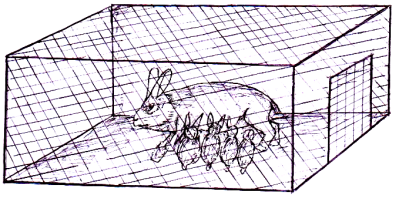
Newborn calf with the mother cow.

Caring for the newborn calf

- Clean the mucous (sticky fluid) from the nose and mouth and check that the calf is breathing normally.
- If it is not breathing, pump the chest with the palm of your hand.
- Keep the calf's head lower than its back.
- Insert a straw into its nose in an attempt to make it sneeze and start breathing. In sheep and goats, if you hold it by the back legs and swing it gently back and forth, any mucous blocking the mouth and lungs will be forced out.
- Pull the new-borne to where the mother can easily reach it to lick it dry and put the new-born so that it sits up
- Allow the new-borne to take colostrums, the yellowish milk which is produced immediately after birth, for at least four days after its birth.
- The colostrums is rich in protein and protects the calf against diseases.

Giving birth and care of the young rabbit

- The doe needs a nest in which to give birth.
- She will line the nest with her fur.
- Do not check the young until the day after birth and do not touch them with your hand. Use a stick to gently touch them when checking and remove any that are dead.
- They are blind until the eyes open at 10 days of age.
- Leave the young rabbits with the mother.

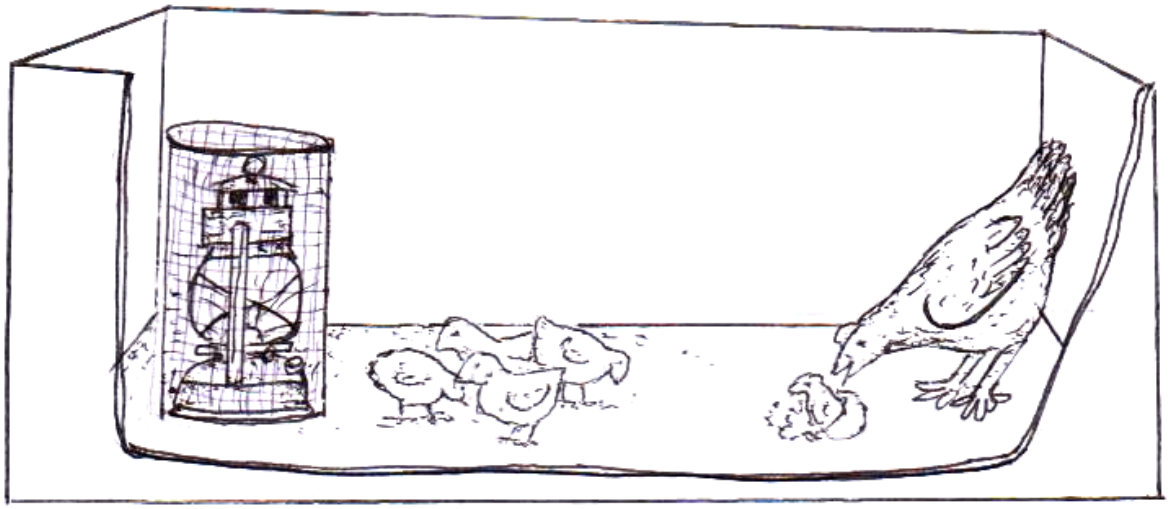


Nesting box with doe and newborns.

Brooder (for keeping very young birds)

If you buy young birds, or hatch them in an incubator, you will need to keep them in a brooder for a few weeks. You can buy a brooder or make your own.
Brooders are devices that have a source of heat to replace the heat that the young would have from their mother. In the brooder they are protected from animals and the weather.

- Make simple brooder from a heavy box or basket and a hurricane lamp (kerosene lamp) as the source of heat.
- A 1 metre square box will make a brooder for 25 baby birds.
- The lamp is surrounded with wire mesh to stop the birds from touching it.
- Troughs (containers) for feed and water must be placed in the brooder and the birds can be kept in it until they are 4 weeks old.

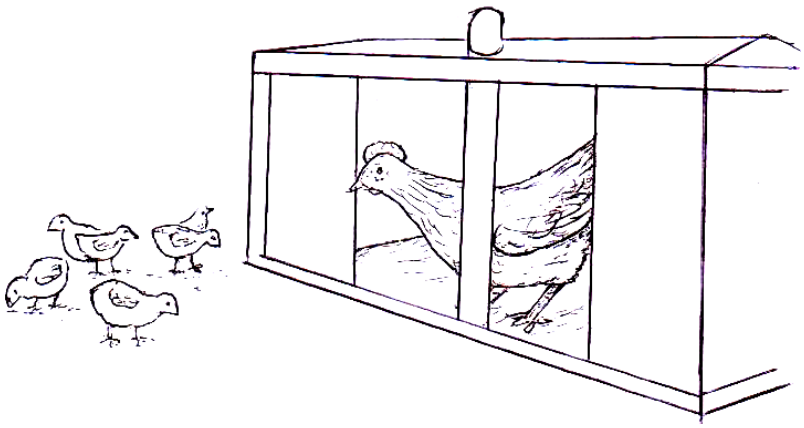


Brooder with hurricane lamp. Be careful of fire.

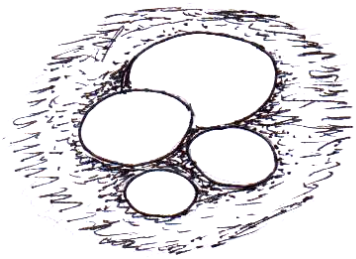
Brooding

The broody hen

Natural incubation is the simplest way to hatch small numbers of eggs and the broody hen can be used to incubate and hatch her own eggs or those from another bird. A hen can incubate 12 to 15 chicken eggs, up to 10 duck eggs and about 9 turkey eggs.



Broody hen in a cage sitting on ist eggs to incubate small chickens.



To incubate different birds you can put the eggs under the broody hen to increase incubation rate

To check for broodiness:

- Put some white balls or a few hardboiled eggs in hen's nest for a day or two.
- If the bird stays in the nest, and will not easily move off, replace the eggs with 10 - 15 fertile eggs.

The broody hen is kept in a nesting box. Take her off the nest for 20 minutes each day to give her feed and drink. If a hen is used to incubate duck eggs you will need to sprinkle them with water for the last 14 days of the incubation period. 28 days.

Care of brooding hens

- Treat hen with a suitable dusting powder before being placed in the nesting box to prevent external parasites.
- The nesting material should also be lightly dusted with the powder. This will prevent any parasites being passed on to the chicks.
- Any holes in the box should be closed to prevent rats and snakes getting at the eggs and eating them.

Good maintenace creates income. Female poultry manager in Koinadugu District.

LET´S LOOK BACK

- Which difficulties can appear in giving birth of animals?
- Can you influence the reproduction of animals?
- Does poultry include after birth management?

Session 9: Overview of Animal Health

At the end of the session, you will know:

- The causes of diseases in animals.
- How diseases spread in animals
- How diseases enter into animals
- How to prevent the spread of diseases.
- Signs of health and disease in animals

Animal Health

Health in farm animals is a condition where the entire animal body functions properly leading to full production and productivity.
Disease: A condition that brings about malfunctioning (not normal) of the body systems.
Infection: Animals have infection when they have microbes or parasites that cause disease inside their body or on their skin.

Healthy looking cattle with newborn calf.

Deseased sheep (Mange) according to lack of management and caretaking.

The main causes of disease

Major causes of disease

- Germs (microbes, parasites)
- Chemicals (poisons)
- Injuries (mechanical, thermal)
- Hereditary
- Nutritional deficiencies

Predisposing factors for disease are:

- Poor management practices
- Poor hygiene and sanitation

Germs

Microbes:- are tiny organisms that cannot be seen by naked eyes e.g. bacteria, virus, protozoa

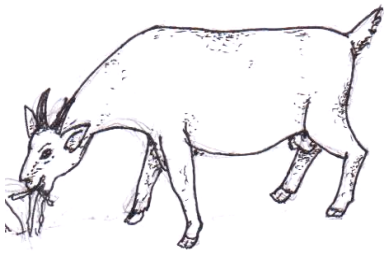
Parasites:- Some are tiny but many are large enough to see. Some live inside an animal's body e.g. worms and some live on the skin e.g. ticks.
Parasites take their food from animals and cause harm.

The spread of disease

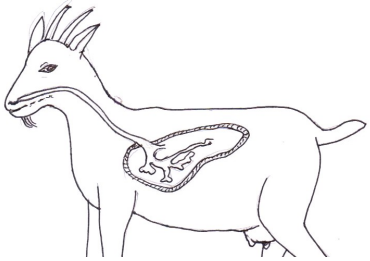
Infectious diseases can be spread by:

- Direct contact between animals.
- Germs in feed and water.
- By faeces and urine from sick animals.
- By flies, ticks, lice and fleas (vectors).
- By dirty housing or shelters.
- By fomites

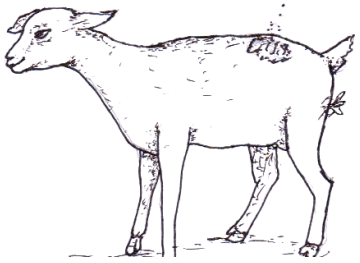
How do diseases enter the animal's body



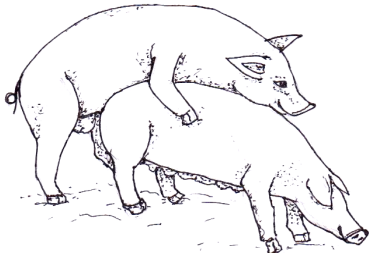
Through the mouth : Animals may eat and drink food and water contaminated with microbes. E.g. Anthrax bacteria can form resistant spores which last for decades in soils. Grazing animals can pick them and get the disease.



Through breathing : E.g. are Newcastle Disease, Contagious Bovine Pleuropneumonia (CBPP) of cattle, Contagious Caprine Pleuropneumonia (CCPP) of goats and Contagious Ovine Pleuropneumonia (COPP) of sheep.



Through the skin : E.g. Anthrax, through broken skin (wound) like Rabies and through insect bite like tsetse fly in Trypanosomiasis.



Sexually Transmitted Diseases (Veneral Diseases) : E.g Brucellosis.

Through the eye : e.g. in Rabies

PROPPER OBSERVATION PREVENTS DESEASES!

Signs of health and disease in animals

Body parts	Signs of health	Signs of disease
General condition	Good body condition	Emaciated
Behavior	Alert and hold their heads up	Dummy, restless, lonely
Movement	Regular and steady steps strong limbs and move easily with others in a group	Shuffling and stumbling Remain behind the group
Eyes	Bright and alert No discharge	Lacrimation (discharge); Colour: Red, Pink, brown or white
Nose	No discharge from the nose Muzzle moist in cattle, Nose clean & dry in sheep and goats	Discharge from the nose; Muzzle dry in cattle
Mouth	Clean and chewing properly	Saliva dripping, lesions on the lips Chewing slow or incomplete
Ears	Erect, Move in the direction of sound Quick movement to get rid of flies	Dropped Not responding to sounds or to get rid of flies
Lymphatic nodes	Not swollen, move freely	Swollen, feels warm, rigid, enlarged
Mucus membrane	Pink/red mucus membrane showing blood vessels clearly	White/pale, yellow, very dark red or red
Hair coat	Smooth and shiny Lick their coats and you can often see the lick marks	Rough or raised
Appetite and rumination	Eat and drink normally Rumination (chewing the cud) 6 -8hr/day	Not eating and drinking normally Not ruminating
Breathing	Smooth and regular at rest Movement and hot weather increases the rate of breathing	Increased and irregular breathing at rest
Urine	Clear in colour Free and painless urination	Cloudy or red Pain during urination
Faeces	Firm	Very soft (diarrhea) Constipation
Udder & Milk	Healthy teats; Smooth and clean udder; Good milk production Clean milk	Blind and injury of the teat Blood or other matter in the milk Swelling of udder Sign of pain and heart when the udder is touched

How to prevent diseases

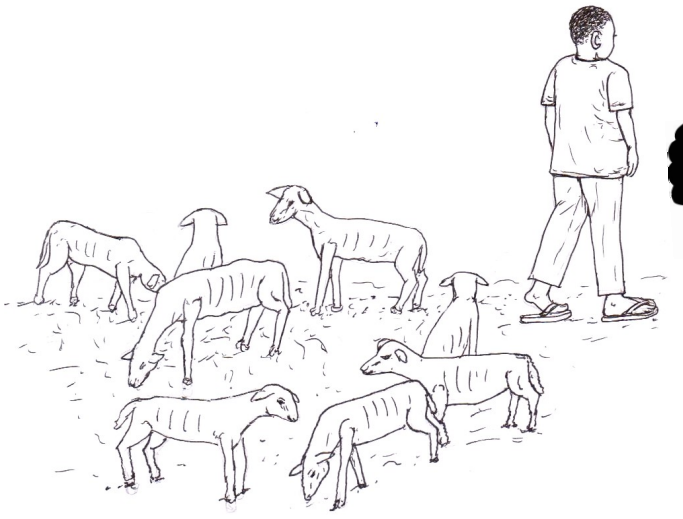
Preventing infectious diseases

- Keep animals and environment clean
- The animal must be provided with clean feed, water, bedding and shelter.
- Sick animals should be kept separate from the others.
- Use drugs when necessary
- Vaccinate animals against some diseases.
- Dead animals and waste should be disposed of properly.
- Suspected animals should be put under quarantine
- Keep herds separate at watering and grazing points

Preventing non-infectious diseases

The chronic non-infectious disease may not kill but reduces production of meat, eggs, milk or draught work as expected.

- Give adequate feed, water, mineral and vitamin to control non-infectious diseases.
- Leads to higher production of meat, egg, milk, draught power and high fertility.



NO CARE CAUSES DESEASES!

LET´S LOOK BACK

- What are the main causes of deseases?
- How do we identify deseases?
- Why is good housebandry important?

Session 10: Veterinary Clinical Examination

At the end of the session, you will know:

- Steps in taking information on the history of a case.
- How to diagnose diseases
- Normal body temperature of different animals and how to take them.

Clinical Examination of Animals

Systematic way of making clinical diagnosis in animals

1. Interview owner about animals
   - About the sick animal
   - About the animal group
2. Examination of the environment
3. Examination of the sick animal
   - General examination from a distance
   - Close examination of body parts

Clinical examination done bei CAHWs.

1. Interviewing the owner

About the sick animal:

- Why do you think the animal is sick?
- Which part of the animal has the problem?
- When did you first notice these signs? Have you seen signs like this before? … When?
- What disease do you think the animal has?
- Is there anything else about the animal that is not normal?
- What does the animal eat and drink?...How has it been eating and drinking?
- What kind of place does the animal come from?
- Has the animal been in contact with other animals?...If yes, which animals? wild animals?...Where?
- What treatment has been tried already and when? What vaccination have been given and when?

About the group:

- Is the animal part of a group? If yes, do other animals in the group have the same problem?
- How many others are sick? How many have died?...In which age group(s) are they?
- Have other kinds of animals got the same problems?
- Has any new animal come into this group?...If yes, when? Did your animals mix with others at grazing and/or watering points? If yes, when was the last time?

CAHW discussing with the livestockkeeper.

THE MORE YOU KNOW, THE BETTER YOU CAN EXAMINE!

2. Examination of the environment

- Is the place where the animal sleeps clean or dirty?
- What does the grazing environment look like?
- Swampy area associated with liver fluke infestation
- Muddy associated with foot rot and mastitis
- Communal dumping sites where foreign objects are picked


Animals close to the house can transfer deseases to humans


Goats dont like muddy ground.

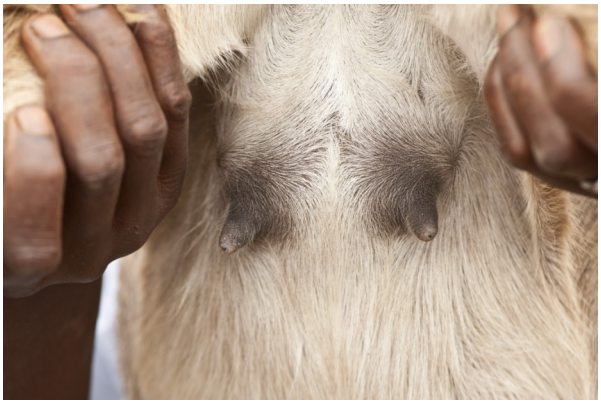
3.Examination of th e sick animal

Behavior	How does the animal behave? Is it excited, aggressive or calm? Does the animal look like distressed, or in pain?...Is it kicking at itself? Is it shaking its head or grinding its teeth?
Posture & Gait	How does the animal stand?... Is the back arched? Is the shoulder abducted?...Is the leg raised?...How is it walking? Shuffling, stumbling walk, circling movement? Or unable to move?
Body condition	Is it fat, thin or emaciated? How is the skin and coat? Is the skin dry and leathery? Is it biting, rubbing or scratching itself?
Breathing	Is it breathing easily and normally or does its breathing look distressed?...How fast is the animal's breathing? …Is it having deep slow breaths or shallow short breaths?...Does its abdomen move as well as its chest when it breathes out?...Does it show pain by grunting, especially when it breathes out?
Urination & Defecation	Is it urinating and passing faeces?...Volume, frequency and characteristics of the urine and faeces?
Reaction	Does it move normally and respond normally to other animals and things? Is it with its group or alone?
Body temperature	Is the temperature above normal maximum? If yes, animal has fever Is it below normal minimum? If yes, animal could be: 1. Starved of food 2. Having internal bleeding 3. Dehydrated 4. Close to dying
Nose and muzzle	Is there a discharge coming from the nose? Are there any blisters or sores on the nose? Does the breath smell bad? Is the muzzle wet or dry?
Mouth	Is there much saliva coming from the mouth? Are there any blisters, sores, wounds or objects in the mouth? Does the animal grind its teeth? This is often a sign of pain.
Eyes	Is there a discharge coming from the eyes? Is the centre of the eye cloudy white/blue? What colour is the mucous membrane inside the eyelid?
Head and neck	Is there any swelling under the jaw? Are there any other swellings? These may be lymph nodes

Circulatory system	Feel the animal's heartbeat. Pinch a fold of loose skin and let it go. Does the skin go back to normal immediately? If the fold of skin only goes back to normal slowly it is a sign of dehydration.
Breathing system	Is the animal coughing? ... Gently squeeze the trachea (Do not squeeze harder than would be comfortable if it was done to you). Healthy animals do not usually cough when you do this, but animals with infection in the lungs or trachea do cough. Put your ear to the side of the chest to listen to the lungs. If you can hear bubbling or rasping or liquid noises it is a sign of lung disease e.g. pneumonia.
Rumination (chewing the cud)	Cattle, sheep and goats. Push with your hand just behind the last rib to check that the rumen is contracting normally. You should feel the rumen contract about once every minute.
Skin	Are there any sores or blisters on the skin? Are there any swellings under the skin? These may be lymph nodes. Is the coat normal and healthy? Are there any places where the wool, hair or feathers are missing?
Udder and genitals	Is the udder swollen or hotter than normal? Does the animal resent the udder being touched? Are there injuries on the teats? Is the animal producing less milk than usual? Is the milk normal? ... Is it red or thin and watery? ... Are there lumps in the milk? Is there a discharge from the vulva? ... From the penis?
Legs and feet	Is the animal lame? ... Which leg(s)? Examine the foot and the rest of the leg for wounds, heat, swelling or pain.
Faeces and urine	Does the animal pass urine and faeces normally? Does the animal look distressed when it passes faeces or urine? Are the faeces normal? Are they dry and smaller than normal? (See constipation) ... Are they watery and passed more often than normal? ... Is there blood or mucous in the faeces? (See diarrhea). Is the urine normal? ... Is the urine very dark? (See dehydration) ... Is the urine red? ... Is the animal passing little or no urine? The urine of healthy rabbits is often cloudy.

WRITE DOWN ALL SIGNS YOU SAW FOR LATER ON EXAMINATION!

Body examination



Examination of the udder

Examination of the nose

Examination of the genitals and anus

Examination of the mouth

Examination of the eye

Measuring body temperature

We use a thermometer to measure the temperature of the body. The unit of measurement is degrees centigrade (°C). The normal temperature of your body is 37°C.

The mercury 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.

How to take the body temperature of animals with mercury thermometer

Things to Note:

- Make sure that he mercury level is below 35,0 c. If it not, hold the thermometer firmly and shake so as the mercury drops down near the bulb of the thermometer.
- Do not wash the thermometer in hot water or leave it in the hot sun as this will BURST IT!!!
- Do not use the veterinary thermometer for people!!!

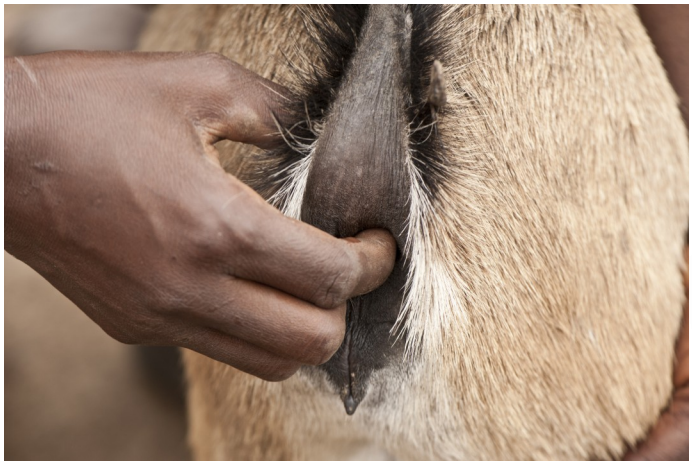
Control the animal and lift the tail.

Insert the thermometer as far as you can

Firmly hold thermometer and tilt it to touch walls of the rectum for 1 minute. Remove and

Breathing and Pulse Rates

You can tell how fast the heart beats by putting your hand on the chest directly over the heart and feeling it. Feel the left side of the chest just behind the leg. Make the animal stand with the left leg a little in front of the right. Remember that young animals have a faster heartbeat. Exercise or pregnancy make the heart beat fast. Sick animals have a faster or slower heart rate than normal



Checking the pulserate for min. 1 minute

A PROPPER EXAMINATION IDENTIFIES THE DESEASE EXACTLY!

Normal adult body temperatures and pulse rates

Animal species	Minimum Temp	Maximum Temp	Pulse Rate	Breathing Rate
Cattle	37.5	39.5	55	12
Buffaloes	37.2	39.2	55	12
Sheep	38.5	40.0	75	12
Goats	38.5	40.5	75	12
Pigs	38.0	40.5	85	15
Rabbits	38.5	39.5	200	50
Dogs	38,5	39.5	110	20
Birds	40.5	43.0	280	25

Very young animals usually have a temperature about 1° C higher

CAHW is examining a goat in a village community.

LET´S LOOK BACK

- How do we examine animals?
- What are indicators for desease?

Session 11: Ethnoveterinary Medicine

At the end of the session, you will know:

- What is Ethnoveterinary Medicine (EVM)?
- The importance and challenges of EVM
- The role of CAHW in EVM

Concept of Ethnoveterinary Medicine (EVM)

Ethnoveterinary medicine (EVM) is the folk beliefs, knowledge, skills, methods and practices relating to the health care of animals. It includes medicinal and spiritual aspects, but more commonly taken to mean the use of medicinal plants. Ethnoveterinary knowledge is acquired through practical experience and has traditionally been passed down orally from generation to generation.

The role of ethnoveterinary medicine

To keep animals healthy, traditional healing practices have been applied for centuries and have been passed down orally from generation to generation. Before the introduction of western medicine, all livestock keepers relied on these traditional practices.

Ethnoveterinary practices are important because:

- They are easily available
- Easy to prepare and administer
- Inexpensive and effective
- Mostly used in rural areas where veterinary services are absent or irregular and expensive
- Are used for emergency purposes
- Part of one's own traditional culture

Challenges of ethnoveterinary medicine in traditional settings

Despite the successes that ethnoveterinary medicine has seen over the years and the potential as a reliable alternative health solution for majority of the rural folk, there are numerous challenges that hinder its effective usage. Some of these challenges are:

- Most knowledge resided with elderly community members and disappeared as they died.
- The introduction of modern practices made it difficult for the younger generations to appreciate and use the beliefs and practices of their forefathers.
- EVM receives little research attention and documentation
- Majority of the local practices need testing and refining - especially the efficacy and dosage of an herbal drug.
- Most of herbal preparations are not done in hygienic conditions
- The right leaves, roots, tree barks, flowers or fruits may not be available throughout the year due to environmental degradation.

There should be conscious effort to address several these challenges to promote the ethno -veterinary medicine as an effective, farmers' friendly and economically viable alternative method of animal treatment in the changing socio-economic and agro-climatic conditions.

Your role as CAHW in ethnoveterinary medicine

- During your interaction with the community, especially the aged, you could serve as medium for obtaining EVM knowledge and practices for extension to the rest of live-stock owners.
- You could also help to explain the EVM that could hinder animal health delivery and rapid restoration of health using modern medicine.
- You are in a better position to demonstrate to the community members which prac-tices are good to be encouraged.
- You have the responsibility to provide an alternative conventional remedy which should be accessible and affordable for the community members.

Traditional medicine preparation

One of the key challenges in EVM is the availability of raw materials all year round. Human activities are destroying the agro-ecological systems that sustain the lives of medicinal plants and some animals.

- By creating awareness among the community members, you can indirectly reduce environmental degradation. (This will make plant species always available for herbal

LET´S LOOK BACK

- Mention some diseases you know and the traditional way of treating them.
- Which ones do you think are appropriate and which not appropriate?
- Which of them will need little modification to become ac-ceptable?

Session 12: Handling and Use of Veterinary Drugs

At the end of the session, you will know:

- Common types of veterinary drugs used in Sierra Leone.
- How to use and care for veterinary drugs.
- How to use and care for veterinary equipments.
- How to administer veterinary medicines

General information about medicines

Medicines never do all the work of making animals better. Always make sure a sick animal has good food, plenty of water and fresh air as well as treating it with medicines.

Reading a medicine label

Most medicines have two names: a chemical name, e.g 'oxytetracycline' and a trade name, e.g. Terramycin' that the makers of the medicine call it.

Traders sometimes sell fake medicines that do not work and can be dangerous.
To check that a medicine is genuine, look closely at the label. Most genuine medicines come with detailed printed directions on a sheet of paper (a data sheet) – often in more than one language – in the box or packet. Do not trust medicines that come with hand-written labels. Genuine medicines often come in boxes with a label similar to the label on the box.

Examples of Veterinary Drugs

Type	Chemical name	Trade name	Application Route	Indication	Dosage of Administration
ANTIBIOTICS	Penicillin	Procaine penicillin	Injection	Anthrax,	10-15mg/kg body weight for 4 days
		Ampicillin	Injection	Black quarters	2-7mg/kg body weight
	Streptomycin	Penstrep, Streptopen	Injection	Respiratory problems, Alimentary tract infection, Septicaemia, General bacterial infection	11mg/kg body weight 3-4 days
	Gentamycin	Gentamycin	Injection	Respiratory problems, Alimentary tract infection, Septicaemia, General bacterial infection	2mg/kg body weight 3-5 days
	Tylosine	Tylan	Injection	Respiratory problems Pneumonia, C.C.P.P. Myco-plasma mastitis	10mg/kg body weight for 3 days
	Tetracycline	Oxyject, Oxytet,	Injection	Foot and mouth disease Pasteurellosis Bacterial Diarrhoea	5mg/kg body weight 3-4 days
			External spray	Wound infection	To cover wound area
SULPHURS	Sulphadimidine	Vesadin	Injection	Respiratory tract infection Infected wounds	100mg/kg body weight 4 days
			Oral	Pasteurellosis E.Coli,	200mg/kg body weight 3-5 days

DEWORMERS	Levamisole	Levacide, Nilverm	Injection	For infection with helminths	7.5mg/kg body w.
	Albendazole	Valbazen, Valben, Albendazole	Drench	Roundworms, Tapeworms, Liverflukes	5-10mg/kg body weight
VITAMINS	Vitamins	Multivitamin injectable,	Injection	Foot and mouth disease Vitamins deficiency Against stress during convalescence Anorexia Muscle weakness	5 – 10m per animal for 3 to 5 days
ACARICIDES	Diazinon	Diazidip	Bathing	Ticks, Mange, Lice and flies infestation Disinfectant and wound dress	5ml per gallon of water. Apply on the animal.
POULTRY DRUGS	Levamisole	Levacide, Nilverm	Injection	For infection with helminths	7.5mg/kg body w.
	Albendazole	Valbazen, Valben, Albendazole	Drench	Roundworms, Tapeworms, Liverflukes	5-10mg/kg body weight
TRYPANOCIDES	Diminazine aceturate	Berenil,	Injection	Trypanosomosis	3.5mg/kg body weight
	Isometamidium chloride	Samorin	Injection	Trypanosomosis	0.25-0.5mg/kg body weight

Disinfectants, Antiseptics and Wound dressings

- Disinfectants are strong chemicals for cleaning contaminated things, such as feed bowls, knives, and places where infected animals have been. DON'T PUT ON WOUNDS.
- Antiseptics are weaker chemicals for cleaning wounds; they kill microbes but not so strong for animal's flesh.

Common disinfectants, antiseptics, wound dressings

Name of Preparation	Uses
Alcohol	Mix it with water to put it on wounds.
Aloe (Aloe species)	Put juice from fresh aloe leaves on wounds to stop bleeding.
Alum	Mix 10g of alum in 1 litre of water for mouth washing
Antibiotic sprays and powders	For dressing wounds
Gentian violet	Mix gentian violet and tetracycline 10% powder for wounds
Bleach (hypochlorite)	Mix 20mls in 1 litre of water to wash udder or infected wounds. Mix 200ml in 1 litre of water to disinfect buildings and equipment
Boracic acid	Mix 20g in 1 litre of water for washing wounds Mix 10g in 1 litre of water for washing infected eyes. Mix 1g with 50g of vegetable oil or vaseline for wounds.
Caustic Soda (Sodium hydroxide)	Mix 10-20g in 1 litre of water for disinfecting buildings (Be careful, this can burn your skin and damage metal).
Hydrogen peroxide	For deep wound. Froth pushes dirt and pus out

Where there are no disinfectants or antiseptics use plenty of clean water or better still, use water with salt in it.

HYGENIC CARE AVOIDS CONTAMINATION AND INFECTION!

WARNING

Many disinfectants are poisonous. Do not let people or animals drink them. Do not dispose them into water that people or animals drink.

Don´t drink animal medicine or treatment. Take care of accidentially consumption.

Don´t deposit toxic waste water in the nature. Return it to supplier.

Care of Veterinary Drugs

- Store medicine in a dark place
  Keep medicine dry, especially powders
- Keep them cool
- Use opened medicines as soon as possible
- Keep them out of reach of children
- Keep medicines well labeled and keep directions for use with the medicine

Limitation of Medicines

Medicines can fail due to the following reasons:

- Inaccurate diagnosis of disease
- Overdosing and underdosing (poor estimation of dosage)
- Use of expired medicines.
- Use of poorly stored medicines.
- Wrong route of drug administration.
- Drug resistance.
- Use of inferior quality drug (low efficacy, fake drugs).

How do you determine drug dosage for ruminants?

1. Determine the weight of the animal:
   - Make the animal stand on level ground and put a measuring tape round its body just behind the front legs.
   - Calculate the weight from the table below.
2. Determine the dosage using the weight and manufacturers instruction.

Estimated Weights of Animals

Distance round the body (cm)	Approximate Weight	
	Cattle	Sheep/Goats
60		20
65		24
70	40	30
75	45	36
80	50	42
90	70	55
100	98	75
120	150	
140	232	
160	330	
180	485	
190	558	

CAHW using scale to identify the weight of the animal when scale is not available

Administering Medicines

Giving medicine by mouth

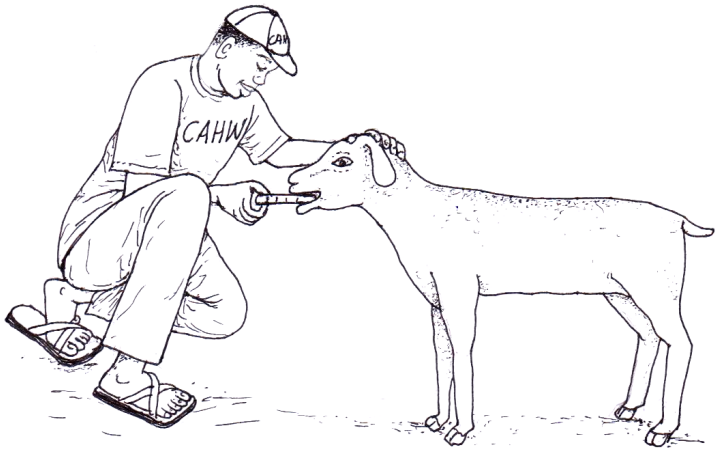
Different ways to give medicines by mouth are:

- Add to food or water.
- In the form of bolus and paste
- In liquid form by drinking

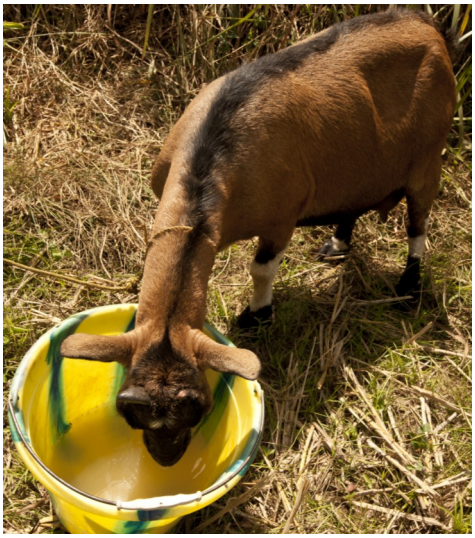
Giving medicine in Food or Water

This is good for animals that eat or drink normally or to a group of animals that each eat about the same amount, otherwise some animals will get all the same and others almost none.

- Keep food or water away from animals for a few hours to make them hungry or thirsty
- Mix the medicine thoroughly with the food or water.



CAHW giving liquid medicine with a syringe without needle.



Animal drinking medicine mixed in water.

How to give large pills (boluses) and pastes

- Makes dose measurement easier
- You can often break boluses into two or four parts to get the dose right.

1. Given by wrapping them in leaves or other food the animals like.

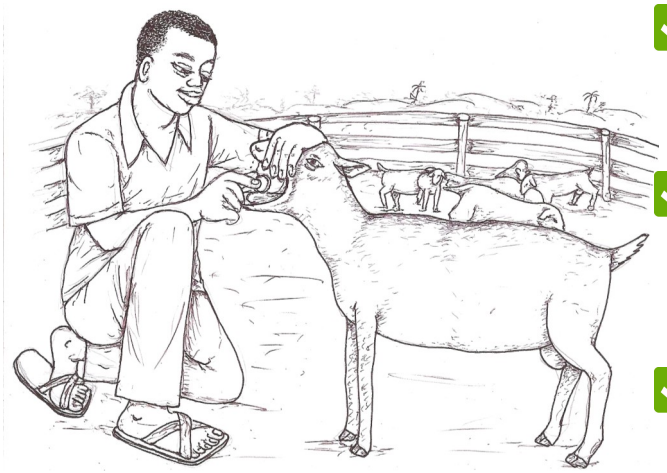
2. You can also make dry boluses easier to swallow by dipping them in vegetable oil.

3. You can give boluses with a special tool.

You can easily make a simple tool to do this by using any kind of tube or make a long handled pair of forceps

4. In the form of paste

Crush the bolus and add water, milk, oil or honey to make a paste. Spread the paste on the animal's tongue with a stick or give the paste with a large syringe with no needle.



Farmer giving bolus to animal

- Hold the animal securely, with one hand firmly over the top jaw like this to open the mouth.
- Put the bolus on the tongue near the back of the mouth, then hold the mouth closed and upwards and stroke the throat to help it swallow.
- If the animal chokes or coughs violently while you are trying to give a bolus release the animal and let it lower its head.

How to give liquid medicine

WARNING:
Be careful not to get medicine in the trachea. It will go down to the lungs and cause pneumonia. The animal may die. It is dangerous to give liquid medicine by mouth to any animal that has very distressed breathing.

- Make sure you have got the right medicine ready and the dose is correct.
- A soda bottle is good for giving liquid medicines; put a piece of rubber tuber over the end to make it safer if the animal bites the bottle.
- For small animals use an old syringe with no needle, or a spoon.

Special guns with hooks that will refill themselves are useful for treating many animals at one time.

- Make sure the animal is held still.
- Raise the head a little.
- Open the side of the mouth.

Liquid medicines can be given by bottles and tubes

- Put the neck of the bottle or the tube into the mouth on top of the tongue.
- Do not hold the animal's tongue. The animal needs to use its tongue to swallow the medicine.
- Give the medicine slowly for the animal to get time to swallow.
- If the animal starts to cough, stop giving the medicine, lower the animal's head and let it recover.
- With smaller animals, hold the mouth closed briefly to make sure the animal gets all the medicine.

Giving liquid medicine with an ordinary bottle.

Giving liquid medicine with a syringe

How to give medicine by mouth to different animals

Sheep, goats	When you give liquid medicine to sheep or goats, do not lift the animal off the ground or lift the head so high that the nose is above the eyes
Birds	Give medicines to birds by mouth with a dropper or a straw. Hold the head up to stop the medicine going into the trachea by mistake.
Pigs	Lie the animal down on the ground on its front and get someone to hold the head of the pig up by its jaw.
Dogs	If the dog is aggressive wrap pills or boluses in some food or mix liquid medicine with some food. If the dog is quiet give bolus alone For liquid medicine it is easier to use a syringe without a needle. Hold the head up. Put the end of the syringe into the side of the mouth between the front and back head. Push the medicine slowly onto the back of the tongue. Hold the mouth closed gently until the animal swallows

DO NOT GIVE ANTIBIOTICS BY MOUTH TO ADULT RUMINANTS!

How to give injections

Care for syringes and needles:

Keep syringe and needles clean to avoid spreading infection from animal to animal, sterilise the needles and syringes between uses.
Wash the needles and syringes (take the needle off the syringe and pull the plunger of the syringe first), then put them into boiling water for ten minutes. Some plastic syringes are damaged by boiling water so just wash them clean and rinse them with water that has been boiled and cooled. When you treat many animals at the same time it is not always possible to do this between each animal.

But do this or use a new syringe after you have treated about 20 animals or before you treat another group.
For large animals you usually need 20-50ml syringes. For small animals 5-10ml syringes are big enough for most doses.

How to fill a syringe

- Understand the meaning of the lines and intervals between the numbered lines on the syringe
- Push the same amount of air into the bottle from the empty syringe before taking the medicine
- With the needle in the bottle pull back the handle of the syringe until you get the dose you want
- Then hold the filled syringe up and push out any air at the top and check again if it has t he amount of medicine you want in it


CAHW filling a syringe with medicine


Press out the remaining air till liquid is coming. After that the syringe is ready for use.

How to give an injection into muscle

- For animals with thick skins take the needle off the syringe and hit the animal with the back of your hand once or twice on the place where you want to put the needle in.
- Quickly put the needle in and the animal will not notice it.
- Then put the full syringe onto the needle. Pull the plunger back a little before you inject the medicine, if blood comes back into the syringe the needle is in a vein. You do not want to inject into the vein so take the needle out, put it in a different place and try again.and press the plunger down.
- For animals with thinner skins, leave the needle on the syringe and push the needle in quickly.


Injection into the muscle. Intramuscular

Give the injection over the back leg or into the side of the neck for large animals .
Sheep, goats, pigs and dogs. Give the injection into the side of the thigh.

How to give an injection under the skin.

- Pick up a fold of skin and push the needle through the skin but not into the flesh underneath.
- In smaller animals a fold of skin on the back of the neck is easiest.
- In larger animals use a fold of skin on the shoulder or under the neck.
- For pigs use the skin behind the ear or in front of the back leg.

Dogs:

- Give an injection under skin over the top of the neck.
- Get someone to hold the dog.
- Lift up a fold of skin and with the needle pointing along the back towards the head give the injection under the skin.
- Be careful not to push the needle through the skin to the other side as well.

Injection under the folded skin. Subcutaneous injection

Recording Information on Drug Use

A drug use diary must be kept by the CAHW. This is to monitor weaknesses in the service delivery and to assess his/her performance.

The following information must be recorded:

1. Type of drugs.
2. Quantity (dosage).
3. Species of animal.
4. Size (Wt.).
5. Age.
6. Number of animal treated.
7. Diseases treated (signs shown).
8. Outcome of treatment.

ALWAYS KEEP GOOD RECORDS OF MEDICINE USE!

Session 13: Vaccine Handling and Vaccination

At the end of the session, you will know:

- Explain what vaccines are and how they work
- Describe the types of vaccines
- Describe how to keep and use vaccines
- Know the vaccination schedules for different diseases

Introduction

One of your duties as a CAHW is to carry out vaccination of animals in your communities. These activities will be organized by the Livestock Inspector who will then call on you to assist in the vaccination. You may also be required to do some of the vaccinations on your own and therefore knowledge on vaccine handling if very important.

What are vaccines and how do they work?

Vaccines are preparations that improve the animal's ability to fight against diseases. They are used to prevent diseases, not for treating them. A vaccine only protects an animal against the particular disease that the vaccine is used for. Other sorts of medicines for infections, e.g. antibiotics, can each work for many different diseases.

Vaccines are made of weak or dead microbes of the same microbes that cause the disease. When you vaccinate an animal, it produces antibodies in the blood to fight the microbes in the vaccine. If an animal then gets infected with real microbes of this kind it has antibodies ready to fight them off.

Types of Vaccines

There are two main groups of vaccines – live and dead vaccines. Below are their differences

Live Vaccines (attenuated vaccines)	Dead Vaccines (killed or inactivated vaccines)
Made of live, specially weakened microbes	Are made of microbes that have been killed
Give stronger protection against diseases than dead vaccines	Usually have special chemicals mixed with them to make them stronger.
They often protect an animal for a long time and you do not need to give another vaccination so soon e.g. live vaccine for rinderpest lasts for animal's life	They do not usually protect the animal for long – vaccination often repeated every year e.g. Anthrax vaccine is given every year
Need careful handling because they have live microbes in them	Keep them cool and out of bright sunlight

They have to be kept cool in a refrigerator or cold box until you use them	They do not ALWAYS need to be kept in the refrigerator or cold box (Read manufacturer' s storage instructions)
Are either mixed with liquid already or in dried powdery form	Usually come already mixed up with liquid in the bottle and are ready to use.
They are relatively cheaper to use	Dead vaccines are often more expensive to use than live vaccines

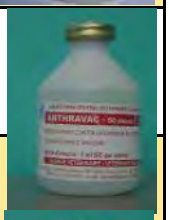
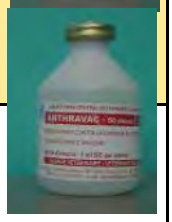
How to keep vaccines

- Before you take vaccines, make sure that you will be able to store them properly.
- Vaccine should be well packed so that it does not break and has clear labels that do not fall off.
- Vaccines should have directions with them that tell you how to keep them and how long they will keep.
- Keep live vaccines in a refrigerator or cold box (between 2 ^{0}C – 8 ^{0}C is best).
- Dead vaccines are kept in cool and dark places.
- Some special vaccines are called 'Heat stable'. These vaccines will last for a certain number of days after they have been taken out of a refrigerator, but only BEFORE they have been mixed with liquid.
- Do not freeze vaccines.

How to Use Vaccines

- Vaccines work best on healthy, well-fed animals
- Avoid vaccinating animals when they are sick, weak and hungry.
- Usually small amount (often 1-2ml) is needed of most vaccines.
- Most vaccines are given after animal is 2-3 months old.
- If you do emergency vaccination before this time, vaccinate again later.
- You do not need to vaccinate animal regularly for rare diseases.
- Change the needle or boil it after vaccinating about every 20 animals.
- Do not use disinfectants or alcohol to sterilize the syringes and needles for vaccination as they can damage vaccines.
- Be ready to use a powder (dry) vaccine as soon as you have mixed it with liquid. It will only last for about 2-4 hours after the liquid has been added.
- DO NOT MIX DIFFERENT VACCINES IN THE SAME SYRINGE. They will often kill each other and they will not work.
- Keep a record of vaccinations with other records about animals.
- Vaccinators should be well trained

Recommended Routine Vaccinations:

Animal	Disease	Vaccination	Dosage	route	Sample Vaccine
Cattle 	Blackquar-ter	Every Six Months		Injection	
	Anthrax	Every six months		Injection	
	Haemor-rhagic sep-ticaemia	Annually		Injection	
Small Ru-minant  	P.P.R.	Vaccinate animals from 4 months old. Vaccinate annually.	1ml	Injection	 
Poultry  	Newcastle	Broiler Chickens 1-4 days - HB_1 12-14 days - HB_1 35 -42 days - HB_1 Layer Chickens 1-4 days - HB_1 12-14 days - HB_1 35 -42 days - HB_1 10 weeks - Lasota 16 weeks - Lasota	1 vial for 1000 birds	In water	
	Fowl pox	18 weeks - POX	1 vial for 1000 birds	Wing web	

Vaccination formats

For every vaccination programme, there are farmer registration forms to be filled. These forms give vaccination information on small ruminants (sheep and goats), large ruminants and poultry. You will have to indicate your district, chiefdom, town/village and the date of vaccination. Also indicated are the name of the farmer, address, sex and any other remarks. You will do this with the help of the Livestock Inspector in your area of operation. (See annex for sample formats)

LET´S LOOK BACK

- Name some of the common drugs in your area of operation and their uses
- What are vaccines and how do they work?
- Which vaccines are used in your area?
- How are these drugs and vaccines stored?
- What is withdrawal period for drugs?

Session 14: Basic Veterinary Interventions

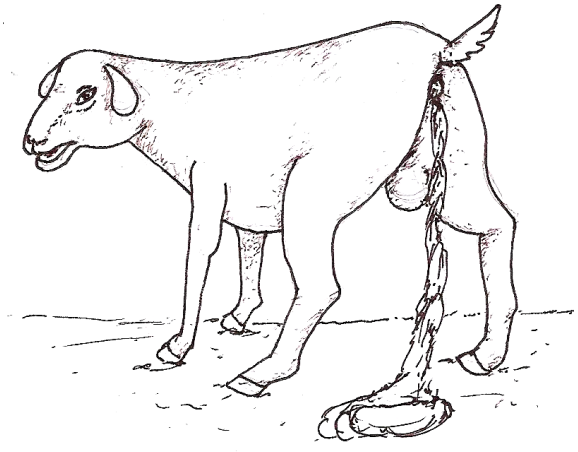
At the end of the session, you will be able to:

- Treat diarrhea and constipation
- Carry out hoof trimming.
- Do closed (bloodless) castration.
- Manage bleeding and wounds.
- Recognize and treat poisoning.
- Do treatment of simple fractures.

Diarrhoea and constipation

Recognising diarrhoea

Diarrhoea is a condition in which animals pass watery droppings (faeces) many times a day. In some cases, e.g. Rinderpest, the animal has diarrhoea which has a very bad smell.



DIARRHOE AND CONSTIPATION IS ALWAYS A SIGN FOR SICKNESS!

Causes and treatment of diarrhoea

Diarrhoea got from wrong feeding may last for a day or two and does not need treatment. These are normally not accompanied by high temperatures. If it continues for more than two days and accompanied by fever, then treat as indicated below.

CAHW giving rehydration with bottle.

Causes of dairrhoea

- By germs (a high body temperature may occur).
- Infection with parasites can cause diarrhoea which sometimes contains blood.
- The wrong feed was given to the animal
- A sudden change in the animal's feed.
- Feeding silage can sometimes cause diarrhoea.
- Feed was old, rotting or fermenting.

Treatment of diarrhea

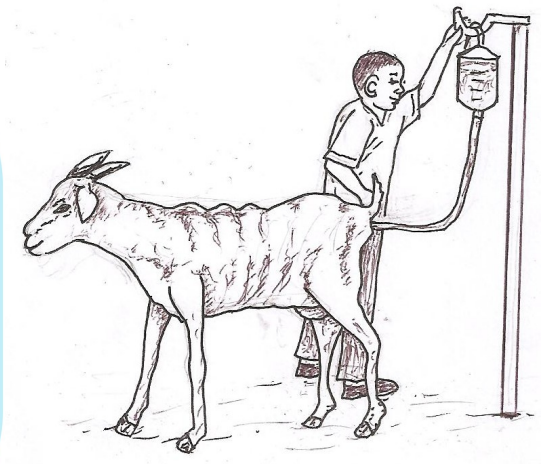
- Give rehydration salt (6 teaspoon sugar + ½ teaspoon salt + 1 litre water): sheep/goat – 500ml 3x daily; calf 1 litre 3x daily
- Deworm with albendazole: 5-10mg/kg body weight
- Give oxytetracycline: 5mg/kg body weight

Constipation

Constipated animals cannot defecate or they pass very dry and hard droppings with difficulty.

Treatment of constipation

- Give plenty of drinking water
- Enema of warm soapy water
- Epson salt 100g in 1L. large animals: 300-500g small animals: 50-100g
- Castor oil – arge animals: 100-200ml; small animals: 20-50ml


Giving anal enema to animal with constipation.

Causes of constipation

- In diseases caused by germs, there can be initial constipation followed by diarrhea
- Dry feed with much fibre and too little water to drink
- Sudden change of feed
- Inadequate movement especially animals kept in houses
- Blockade of the intestines
- Pigs often get constipation soon before they give birth

Foot (hoof) care

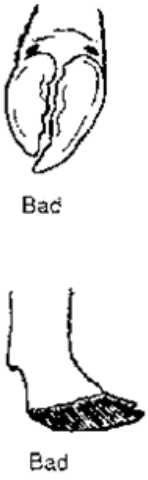
There is an old saying "No foot, no animal". This is true as untrimmed feet lead to bad legs and the animal cannot graze properly and will lose condition. The feet should be regularly examined and trimmed. Remember to make any cuts in a direction away from your body or the hand holding the foot.

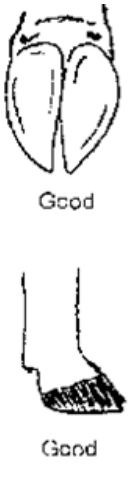
Overgrown feet

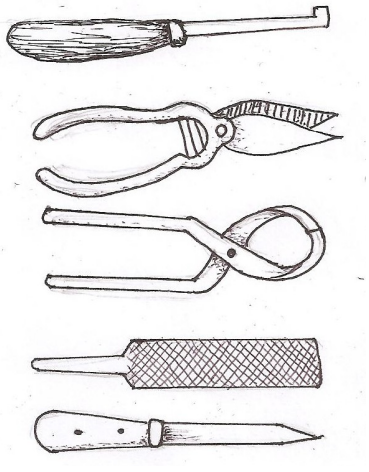
When animals have their feet overgrown or infected with foot rot, they cannot walk and graze properly. The male cannot mount the female and is useless.

How to hold or cast animals in order to trim the feet

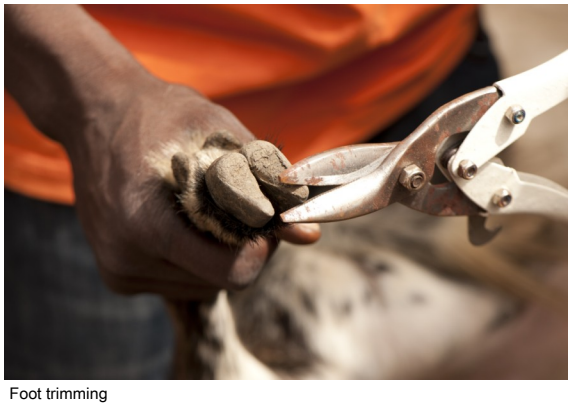
You can trim the feet of sheep and goats alone or with someone to help you. Grasp the hair on the chest with one hand while holding the animal on its flank with the other hand. Use your knee to push against the back of the animal and force it into a sitting position. The animal can be kept in this position for a long time while the feet are trimmed. In order to trim the feet of cattle or buffalo you will need to cast the animal. The leg may be lifted and tied to a support.







Trimming the feet



Foot trimming

- Cut the overgrown claw of the hoof by carefully taking off a little at a time.
- STOP if bleeding occurs.
- Do not cut down too far.
- When you have cut the hoof down use a rasp, if you have one, to file and neaten the edge of the hoof.

If the foot is infected and wet and smelly you should

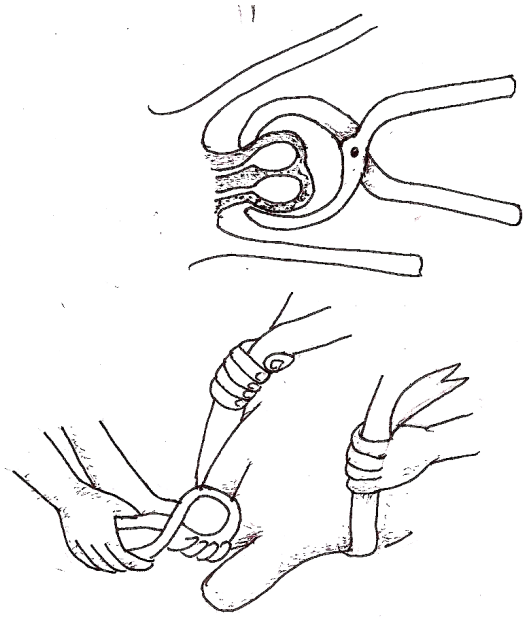
- Carefully remove the damaged areas so that the infected area is exposed to the air.
- The infected area should then be painted with tincture of iodine or formalin.
- Repeat the treatment every 2 days.

Castration of animals

Castration is the destruction or removal of the testicles of the male. It is carried out on animals which are not wanted for breeding. Castrated animals are quiet (do not fight).

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 press hard.
- Now push the other cord into the



CHECK ALL RECENTLY CASTRATED ANIMALS FOR SIGNS OF INFECTION!

Right position for the burdizzo

CAHW are doing castration with burdizzo.

Wounds and bleeding

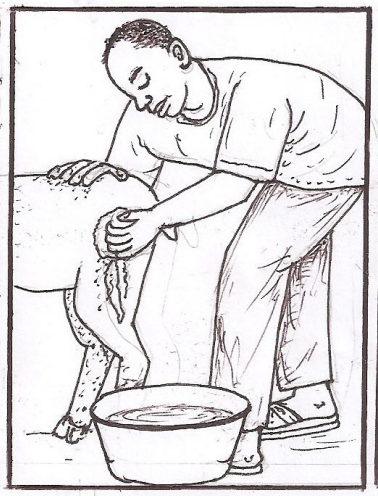
A wound is a cut or a tear in the skin. All wounds bleed, they are painful and can become infected with germs or maggots. Sometimes an animal can bleed from wounds inside its body which have been caused by parasites, by an accident, or in the female from problems as she gave birth. This is infernal (inside) bleeding. The blood carries oxygen from the lungs to every part of the body. If the body loses too much blood it will not get enough oxygen and the animal will die. All wounds should be carefully cleaned and the bleeding stopped.

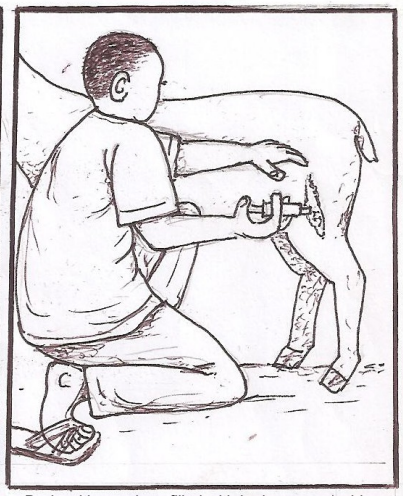
A wound is a cut or tear in the skin. All wounds bleed, they are painful and can become infected with germs or maggots.

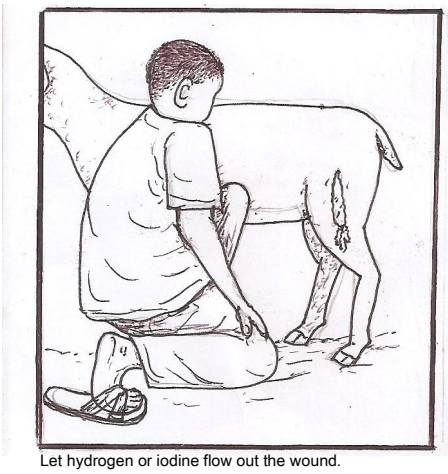
First aid for wounds

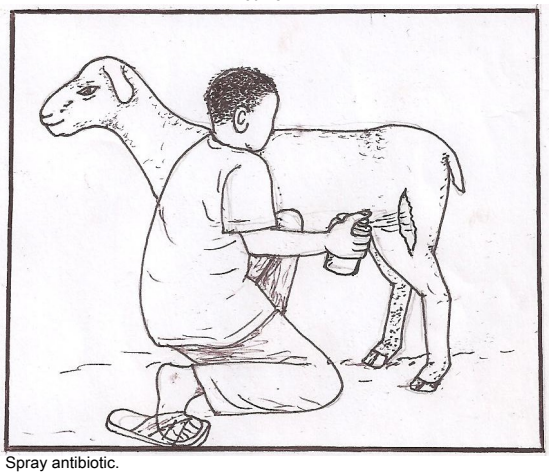
Animals can be injured by the horns and bites of other animals, thorns and sharp objects such as glass, wire and nails. These wounds will become infected with germs because of the conditions in which animals live.
If there is not too much bleeding, clean the wound with salt water and remove all dirt from it. Cut away the hair from around the wound. If you have any disinfectant, use it to dress the wound. Dusting powder can be used to keep the wound clean.


Deep wounds have to be cleaned and treated.


Remove all dirty and dead tissues with soapy water.

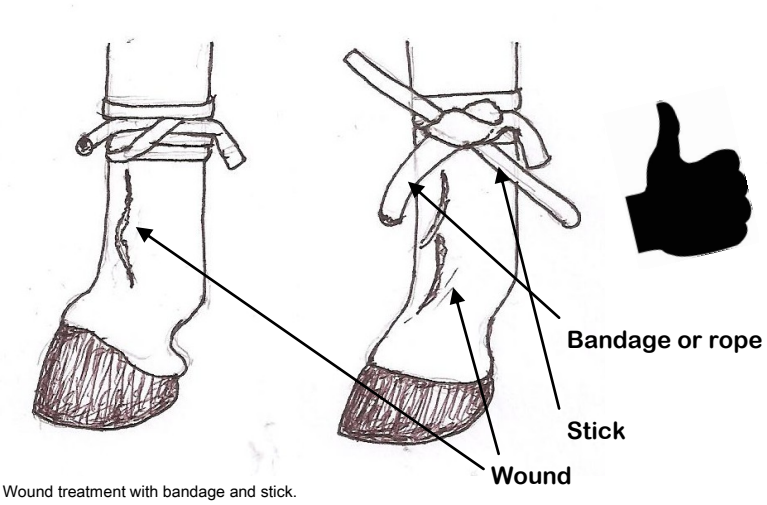

Drain with a syringe filled with hydrogen peroxide or iodine.


Let hydrogen or iodine flow out the wound.


Spray antibiotic.

Bleeding

Bleeding from small or surface wounds can be stopped by pressing down hard on the wound with a clean cloth. If the blood soaks through the cloth put another on top rather than remove the first one. When the bleeding has stopped, clean the wound and treat it.
You will need veterinary help to deal with bleeding from large or deep wounds. If you cannot stop the bleeding by pressing down with cloths you can use a tourniquet (a tourniquet is a piece of rope or cloth which is tied across a blood vessel. It can only be used for wounds in the horn, legs or tail).
Tie the rope around the limb above the wound. To tighten it put a stick under the rope and twist it tight until the bleeding stops. Do not leave the tourniquet on for more than 20 minutes. Release it slowly and if necessary tighten it again. Clean and treat the wound after the bleeding has stopped.



OBSERVE YOUR ANIMALS REGULARLY TO IDENTIFY WOUNDED ONES!

Wound treatment with bandage and stick.

Bleeding from a broken horn

If the horn of an animal is broken, try to stop the bleeding by putting a pad or clean cloth on it and holding it in place with a bandage. A temporary tourniquet around the base of the horn will stop bleeding.
If this does not stop the bleeding, a red-hot piece of metal can be placed directly on the bleeding spot for half a minute to cauterize the horn and the blood vessel. This may have to be done to several bleeding spots on the horn or to the skin surrounding the horn.

Internal bleeding

It can be:

- From the lungs and gut after an accident
- From the uterus or vagina after giving birth

The signs of internal bleeding are that the animal becomes weak and the rate of breathing increases. An animal with internal bleeding should be placed in a quiet, warm place and should be given water with a pinch of salt in it. Do not try to walk the animal as it may collapse and die.
You will need to ask for veterinary help if you believe that an animal has internal bleeding. In many cases there is nothing you can do to stop it. It is better to slaughter the animal.

Fractures (broken bones)

If a bone is broken and there is no wound or bleeding it is called a closed fracture. When the bone is broken and there is bleeding this is called an open fracture. Bone fractures in animals are difficult to treat especially in large animals. It may be possible to successfully treat leg fractures in small, young animals. You will need veterinary help to deal with all sorts of broken bones.

Cause of fractures

A fracture is a broken bone. Any one of the bones in the body can be broken but it is most common for the bones of the legs to be broken. Fractures can result from the animal being kicked, falling, putting its leg in a hole or from fighting another animal (especially on free range).

How to recognise when a bone is broken

- A fracture will happen suddenly, unlike disease which takes time to develop.
- Sudden pain and lameness.
- Unwillingness to use the part of its body where the fracture is.
- You may hear the sound (crack) of the two ends of the broken bone as the animal moves.
- The area around the closed fracture will become swollen.
- There will be a wound and bleeding in an open fracture.
- The ends of the broken bone may show through the wound.

Treatment of simple closed fractures

In young and small animals you can do the following:

- Use alcohol to clean the broken site
- Put the two broken ends together firmly
- Place two hard and straight sticks along each side of the fracture
- Tight firmly with a rope to immobilize the fracture
- Monitor the animal, making sure the sticks are always in place

DON'T MOVE LARGE ANIMALS WITH FRACTURES !!!
CONSULT A VETERINARIAN !

Dislocation of bones

This happens when the ends of two bones (joint) move apart from each other. You can feel that the joint is dislocated when you touch it. The affected leg becomes a little shorter. Let someone help you and stretch the leg to join the two bones.

Poisoning

Causes of poisoning in animals

- There are very many poisonous plants. You should talk to your community and discover what poisonous plants are in your area.
- Seeds for planting may have been treated with chemicals. If animals or humans eat these they can die.
- Strychnine is a poison which can be used to kill wild dogs and wolves. It will also poison other animals
- Weed killers used in agriculture may be poisonous.
- Chemicals used to kill insects on plants or used for dipping against external parasites.
- Old paints, kerosene, diesel and other fuels and oils.
- Poison used to kill rats and mice.
- Animals can be poisoned by salt if they are not able to drink a lot of water.
- Sometimes people deliberately poison animals.

Animals do not normally eat poisonous plants. A lack of other feed may cause animals to eat such plants. They may eat unfamiliar poisonous plants if they are moved to a new area where there are different poisonous plants. Arsenic dips may still be used in some areas and can lead to poisoning. Sometimes animals are purposely poisoned by people. Snake bite is the most common form of dangerous poisoning.

Snake bites

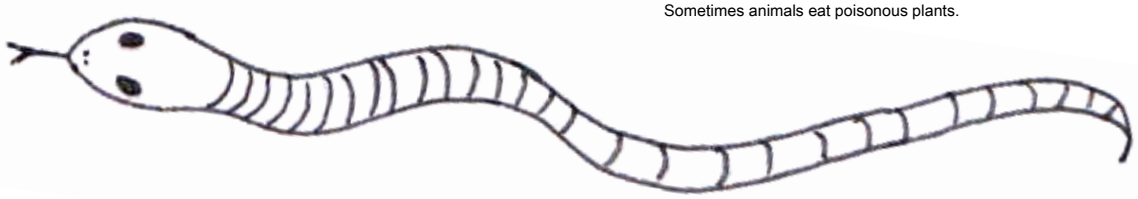
Animals are mainly bitten in the face and legs. Usually we discover snake bites very late when it is too late to do anything.

- Use a tourniquet to stop the poison from a bite on the leg going through the body.
- Release the tourniquet every 20 minutes to allow the blood to flow.
- Send for livestock inspector immediately to give the animal an anti-snake serum.

Signs of poisoning in animals

- Sudden death
- Excessive salivation.
- The mouth is open and the tongue hangs out.
- Diarrhoea and vomiting.
- Difficulty in breathing.

Sometimes animals eat poisonous plants.



Snakes are very dangerous for animals

Treating poisoned animals

1. Charcoal mixed with water and given as a drench is a good treatment for poisoning. Give 1 g m for every 20 kg of body weight
2. Kaolin (china clay), a white powder, can be mixed with water and given as a drench. Give 10 gm to a small animal and 200 gm to a horse or camel.
3. Try to discover what caused the poisoning and stop other animals from being poisoned.

LET´S LOOK BACK

- What causes diarrhoe in animals?
- Why it is important to treat diarrhoe and constipation?
- In which way the hoofcare affects the breeding and mating?
- How do we treat wounded animals?
- Why can animals be poisoned?

Session 15: Internal and External Parasites of Farm Animals

At the end of the session, you will know:

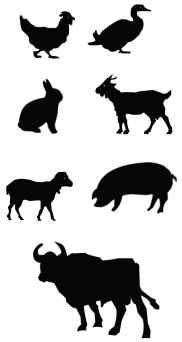
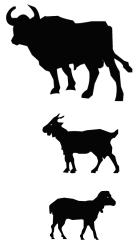
- The types of internal and external parasites
- The problems caused by parasites in ruminants, pigs, birds and rabbits.
- Treatment and control of parasites in farm animals.

What is a parasite?

A parasite is an organism that lives in or on another animal and feeds on it. All animals and humans can become infected with parasites. Those living inside the animals are internal parasites, those living on the skin are external parasites and the animal is called the host.

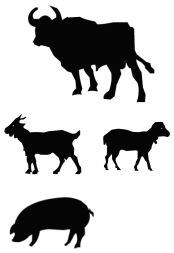
Types of Internal Parasites

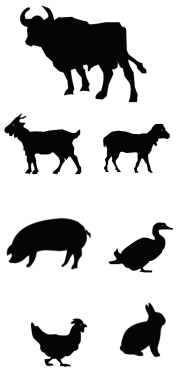
There are three main types of internal parasites. These are roundworms (gut worms), tapeworms and flatworms (flukes).

Gut worms				
Animals affected	**Transmission:**	**Clinical signs:**	**Treatment:**	**Prevention:**
	Eggs of worms in feed, water, pasture	Diarrhoea, loss of tail hair, swollen jaw, pale membrane, poor growth, rough coat	Albendazole: 5-10mg/kg body weight Levamisole: 0.25ml/kg body weight Piperazine (pigs): 160mg/kg body weight Piperazine (birds):	Dose the whole herd with albendazole trice a year Give clean feed and water Alternate grazing on pastures with cattle and sheep/goats
Flat worms (Flukes)				
Organs and animals affected	**Transmission:**	**Clinical signs:**	**Treatment:**	**Prevention:**
Liver, rumen 	Eggs of worms in feed, water, pasture (swampy areas)	Diarrhoea, swollen jaw, pale membrane, bad smell in mouth	Albendazole 5-10mg/1kg body weight	Dose the whole herd with albendazole thrice a year Give clean feed and water Avoid grazing in swampy areas

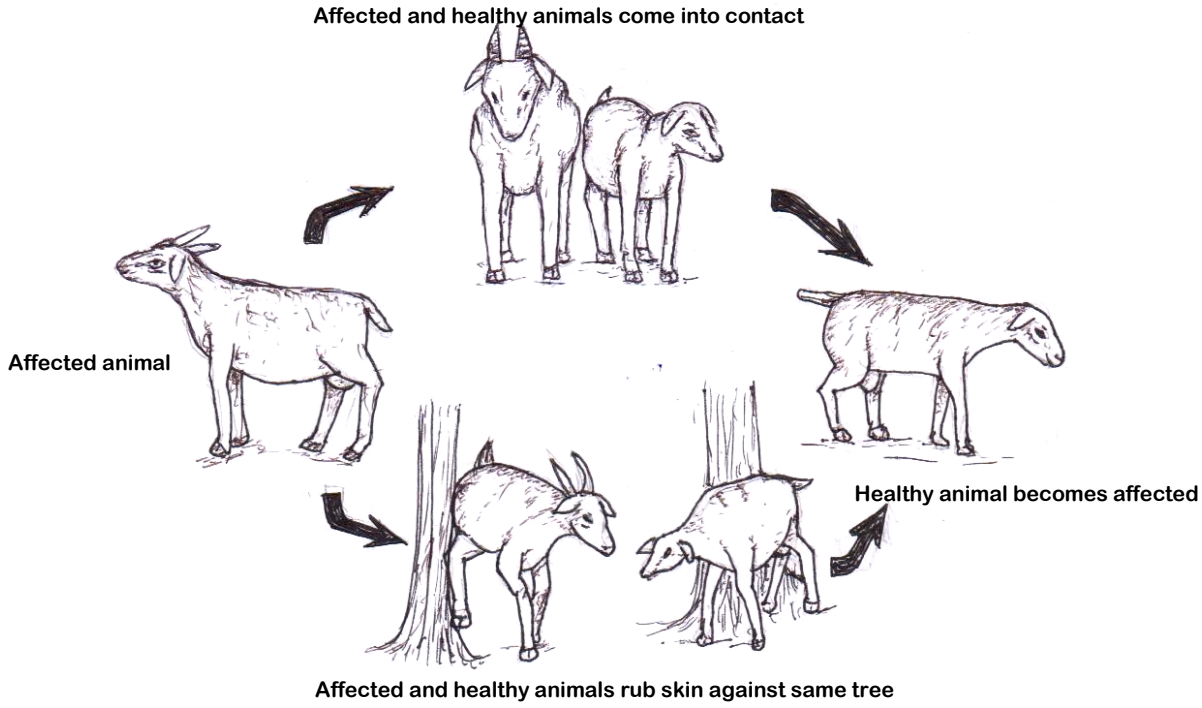
Types of external parasites

These are parasites that live on the skin of animals. They feed on skin and blood, and cause skin diseases. They can also carry other tiny germs and spread them from one animal to the other to cause serious diseases. Examples of external parasites are mites, ticks and lice.

Disease caused by mites (Mange)				
Organs and animals affected	**Transmission:**	**Clinical signs:**	**Treatment:**	**Prevention:**
Skin 	By direct contact with sick animals and contaminated surfaces	Loss of hair Itching: Animal rubs against trees and posts; skin becomes red Skin is thickened and cracking Loss of condition Often starts on head and neck then spreads to the hind limbs	Dip animal with acaricide Ivermectin injection: 0.2-0.5mg/kg body weight.	Avoid overcrowding Treat all animals at the same time Isolate sick animals

Ticks, Lice, Fleas				
Organs and animals affected	**Transmission:**	**Clinical signs:**	**Treatment:**	**Prevention:**
Skin, Wattles 	Contact with sick animals, infested houses, infested pastures/bushes	Ticks are seen on the skin (especially lower part of body) Irritation and itching Birds become restless and cannot feed Pigs scratch skin against objects Sores can appear on skin	Spray animals with acaricide Ivermectin injection: 0.2-0.5mg/kg body weight. Rub ticks with a cloth soaked in kerosene (paraffin) Use pour-on in small quantities at the length of the back of the animal	Move animals to different pastures and rest the contaminated pasture for some time Treat the entire herd or flock at the same time.

Transmission of mange



Animal contaninated with mange.

LET´S LOOK BACK

- What parasites do we know
- Are parasites dangerous for humans too?
- How do we cure the different parasites?

Session 16: Common Diseases of Cattle, Sheep, Goats and Pigs in Sierra Leone

At the end of the session, you will be able to:

- The common diseases of cattle, sheep, goats and pigs.
- The clinical signs of the common diseases
- What treatments are employed
- Prevention and control of the diseases.

Foot-and-mouth disease (FMD)			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
Adults get infected by inhaling or ingesting the virus, calves by ingestion through milk	Fever and loss of appetite Salivation and bad-smelling breath Large wounds in the mouth, Lameness. Wounds between the hooves Vesicles on teats Calves show rapid breathing and possibly die Secondary bacterial infection Meat turns yellowish	Oxytetracycline at 5mg/kg body weight used to treat possible secondary infections. Vitamin A is given to enhance skin repairs	Isolate affected animals, avoid mixing herds, vaccinate animals, stop movement of animals, slaughter animals

Dermatophilosis			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
Insects and birds, direct contact between animals	Mainly during wet season Affects mostly young stock Skin lesions Uncomplicated lesions heal Lesions can be infected Lesions can join and skin detached Loss of body condition	Apply iodine on affected area	Isolate affected animals; slaughter chronic and severely affected animals

Rinderpest			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
by breathing in or ingesting the virus in saliva, nasal/ocular secretions, faeces and urine. Mostly occurs when animals are being moved.	Many deaths in the herd Fever and depression. Reduced milk production Purulent discharge from eyes and nose Extensive dribbling Dry, cracked muzzle and nostrils Severe diarrhoea on domestic and wild bovids Sores in the vulva Many animals affected (usually young ones)	No cure	Vaccination of healthy cattle in areas where the disease is known to exist

Haemorrhagic Septicaemia			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
By inhaling and/or ingesting the droplets of nasal discharge	High fever Diarrhoea Tongue may be swollen and protrude from mouth, swollen throat (176,177) Yellow, nasal discharge (175) Milk suddenly reduced Heavy, noisy breathing Signs start suddenly and death occurs quickly Appears in animals in good condition and usually between 1-3 years old Mainly during wet season and following shipping or moving stress	Antibiotics (oxytetracycline 5mg/kg body weight) before long movement (transhumant)	Vaccinate all cattle once a year, especially those between 1-3 years

Contagious Bovine Pleuropneumonia			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
By inhaling the droplets when a sick cow is coughing	Slow development, throughout the year Loss of weight Loss of milk production Coughing Difficult breathing, breath smells bad. Nasal discharge Jugular veins engorged Chest dull when tapped Grunting Head held out Elbows held outwards Rigid back when squeezed Not moving well: walks hunched up Avoids standing in smoke	Alert vet authority who will treat as per the current policy : *Measures to take:* Keep any newly-arrived cattle separately Slaughter persistent coughing animal	Vaccinate all cattle annually

Black Quarters			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
By ingestion during grazing on contaminated field	Fever, dullness, sudden lameness of one leg, swollen shoulder or hip, feel gas beneath the skin when touched, sudden death / stiff legs *Post-mortem signs:* Swollen muscle, dark blood clots, rancid smell when opened, dark muscle with bubbles of gas,	Antiserum. Ampicillin 2-7mg/kg body weight (any broadspectrum antibiotics) *Measures to take:* Alert the vet authority Destroy carcasses by burning or, Bury them with lime 6 feet under deep	Vaccinate all animals, disinfect all contaminated objects, do not open the carcass, do not eat the meat

Trypanosomiasis			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
Bite from tsetse fly	• Fever and depression • Emaciation • Enlarged lymph nodes are clearly visible under the skin • Pale membranes • Tears • Milk reduced • Tail hair loss • Mainly during dry season	with diminazene aceturate 3.5mg/kg body weight or homidium bromide 1mg/kg body weight	• Avoid known tsetse fly areas • Use pour-on with synthetic pyrethroids to avoid bites from flies. • Alert the vet authority *Control:* Vector population control

Pest of Small Ruminants (PPR)			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
Direct by contact with sick animals or by air	• Sudden death, especially in goats. • Discharges from eyes, nose and mouth, first thin then purulent. • Difficult breathing and coughing. • Sores in mouth, the animal does not eat anymore. • Dry, cracked muzzle and nostrils. • Severe diarrhoea with sometimes blood. • Death in 5-10 days	No treatment. Use oxytetracycline 5mg/kg body weight or other antibiotics for secondary infections *Measures to take* • Alert and report • Stop all concentration and movements when disease occurs.	• Do not bring in the village animal from sickness area (quarantine) • Isolate sick animals and do not vaccinate them Vaccinate animals above 6 weeks of age annually (TUSSIPEST)

Contagious Caprine Pleuropneumonia			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
From infected animals, nasal discharge. Mortality up to 100%.. *Causative Agent*: Mycoplasma	Loss of condition Weakness Nasal discharge Loss of appetite	Tylosine 10mg per kg body weight for 3 days	Quarantine all incoming animals Vaccinate all healthy animals

Haemorrhagic Septicaemia			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
From animal to animal. Through discharges, occurs mainly in the cold dry season (Nov. – Febr.) *Causative Agent :*	Prostration Loss of appetite Coiling Swelling of the head	Tetracycline 5mg/kg, Ampicillin 2-7mg/kg, Sulphanomide 1g/10kg body weight	Quarantine, Isolation of sick animals,Vaccination 6 week of age

Foot Rot			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
From animal to animals. Warm moist environment *Causative Agent :* bacteria	High temperature Weight loss Loss of appetite Swollen foot	1.5% formaldehyde foot bath 10% chloramphenicol in alcohol + Penicillin injection Dose – 50,000 IU per kg body weight for 5 days	Avoid moist environments Clean pens daily

Foot Rot			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
By direct contact with sick animals during dry season *Causative Agent :* virus	Sores around the lips, Loss of appetite ,Loss of condition	Antibiotic to suppress secondary infection. Tropically treat with iodine solution, CNG spray or copper sulphate	Treat infected animals as soon as possible to stop infection spreading each other

African Swine Fever			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
From infected ticks. *Causative Agent:* Virus	Fever during 3-4 days Lack of appetite Dullness, in coordination of movements Red spots on belly Vomiting and bloody diarrhoea Quick death with generalized signs of internal blood loss Cough, conjunctivitis (red eyes), difficult breath in sub-acute form	No cure *Measures to take* • Alert the vet authority. • Slaughter every pigs within an area decided by the vet authority • Moving and straying of animals from infested zones is forbidden. • Burn or bury slaughtered or dead animals	No vaccine

LET´S LOOK BACK

- What are common diseases of farm animals?
- How are these diseases transmitted?
- Which of them are not treatable and why?

Session 17: Common Diseases of Poultry in Sierra Leone

At the end of the session, you will know:

- The common diseases of poultry
- The clinical signs of the common diseases
- What treatments are employed
- Prevention and control of the diseases.

New Castle Disease

Transmission:	Symptoms:	Treatment:	Prevention/ Control:
By air or wind. By water, feathers and wild birds. Almost in the dry and cold season: when the rubber trees start flowering. December – February, April – June	Prostration and then: greenish diarrhoea ocular and nasal discharges, sneezing, difficult breath quivering, loss of balance, paralysis, collapse on legs, neck twisted swollen crest and barbell, red spots on the skin Drop in egg laying High mortality.	No treatment	Never purchase chicken in the market between December and March Isolate (quarantine: 15 days) all new birds coming in the compound. Isolate and kill all sick animals. Vaccinate all animals of all ages at least by November Never vaccinate sick chicken

Measures to be taken in case of high death rate

Since bird flu is also presented in this way, the following measures should be enforced :

- Alert the veterinary authority
- Separate sick animals from healthy animals and lock them up in closed buildings.
- Place buckets with water and disinfectant for shoes or boots at the entrance of the farm or of the hen house.
- No new birds should be accepted on the farm.
- Stop eating eggs and birds that died from the disease.
- No more sales or gifts of eggs, birds or manure, even when birds appear to be in good health.
- Stop lending or borrowing equipment (bicycles, egg trays, wheelbarrows).
- No more movement to and from the farm
- Burn or bury the dead animals at least 2 meters deep and cover with quicklime.
- Inform other farmers to take similar precautionary measures
- Poultry farmers should stop visiting poultry markets in the area

When the laboratory establishes that it is not bird flu outbreak, measures could become less strict

Fowl Pox

Transmission:	Symptoms:	Treatment:	Prevention/ Control:
By contact from a sick bird to another healthy bird Through insects: fleas, bugs Through dry wounds	Itches/pulses/nodules on the head, around eyes and mouth Sometimes pus or matter onto eyes and nose On dead bird: inches, pus in the mouth and throat	Treat as soon as the disease appears Clean the pus from eyes and mouth Apply palm oil: 2 times per day Apply Glycerine or Iodine (Betadine)	Vaccination is possible at the beginning of the dry season Respect the quarantine for new comers Disinfecting of houses: 2 times a year. chicken

Pasteurellosis (Fowl Cholera)

Transmission:	Symptoms:	Treatment:	Prevention/ Control:
Through chicken feed Due to the stress Bad hygiene	IInflammation of the crest or comb Respiration problem with high mortality Diarrhoea	Antibiotics: Tetracycline 1g/kg poultry feed,	Vaccination possible on chicken about 6 weeks old Observe hygiene rules and avoid stress to birds.

Salmonellosis

Transmission:	Symptoms:	Treatment:	Prevention/ Control:
From other sick birds From mother to chick through egg or manure	Sleepy or shy chiucken in cold position White diarrhoea Chicks with bloated belly or stomach On dead bird: Big, soft and pasty liver	Antibiotics: Tetracycline1g/kg poultry feed, Chloramphenicol, Sulphonamides with Vitamins	Destroy egg from sick birds Isolate sick chickens Burn dead chicks Disinfecting house

Salmonellosis			
Transmission:	**Symptoms:**	**Treatment:**	**Prevention/ Control:**
By ingesting organisms in the droppings of sick chickens	Diarrhoea with blood Sleepy or shy chicken Delay in growth High mortality in 10 days	Sulphonamides: add to drinking water for 3 days then two days later, another 3 days in drinking water. Amprolium: 300mg/2.5L of drinking water for 5-7 days. Withdrawal period: 3 days	Regular cleaning and disinfecting of chicken house

Chickens without propper fencing can spread deseases easily.

LET´S LOOK BACK

- What deseases are there in poultry?
- How can we prevent them?
- Are poultry deseases affective for humans?

Session 18: Zoonotic deseases in Sierra Leone

At the end of the session, you will know:

- The common diseases affecting both animals and man
- The clinical signs of these common zoonotic diseases
- What treatments are employed
- Prevention and control of the diseases.

Zoonosis: It is a disease that can pass on from an animal to human being. Some can be treated when detected early e.g. Anthrax, whilst others have no cure e.g. Rabies

Anthrax	
Transmission:	By contact, inhalation, insect bite
Symptoms:	High fever, dark membranes, blackish blood flows through natural openings, reduced milk yield, bloody diarrhea, sudden death/legs not stiff.
Measures to be taken:	Alert the vet authority (143) Destroy carcasses by burning or, Bury them with lime 6 feet under deep
Treatment:	Procaine penicillin 10-15mg/kg body weight for4 days intramuscular
Prevention/Control:	Vaccinate all animals, disinfect all contaminated object
Measures to be taken:	**Do not open carcass** **Do not eat the meat** **Burn or bury carcass** 

Tuberculosis	
Transmission	By inhaling droplets, taking milk and dairy products
Symptoms in animals	Long-term dry and painful cough Poor body condition Reduced milk yield Colic, constipation or uncontrolled diarrhea
Symptoms in humans	Coughing for long time (sometimes with blood) Becoming weak and thin, not feeling well. Often children have abscesses in the neck and spine becomes bent.
Risky behaviours of man	Drinking fresh milk Touching discharges from infected animals Close contacts with droplets or saliva from infected animals or humans
Treatment	Successful treatment in humans. No treatment in animals
Prevention	Boil milk from cows and goats before drinking Isolate or slaughter cows with persistent cough Keep children out of the shed with coughing animals
Control in animals	Test and slaughter

Rift Valley Fever	
Transmission	By bite of mosquito carrying virus
Symptoms in animals	Frequent abortions Deaths in young sheep and goats – 100%; adults - 30% High fever, muscular spasm, locomotive disorders Bloody nasal discharge Diarrhea
Symptoms in humans 	Acute fever, muscular pain, fear of light When complicated, haemorrhages, nervous disorders Can lead to death
Risky behaviours of man	Sleeping without mosquito net Direct contact with nasal discharges, blood, infected carcasses, post-abortion vaginal discharges absorption of possible infected droplets and raw milk
Treatment	No treatment
Prevention in humans	Sleep under mosquito nets Vaccinate livestock Don't touch meat or discharges from infected animals

Brucellosis	
Transmission	By ingestion and inhalation of bacteria Sometimes through mating
Symptoms in animals	• Abortion in late pregnancy or stillbirth • Enlargement of testicles • Infertility • Swellings around joints • Intermittent fevers
Symptoms in humans	• Periodic fever • Back and legs aching • General body weakness • Abortion, infertility in women • Enlarged, painful testicles in men
Treatment	Not advisable
Prevention in animals	• Isolate calves at calving • Clean and bury all discharges and afterbirth • Slaughter positive male and female on blood test • Dispense pessaries into uterus after each abortion ALWAYS USE GLOVES
Prevention in humans	• Don't drink fresh, raw milk • Don't touch discharge from aborted cow • Don't help cow to calf without gloves • Don't use urine from aborted cow

Rabies	
Transmission	By bite of infected dogs (mostly)
Symptoms 	**3 stages** • The prodromal stage – changes in behaviour and loss of appetite • The excitement stage – attempts to bite, aimless activity and changes in the voice. • The paralytic stage – paralysis (of the lower jaw, hindquarters etc.) **Cattle:** Excitement, frequent bellowing, low milk yield, excessive salivation and paralysis commencing in the hind quarters. The virus may be present in the milk. **Sheep:** The stage of excitement is often shorter and that of paralysis longer than in cattle. **Pigs:** In addition to excitement, aggressiveness and paralysis. **Dogs:** At first normal behavior, then eating foreign objects, hoarse bark, drooling saliva and unsteady gaze. Can run for many kilometers biting people and animals. Finally paralysis and death. **In man:** Fever, hallucinations, fear of water and light, excitement, pa ralysis, salivation, death.
Measures to take	• If human is bitten and dog is alive, immediately give first aid • Start with post-exposure prophylaxis (PEP) if available • Confine dog and observe for 12-14 days for clinical signs • If dog is rabid, continue the PEP, if not, discontinue
Dog bite management:	• Wash wound thoroughly with soap and water for 5 mins • Clean and apply tincture of iodine or alcohol or gentian violet • Do not cover or suture wound • Report to the nearest health facility • Report dog to the nearest veterinary clinic
Treatment	No treatment
Prevention	Vaccinate dogs and cats at 3 months and then every year People working with pets should take pre-exposure prophylaxis Post-exposure prophylaxis should be taken early before symptoms appear
Control in animals	Vaccinate more than 70% of all dogs in the area Manage stray dog populations

Bird Flu	
Transmission	Direct contact with infected live or dead birds; by inhalation of virus; indirect contact with contaminated surfaces and objects
Symptoms	Generally, bird flu appears suddenly and kills many birds – either very quickly without any disease signs, or more slowly, in which case some discrete disease signs may be observed: weakness, loss of appetite, ruffled feathers, diarrhoea. In fowl: • Severe depression (falling asleep, head turned downwards) • Weakness • Stumbling, paralysis • Combs, wattles and shanks are discolored (dark red or purple) and swollen • Feathers are ruffled • Fever • Diarrhea (animals drink more than usual) • Rapid respiration • Discharge from the eyes • Loss of appetite • Drop in egg production and alterated eggs • Sudden death (with or without symptoms) • Mortality rate: 50% to 100% in a few days One must always suspect bird flu, every time one comes across a case of rapid and high mortality, especially if signs are very similar to Newcastle disease. Only the lab can establish the difference between the two. In humans : • Incubation of 1 to 2 weeks before the first signs appear: • High fever • Head aches • Muscle pains • Diarrhea • Fatigue (being tired) • Coughing and difficult breathing • Thereafter the disease rapidly degenerates towards serious breathing difficulties. • Sometimes deadly
Treatment	No treatment

Prevention	• Keep poultry under good hygienic conditions (clean water, quality feed, clean stables and floors) and in good health (regular vaccination and de-worming) • Observe personal hygiene • Provide foot baths • Avoid free-ranging fowl, even in small flocks of local birds (feed the birds, rather than have them look for their food). • Raise poultry in closed-off and covered poultry houses or at least in a closed yard. • Prevent contact between domesticated birds and wild birds (protect drinking and feeding troughs with wire nets, nets or tarpaulins). • Separate the different species raised in the farm (for example: chicken, pigs) • Prevent contact with other animal species (cats, dogs, rats) • Prevent contact between the farmers' birds and those of vendors, neighbors or other farmers. • Control the entry of animals, people or goods that could carry the virus. • Immediately separate any bird showing disease signs from the flock (keep in cages). • When examining or treating animals, always start with the healthy ones. • Apply the 'all-in, all-out' principle to enable better control of disease whenever they appear.

Summary of common diseases, symptoms and treatment/ prevention

Disease	Symptoms	Treatment/Prevention
Anthrax *(Bacillus anthracis)*	High fever, dark membranes, blackish blood flows through natural openings, reduced milk yield, bloody diarrhea, sudden death/legs not stiff.	Procaine penicillin 10-15mg/ kg body weight for4 days intramuscular
Black quarters	Fever, dullness, sudden lameness of one leg, swollen shoulder or hip, feel gas beneath the skin when touched, sudden death / stiff legs	Antiserum. Ampicillin 2-7mg/ kg body weight (any broadspectrum antibiotics

Disease	Symptoms	Treatment/Prevention
Foot and mouth disease	Fever and loss of appetite Salivation and bad-smelling breath Large wounds in the mouth, Lameness. Wounds between the hooves Vesicles on teats Calves show rapid breathing and possibly die Secondary bacterial infection Meat turns yellowish	Oxytetracycline at 5mg/kg body weight used to treat possible secondary infections. Vitamin A is given to enhance skin repairs
Rinderpest	Many deaths in the herd Fever and depression. Reduced milk production Purulent discharge from eyes and Extensive dribbling Dry, cracked muzzle and nostrils Severe diarrhoea on domestic and wild bovids Sores in the vulva Many animals affected (usually young ones)	No cure Vaccination of healthy cattle in areas where the disease is known to exist
Haemorraghic septicaemia	High fever Diarrhoea Tongue may be swollen and protrude from mouth, swollen throat Yellow, nasal discharge Milk suddenly reduced Heavy, noisy breathing Signs start suddenly and death occurs quickly Appears in animals in good condition and usually between 1-3 years old Mainly during wet season and following shipping or moving stress	Antibiotics (oxytetracycline 5mg/kg body weight) before long movement (transhumant)

Trypanosomosis	Fever and depression Emaciation Enlarged lymph nodes are clearly visible under the skin Pale membranes Tears Milk reduced Tail hair loss Mainly during dry season	Diminazene aceturate 3.5mg/kg body weight or homidium bromide 1mg/kg body weight
Dermatophilosis	Mainly during wet season Affects mostly young stock Skin lesions Uncomplicated lesions heal Lesions can be infected Lesions can join and skin detached Loss of body condition	Apply iodine on affected area
Small Ruminant Pest	Sudden death, especially in goats. Discharges from eyes, nose and mouth, first thin then purulent. Difficult breathing and coughing. Sores in mouth, the animal does not eat anymore. Dry, cracked muzzle and nostrils. Severe diarrhoea with sometimes blood. Death in 5-10 days	No treatment. Use oxytetracycline 5mg/kg body weight or other antibiotics for secondary infections
Contagious caprine pleuropneumonia	Loss of condition Weakness Nasal discharge Loss of appetite	Tylosine 10mg per kg body weight for 3 days
Foot rot	High temperature Weight loss Loss of appetite Swollen foot	1.5% formaldehyde foot bath 10% chloramphenicol in alcohol + Penicillin injection Dose – 50,000 IU per kg body weight for 5 days
ORF	Sores around the lips, Loss of appetite ,Loss of condition	Antibiotic to suppress secondary infection. Tropically treat with iodine solution, CNG spray or copper sulphate

Disease	Symptoms	Treatment/Prevention
African swine fever	Fever during 3-4 days Lack of appetite Dullness, in coordination of movements Red spots on belly Vomiting and bloody diarrhoea Quick death with generalized signs of internal blood loss Cough, conjunctivitis (red eyes), difficult breath in sub-acute form	No cure No vaccine
Brucellosis	• Abortion in late pregnancy or stillbirth • Enlargement of testicles • Infertility • Swellings around joints	Treatment is not advisable. Slaughter infected animals
Tuberculosis	Long-term dry and painful cough Poor body condition Reduced milk yield Colic, constipation or uncontrolled diarrhea	Test and slaughter
Rift valley fever	Frequent abortions Deaths in young sheep and goats – 100%; adults - 30% High fever, muscular spasm, locomotive disorders Bloody nasal discharge Diarrhea	Vaccinate livestock
Rabies	At first normal behavior, then eating foreign objects, hoarse bark, drooling saliva and unsteady gaze. Can run for many kilometers biting people and animals. Finally paralysis and death.	Vaccinate dogs and cats at 3 months and then every year

Bird flu	Severe depression (falling asleep, head turned down-wards) Weakness Stumbling, paralysis Combs, wattles and shanks are discolored (dark red or purple) and swollen Feathers are ruffled Fever Diarrhea (animals drink more than usual) Rapid respiration Discharge from the eyes Loss of appetite Drop in egg production and alterated eggs Sudden death (with or with-out symptoms) Mortality rate: 50% to 100% in a few days	(See Bird flu under zoonotic disease)
Newcastle disease	Greenish diarrhoea Ocular and nasal discharges, sneezing, difficult breath Quivering, loss of balance, paralysis, collapse on legs, neck twisted Swollen crest and barbell, red spots on the skin Drop in egg laying High mortality.	Vaccinate all animals of all ages at least by November Isolate and kill all sick ani-mals.
Fowl pox	Itches/pulses/nodules on the head, around eyes and mouth Sometimes pus or matter onto eyes and nose On dead bird: inches, pus in the mouth and throat	Treat as soon as the disease appears Clean the pus from eyes and mouth Apply palm oil: 2 times per day Apply Glycerine or Iodine (Betadine)

Disease	Symptoms	Treatment/Prevention
Salmonellosis	Sleepy or shy chicken in cold position White diarrhoea Chicks with bloated belly or stomach On dead bird: Big, soft and pasty liver	Antibiotics: Tetracycline1g/ kg poultry feed, Chloram-phenicol, Sulphonamides with Vitamins
Coccidiosis	Diarrhoea with blood Sleepy or shy chicken Delay in growth High mortality in 10 days	Sulphonamides: add to drink-ing water for 3 days then two days later, another 3 days in drinking water. Amprolium: 300mg/2.5l of drinking water for 5-7 days. Withdrawal period: 3 days
Fowl cholera	Inflammation of the crest or comb Respiration problem with high mortality Diarrhoea	Antibiotics: Tetracycline 1g/ kg poultry feed,

LET´S LOOK BACK

- Which deadly deseases do we know?
- What is a zoonotic desease?
- Why we need to handle certain deseases seriously and report them to the vet-authority?

Session 19: Laboratory Sample Collection

At the end of the session, you will know:

- Know the type of sample collected for various diseases
- Collect and submit appropriate samples
- Know how to package laboratory samples
- Correctly fill laboratory forms to provide all necessary information

Introduction

Sample collection for laboratory analyses is not a routine schedule for you as a CAHW. Laboratory sample collection needs special training for veterinary personnel to do. However, where necessary the CAHW will be asked to take basic samples under the supervision of the Livestock Inspector in his/her chiefdom. During such periods, special sample collection tools and equipments will be made available for such activities.

KEEP AWAY FROM SAMPLES THAT YOU ARE NOT ALLOWED TO TAKE.

What samples are to be collected?

- Samples from a live animal
  1. Faeces
  2. Urine
  3. Blood (for smears)
  4. Swabs
  5. Parasites, Skin scrapings (for mites)
- Environmental and feed samples

Taking samples from a live animal

Faeces

Preferably, faecal samples should be taken directly from the rectum or just after defecation. This is particularly important for the diagnosis of lungworms and protozoans such as Giardia and trichomonads.

CAHW taking faeces samples from a goat.

Urine

In cattle, massaging the area under the escutcheon should result in a flow of urine within one minute. In sheep, occluding the nares for a short period sometimes precipitates urination. The animal can also be confined and monitored constantly to catch the next instance of urination.

Parasites, skin scrapings

Larger external parasites can simply be picked off and placed into a container. Ticks and fleas should be submitted for identification or stored in 70% alcohol.
For smaller parasites, such as skin mites, scrape with a razor blade to be sure you go deep enough to get the parasite. Wrap the collected material and submit to laboratory.

Swabs

Swabs are often used to collect discharges from lesions, for example taking swab from an infected swelling.

Taking anal samples from goat with a swab.

Swabs are kept in the special swab-container to avoid contamination.

Animal	Collection Site	Procedure of collection
Ruminants/ pigs	Ear vein	• Find the vein at the back of the ear. • Clean the site with cotton soaked in • alcohol • Use sterile needle (lancet) to prick • the vein. • Collect drops of blood as they flow
Birds	Wing vein	• Pluck some of the feathers for better visibility, • Hold off the end of the vein to fill it, • Insert the needle, parallel to the skin • Be sure to have bevel up.
To make thin blood smear		• Put a drop of whole blood onto end of a glass slide • Using a second glass slide, make contact with the drop of blood • Push the second slide across the bottom slide • Hold the bottom slide by the edges and wave in air to dry
To make a thick blood smear		• Put a drop of blood on the middle of a slide • Spread the drop out with the corner of another slide • Hold it in air to dry

CAHW talking blood sample from goat.

Taking Environmental and Feed Samples

In cases when a toxin or mineral deficiency is suspected in the environment or in the feed, samples can be collected for laboratory analysis.

Feed: Collect a minimum of 1 kg of feed, making sure it is representative of what the animal has been consuming.

Forage: Forage should be cut to 10cm or les in length for easy handling.

Pastures: Sampling pastures can be difficult and unreliable if the sample is not collected properly. Choose 8-10 locations at random and remove forage (at grazing height) from a square foot area. Mix all collected samples (8 – 10) and take a representative sample of this mixture to send to the laboratory. If animals have a selective grazing in some areas, instead of random sampling, sample these areas.

(If samples cannot be delivered to the laboratory within 2-3 days, it is recommended to freeze the materials. Pack in plastic, air-tight bags. Remove all air before sealing).

Personal Protection and Health Concerns when opening carcasses

- Wear personal protective equipment – gloves, apron, and boots.
- For some diseases (e.g. rabies and avian influenza) use respirator as well
- Encourage unprotected persons to keep a distance from the carcass.
- Dispose of carcasses appropriately away from scavengers
- Use sharp knives for necropsy to avoid accidents.
- Take vaccine against a disease (e.g. Rabies) before opening carcass.
- Avoid needle sticks by capping them after taking samples.
- Restraint of animals well to avoid kicking or biting.

Preservation of samples

Maintaining samples in between the time when they are collected and when they arrive at the laboratory is very important. To best preserve specimens for use in the laboratory, some key concepts to keep in mind are:

All necessary materials should be available

At the time of collection of samples from a necropsy, have the following materials on hand:

- Formalin in screw-top jar
- Syringe, needle and blood tubes
- Sterile swabs
- Tubes – for collection of fluid (urine, ocular fluid,), placement of swabs
- Small plastic container (faeces,)
- Cold packs
- Cooler
- Waterproof marker
- Paper forms –submission form.

Samples should be kept moist

If the sample dries out, any agents in there might dry out as well, making it difficult to isolate the infectious organism.

For swabs: immerse the swab in sterile saline or sterile water and keep at 4^0C until it can be sent to the laboratory.

For serum samples: keep it cool or freeze it if it will be kept for more than a week.

For external parasites: Mites, fleas, and ticks can all be kept in 70^0 alcohol indefinitely.

For faecal samples: Keep them cool until they can be sent to the laboratory. Nematode eggs usually survive well at 40^0C but can be destroyed by freezing, so DO NOT FREEZE.

LET´S LOOK BACK

- Name some of the samples that can be collected for laboratory analysis.
- How can faecal samples be collected from Small Ruminants and Cattle?
- How can external parasites be collected?
- How can laboratory samples be preserved before analysis?

Session 20: Disease Surveillance, Monitoring and Reporting

At the end of the session, you will know:

- Understand the Epidemiological Surveillance System in Sierra Leone.
- Participate in the active or passive disease surveillance
- Make provisional diagnosis of notifiable diseases.
- Obtain information on disease outbreak.
- Fill out standard report forms.

What is surveillance?

Notifiable Animal Diseases

Sierra Leone has Surveillance System called Epidemiological Networks of Animal Disease. The objective is to detect outbreak of diseases early enough and to take rapid action to prevent spread. There are twelve (12) diseases in the Surveillance system. Provisional Diagnosis is based on case definition.

Definition

Surveillance is the continuous investigation of a given population to determine presence or absence of disease.

Reasons for Surveillance

- To detect resurgence of a disease.
- To detect introduction of new disease.
- To evaluate the result of disease control measures (e.g vaccination)
- To determine the incidence and prevalence of diseases.
- Information for action by veterinary authorities.

SURVEILLANCE IS THE MOST IMPORTANT THING IN ANIMAL KEEPING!

Case Definitions and Samples to be collected for the Twelve (12) Diseases under Surveillance.

NO	Disease	Case Definition	Samples to Collect
1	Rinderpest	Presence of eye + nasal discharges and 2 of the symptoms hereafter: fever, oral lesions, salivation, opacity of the cornea, diarrhoea and mortality.	Sterile blood on heparin tube preserved and transported at +4^{0}C (not frozen) Sterile blood on dry tube or blood serum preserved and transported at 4^{0}C (idem) Eye, nasal, urine and faecal samples of animals infected during the initial phase. Pieces of spleen and intestine, pre-scapula or mesenteric lymph nodes preserved and transported at 4^{0}C.
2	Pest of small ruminants	Presence of 2 of the symptoms hereafter: eye, nasal and oral discharges, oral lesions, diarrhoea, mortality.	Sterile blood on heparin tube preserved and transported to the laboratory at +4^{0}C (not frozen) Sterile blood on dry tube or blood serum preserved and transported at 4^{0}C (idem) Ocular swabs Pieces of spleen and intestine, pre-scapula or mesenteric lymph nodes preserved and transported at 4^{0}C.
3	Highly Pathogenic Avian Influenza	Weakness, loss of appetite, ruffled feathers, diarrhoea, loss of balance or paralysis, like falling asleep with head hanging, added to rapid and high mortality.	Tracheal or cloacal swabs preserved and transported at -70^{0}C Samples of coagulated blood preserved and transported at -70^{0}C
4	Newcastle Disease	Presence of an aqueous, greenish diarrhoea and 2 of the following symptoms: dyspnea, cough, falling wings, twisted head and neck, loss of appetite, nasal and oral discharge, sleepiness, insulation, mortality.	Nasal, oral fluid, faecal samples preserved and transported at 4^{0}C (on live birds) Samples of coagulated blood preserved and transported at +4^{0}C (on live bird) Lungs, intestines, kidneys, ovaries, spleen (on dead animals)
5	Haemorrhagic Septicaemia (Pasteurellosis)	High fever, diarrhoea, swollen tongue and protrude from mouth, swollen throat, yellow nasal discharge, mainly during wet season and following shipping or moving under stress.	Piece of skin preserved and transported at +40C Sterile blood on heparin preserved tube and transport to laboratory at +4^{0}C

NO	Disease	Case Definition	Samples to Collect
6	Anthrax	Sudden death with legs not stiff, heavy bleeding by the nose and the mouth, subcutaneous swellings + enlarged spleen in post mortem.	Sterile blood on heparin tube preserved and transported to laboratory at +4^{0}C Sterile blood on dry tube preserved and transported to laboratory at 4^{0}C Pieces of spleen and lungs, mediastinal or mesenteric lymph nodes transported to the laboratory at 4^{0}C.
7	Black Leg	Fever, sudden lameness of one leg, swollen shoulder or hip, gas felt under the skin when touching the large muscular masses.	
8	Contagious Bovine Pleuro Pneumonia	On live animal: dyspnea (rapid respiration, difficult or noisy breathing) + cough + sometimes arthritis on calves. On slaughtered one: Lung covered with fibrin, pulmonary adherence, marbled lung, 'sequester', yellow liquid in the rib cage.	Sterile blood on heparin tube preserved tube transported to the laboratory at +4^{0}C (not frozen) Sterile blood on dry tube or blood serum preserved and transported at 4^{0}C (idem) Pleural fluid (to freeze) / Nasal swab, / piece of lung Preserved tracheobronchial nodes (lymph nodes of the rib cage)
9	Foot And Mouth Disease	Salivation or loss of appetite or lameness or fever, plus ulcers in the mouth, on the feet, on udders; added to a high morbidity (mostly on calves).	
10	African Swine Fever	Hyperthermia, cutaneous redness, anorexia, cyanosis, disorders of coordination, vomiting, diarrhoea, very contagious and high mortality.	blood on heparin tube preserved at +4^{0}C blood on dry tube preserved at 4^{0}C Pieces of spleen, kidneys, lymph nodes preserved at +4^{0}C. Preserved tracheobronchial nodes (lymph nodes of the rib cage) and transported laboratory.
11	Canine Rabies	Behaviour disorder, abundant salivation, progressive paralysis.	Head preserved and transported at +4^{0}C.
12	Trypanosomiasis & Diseases Of Other Blood Parasites	Emaciated animal, enlarged lymph nodes, anaemia, tears.	Blood smear.

Surveillance/Monitoring Method

Surveillance is a continuous process and consists of:

- Visits to the livestock farmers during routine work
- Visits during disease outbreaks
- Clinical examination of the animals
- Samples collection for the laboratory

Data Collection and Reporting

Data from the surveillance is collected using the various forms (standardized)

- In a suspected case, you fill out form No.1 (Animal Disease Suspicion Form).
- For sample collection fill out Form No. 2 (Laboratory Samples Collection)
- In case of suspicion in a livestock market, you fill out Form No. 3 (Suspicion in a Livestock Market)
- For post mortem at slaughter house, you fill out Form No.4 (Slaughter House Investigation Report Form).
- If sensitization meetings are held with the livestock farmers, you fill out Form No. 5 (Sensitization Monthly Report Forms).
- At the end of every month you should fill out the Monthly Report Summary Form No. 6.

Republic of Sierra Leone
Ministry of Agriculture,Forestry & Food Security
Livestock/Veterinary Services Division

Form I

ANIMAL DISEASE SUSPICION FORM No.:_____

Date if investigation:_____/_____/_____/
Name and Surname of reporter/agent:

On duty at (Town/Chiefdom/District/Region):

Mobile phone:_____
Function:_____
Location of outbreak

Locality/Site/Village	Town/Chiefdom	District/Region
(GPS Coordinator)	Longitude	Latitude

Species affected _____Breed_____
Disease(s) suspected:_____
Name of Breeder:_____
Address of breeder:_____
Identification of breeder (ID, phone):_____
Type of husbandry (tick the appropriate column)

Extensive husbandry	
Zero grazing	
Transhumance husbandry	
Commercial husbandry/transit (Precise origin of animal)	

Symptoms and lesions observed and / or reported:

Symptoms Observed Reported	
Lesions Observed Reported	

Epidemiological data on the outbreak /number of animals	**Total**				**BV**				**OV**				**CP**				**PC**			
	Male		Female		Male		Female		Male		Female		Male		Female					
	< 1 YEAR	< 1 Year	< 1 YEAR	< 1 Year	< 1 YEAR	< 1 Year	< 1 YEAR	< 1 Year	< 1 YEAR	< 1 Year	< 1 YEAR	< 1 Year	< 1 YEAR	< 1 Year	< 1 YEAR	< 1 Year				
Total number of animals (incl. sick)																				
Number of cases (sick animals)																				
Number of dead al.																				
Numbers of Recovered																				
Numbers of destroyed																				
Numbers of slaughtered																				

CASE HISTORY:
Date of observation of the 1st clinical signs_____/_____/_____ Date of giving information?_____/_____/_____
Has the herd over suffered from such infection? ☐ Yes ☐ No. From new animals introduced in the flock ☐ Yes ☐ No.
Are the animals of the herd vaccinated against the suspected disease? ☐ Yes ☐ No

How can you explain the origin of this disease?
1. After recent contact with animals from elsewhere? Yes ☐ No.☐ 2. From new animals introduced in the flock ☐ Yes ☐ No.

If yes on which occasion?	**When?**	***Where?***	**If Yes in which occasion?**	**When?**	**Origin of new animals.**
Cattle market (not sale of accompanying animals)			**Newly bought animals**		
Transhumance/migratory			**Return of borrowed animals**		
Vaccination			**Others: Inherited animals, gifts, dowry**		
Contact with wildlife					
Others (Precise)					

3. Disease introduced by persons or material infected ☐ Yes ☐ No.

	When?	**Origin?**
Persons coming from infected zones: breeders, employers, veterinarians, visitors.		
Material infected: transportation vehicle, food and equipment infected.		

4. Others: nearness of cattle way, etc. Precise:

Past vaccination:

Disease	Species vaccinated	Vaccine used	Date

Measures taken against the diseases:

Types of measures	Nature	Number of Animals
Curative therapy		
Quarantine		
Slaughter (hygiene, urgent)		
Destruction of dead animals		
Others (precise)		

SAMPLES

Animal sampled:

No.	Species	Sex	Age	Type	Status (Dead/sick/live) (De, Si, Li)	Description/identification (coat, No. tattoo, name, etc.)
1.						
2.						
3.						
4.						
5.						

Samples taken: (*) The same left part ID Nber us used fir each Type & Nature of sample from the same animal SLABXXXCdEf***+add 01,02 if several same samples.

No.	Identification / Reference	** Type of sample (Sw,Or,Po,Fl,Fc,Ln,,,etc..)	** Nature of Sample(Tr,Cl,Bl,Lu,In,Ki,Pa,Sp,Li,He,Ll,etc.)
1.			
2			
3.			
4.			

(*) Ex: SwCl (Swab cloacal),SwTr(Swab Tracheal),FlBl (Fluid blood), Fc-(aeces), OrLu (organ Lung), He-(Head) etc. (**) Type: Swab=Sw, Organ=Or, Part of organ=Po, Fluid=Fl,Faeces (dung)=Fc,
Lymph node=Ln, Discharge = Di, etc.
(***) Nature: Trachea=Tr, Cloacal-Cl, Blood=Bl, Lungs=Lu, Intestine=In, Kidney=Ki, Pancreas=Pa, Spleen=Sp, Liver=Li, heart=He, Large Intestine=Li, Eye=Ey, Nasal=Na etc.

Suspicion done following: Visit Breeder call ☐ Meetings ☐

Date of sending of form from the Vet. Post to the District : _____/_____/_____
Date of sending of from the district to ENAIDS Coord Unit: _____/_____/_____
Date of sending of form from the District to Teko Laboratory: _____/_____/_____

Date of arrival at the District: _____/_____/_____
Date of arrival at ENAIDS: _____/_____/_____
Date of arrival at Teko Laboratory: _____/_____/_____

Observations:

Signature of Reporter:_____

BREEDING HERD SAMPLING FORM
FORM II - Laboratory Samples Collection

Suspected disease		**Name of the Agent**		**Post**	
Date of sampling		**Name of the owner of animals**		**Village**	

Number of the Animal	Species BV OV CP PC PL	Age	Sex (M/F)	Type	*** Status (De,Si,Li)	Description / identification (Coat, No., tattoo, Name, etc.)	Date Symptoms	Symptoms	Lesions	Type ***** (Sw, Or, Po, Fl, Fc, Ln, etc.) & Nature********* (Tr, Cl, Bl, Lu, In, Ki, Pa, Sp, Li, He, Ll, etc.) of samples	Identification / Reference • Label
							/ /				
							/ /				
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							/ /				

GF#2 - Verso

	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /

Name of the Investigator:_____

Signature:_____

Town		Chiefdom		District		Region	

Position		Mobile Phone	

SUSPICION FORM IN A LIVESTOCK MARKET
FORM III Market

Surname and Name of the Agent _____ Visit date _____

Post _____ Chiefdom _____ District _____ Region _____

Name of the market _____ Longitude _____ Latitude _____

Number of animals observed on the market (estimation):

Bovines ☐ Ovines ☐ Caprines ☐ Porcines ☐ Equines ☐ Asses ☐ Poultry ☐

Situation observed the day of the visit:

Species	Total Number of sick animals observed the day of the market	Symptom	Suspected diseases	Source of sick animals
Bovines				
Ovines				
Caprines				
Porcines				
Equines				
Asses				
Poultry				

Date of sending of the Form from Post to District / /

Date of Arrival at District / /

Date of sending from District to ENAIDS / /

Date of arrival at ENAIDS / /

✓ Start here to print next copies.

SLAUGHTER HOUSE INVESTIGATION REPORT FORM
FORM IV Slaughter

Surname and first Name of the Agent: _____ **Report for the month of:**_____/20

Vet. Post _____ **Chiefdom** _____ **District** _____ **Region** _____

Situation observed the day of the visit:

Date	Number of animals slaughtered by species	Suspected diseases	Number of animals affected by species	Observed lesions	Nature and number of organs or carcass seized	Origin of the animal
	Bovines Ovines CPP: Porcines:	C.B.P.P.	Bovines			
		C.C.P.P.	Caprines:			
		Tuberculosis				
		Others (ex:) Flukes Paramphistoma,Tapeworms)				
	Bovines: Ovines:	C.B.P.P.	Bovines			

Date	Number of animals slaughtered by species	Suspected diseases	Number of animals affected by species	Observed lesions	Nature and number of organs or carcass seized	Origin of the animal
	Caprines: Porcines:	C.C.P.P.	Bovines			
		Tuberculosis	Caprines:			
		Others (ex:) Flukes Paramphistoma,Tapeworms				
	Bovines: Ovines: Caprines: Porcines:	C.B.P.P.	Bovines			
		CCPP				
		Tuberculosis	Bovines: Oviners: Caprines: Porcines:			
		Others (ex:) Flukes Paramphistoma,Tapeworms				

Date of sending of the Vet. Post Report to the District **Others (ex:)** ☐ **Name and Signature:**

_____

Date of arrival of the Vet. Post Report at the District: ☐ **Name and Signature:**

_____

Date of sending of the District Report to ENAIDS Coordination Unit ☐ **Name and Signature:**

_____

Date of arrival of the District Report at ENADIS Coordination Unit: ☐ **Name and Signature:**

_____

SENSITIZATION MEETINGS MONTHLY REPORT FORM
FORM V GF#5

IDENTIFICATION OF THE VETERINARY POST

Agent:	**Veterinary Post:**
Chiefdom:	**Region:**
Geographical coordinates:	**Month of:** **Year:**

REUNIONS SENSITIZATION MEETINGS

Location and date	Villages concerned	Number of breeders (animal species concerned)	Number of veterinarians	Number of state representative (functions)	Breeders Organisations and Associations	Other participants: Butchers, Cattle, Livestock traders,.....	Subject treated

Transmission of the Form

Date of sending from the veterinary post (chiefdom):	**Date of reception at the District:**
Date of sending from the District:	**Date of reception at ENADIS Coordination Unit:**

ACTIVITIES OF THE ENADIS SURVEILLANCE POST
MONTHLY REPORT FORM VI GF#6

Form for the month of :.....

Surname and First Name of the Agent: **Post:.....**
Chiefdom:.....

District:.....

Region:.....

1. REPORT OF VISITS OF VILLAGES

Visit date	Name of the village visited	Distance and direction of the village to the post	Suspected diseases during the visit	Species affected	Total number of animals presently in the herd	Number of sick animals	Number of dead animals	Number of breeders in the village	Number of breeders affected

2. REPORT MARKET INVESTIGATION

Visit date	Name of the market visited	Distance and direction of the market to the post	Suspected diseases during the visit	Species affected	Number of sick animals	Number of dead animals	Observations

3. REPORT OF SENSITIZATION MEETINGS

Date of the meeting	Name of the village where the meeting was held	Distance and direction of the concerned village to the post	Number of meetings	Subject of the sensitization meeting	Number of participants	Observations

4. REPORT ON SURVEILLANCE OF SLAUGHTER HOUSE (Synthesis of the month)

Date	Suspected diseases	Number of animals slaughtered (by species)	Number o animals affected by species	Subject of the sensitization meeting	Origin of the animal
	CBPP				
	CCPP				
	Tuberculosis				

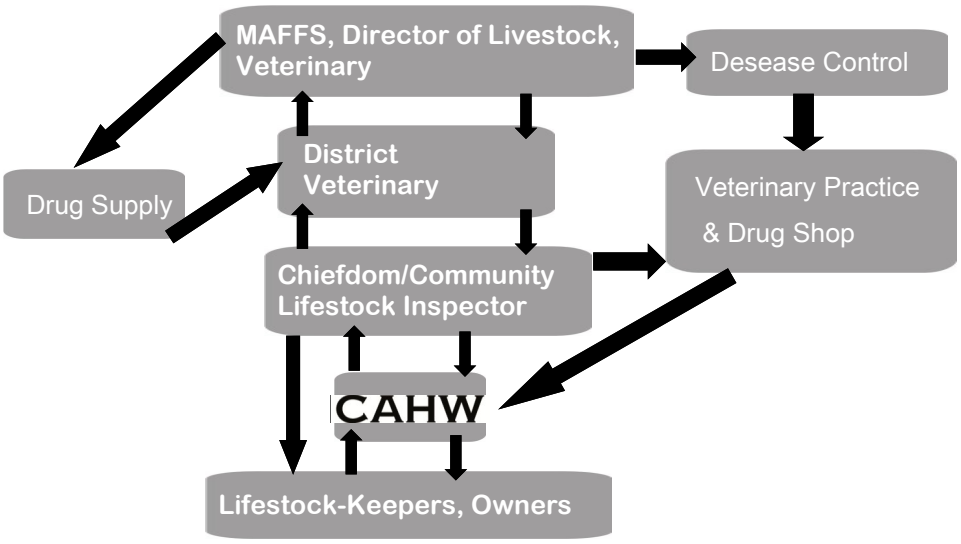
Date of sending of the Post Report to the District:	/ /	**Name and signature:**	/ /
Date of arrival of the post Report at the District:	/ /	**name and signature:**	/ /
Date of sending of the District Report to ENADIS Coordination Unit:	/ /	**Name and signature:**	/ /
Date of arrival of the District report to ENADIS Coordination Unit:	/ /	**Name and signature:**	/ /

Desease surveillance protocol

1	Establish concrete suspicion of one of the priority diseases	
2	Carry out clinical examination of all the animals in the herd.	
3	Collect the samples from the sick and suspected animals	
4	Preserve the samples.	
5	Fill the Suspicion Form and the sampling Form	
6	Send the two (2) Forms to my supervisor at the District office	
7	The District Office will send the forms immediately to the Coordination Unit of ENADIS and the samples with a copy of the forms to Teko laboratory.	
8	Pay a visit to the surrounding herds.	
9	Inform the Authorities	
10	Set up the first control measures	
11	Carry out a follow up surveillance (weekly or monthly, according to the severity of the outbreak) in the first herd and then in the surrounding herds and fill out the same forms again.	
12	The District Office will send the new forms to the Coordination Unit of ENADIS and the samples with a copy of the forms to Teko laboratory.	
13	Monitor the outbreak until it is under control and lift the control measures.	

The Structure and Channel of Reporting of Veterinary Services

A copy of Form No. 6 should be sent to the District Livestock Officer (DLO) through the Livestock Inspector in the chiefdoms. The DLO will then compile all the reports from the Chiefdoms and submit to the National Directorate of Livestock/Veterinary. The feedback loop comes through opposite direction.



LET´S LOOK BACK

- What is surveillance?
- Why carry out surveillance?
- List down the notifiable diseases in Sierra Leone
- How can information or diseases be obtained?
- What is the meaning of Disease Monitoring?

Session 21: Record Keeping

At the end of the session, you will know:

- Appreciate the importance of record keeping
- Prepare the various types of records
- Explain record keeping to livestock farmers

What is Record Keeping?

Correct documentation of basic information about farm animals and other farm operations such as breeding, health, financial and performance (weight gain)
Record keeping form an integral part of nay successful business operation. It is therefore important to keep up to date records of all farm operations. As a CAHW you may well know a lot about the animals kept in your community. However keeping the information in your memory is not enough; we can all easily forget something. You must be able to supply your veterinary and livestock officers with written papers (records) about the animals in your community.
You will need to keep records to tell you when animals were vaccinated, dipped, given any medicine or castrated. You need to know how many animals were treated, what was the problem and how often do some diseases occur in your community. You should remember that you and your community will gain the most from record keeping.

Why do we keep records?

- Essential for the successful planning, budgeting and implementation of farm operation
- Helps recollect past farm operation.
- Monitor performance of stock
- Culling and of take becomes easier
- Helps farmers identify and correct mistakes.
- It tells health status of the farm.
- It serves as a source of information for the farmers and outsiders.
- It helps make comparison with other farms
- It helps make comparison with other farms
- Absence of the farmer does not affect the operations of the farm

Things to do for effective Record Keeping

1. Identification of animals
   - Ear tagging
   - Tattooing
   - Ear notching
   - Branding

2. It should be routine and timely

It is therefore important to keep a field note book

Type of Records

- Herd structure
- Health (Individual & herd)
- Financial (Sales and expenditure)
- Breeding
- Performance (weight gain)
- Visitor book

If you want to breed your livestock to improve them then you will need to keep records of the father and mother of every animal. You need to know how good they and their young were.

The following are examples of the types of records you need in your work:

Recording your work in the community

It is important that you keep a register (note book) to write a record of your work:

Date	Name of owner	Age & Type of animal	Problem	Action taken	Remarks

Vaccination record

You can keep this as a separate register or as a separate record in your notebook.

Date	Vaccination	Type of animal	Number of animals	Name of owner	Remarks

Records for the veterinary officer

You may have to give your veterinary officer records of what you have been doing in your work.

Date	Type of animal	Chiefdom/ Area	Sickness/ Description	Drug used	Remarks
Name of CAHW		Authority			

Records for the animal owner

You should encourage everyone who keeps animals to keep a record of their animals. Encourage them to use numbers, names or ear tags to identify their animals. If the owner keeps records of his animals he will be able to identify the good animals and breed from them and similarly he can identify the poor animals and get rid of them.

Session 22: Business Management

At the end of the session, you will know:

- Outline the significance of business skills.
- Outline how to prepare important business records.
- Explain why the delivery of animal health service should be economical both to the
- livestock owner as well as to the CAHW;
- Explain where the costs of service(s) offered by a CAHW should come from.
- Calculate profits and losses in service delivery.
- Explain how to cost goods and services in business Outline appropriate dialogue for discussing costing with livestock owner for specific animal health services.

Managing the CAHW activities as business entity

The community animal health worker concept was developed to fill a gap in the livestock value chain. This system benefits all stakeholders if well implemented and sustained. In view of the fact that this is operated mostly in the deprived communities, it's sustainability is often faced with challenges emanating from the cultural and socio-economic settings of these communities.

The tested solution to this situation is to run the programme on cost recovery basis. The CAHW therefore has to operate the system as a business entity. It is only in this way that he/she can recover cost, make profit and be able to continuously purchase veterinary drugs and equipments to make the system sustainable. He/she is then motivated and encouraged.

What are the skills needed in doing business?

Communication skills

Writing
Social Networking
Public Speaking
Negotiating
Sales

Planning Skills

Strategic
Financial
Risk
Logistics

Productivity Skills

Time management
Meeting man-agem't
Leadership
Personal prod'tivity
Stress managem't

Creative Skills

Imaginative
Innovativeness
Problem solving
Brainstorming
Making connections

Important business records for you

There are several records you will need as a CAHW. The technical ones have been mentioned in previous sessions. However, in your work as a business, the following are the records you need:

Stock records:

This will help you to know the type and quantity of drugs available at any given time. Date of procurement, quantity, source, quantity used, quantity left are some of the information recorded. It can also be used to record other assets – bicycle, knapsac sprayers, protective clothing, veterinary instruments, etc.

Name of Item				
Date	Quantity purchased/ brought in	Quantity used	Total balance	Remarks

Treatment records:

This will show you the services (treatments) you have done, how, when, to whom, the follow-ups and the outcome

Date	**Owner**	**Location**	**Animal type & age**	**New or follow-up**	**Condition/ clinical signs**	**Treatment given**	**Outcome**

Cash book:

It helps to record basic information on cash receipts and payments. Generally, the date of the transaction, the amount, source of the income or the particulars of the expenditure, and the running balance of cash on hand are considered here. Ideally, total everything at the end of the month and check overall balance.

Date	Income particulars			Total	Date	Expenditure particulars			Total
	Bal. b/f	Service charge	Drugs			Drugs	Bicycle repairs	Others	

Clients records:

It is very necessary to record information on all your clients. This is because you will be visiting them often and often. Their names, physical address, contact numbers, the type of animals and numbers.

Name of livestock farmer	Town/ village	Phone number	Type(s) of animals	Number of animals

Costing your drugs and services

The treatment given by the CAHW should have 2 benefits – the livestock owner should get profit and the CAHW should also get profit. This means treatments ought to be economical.

DON'T USE TOO MUCH FOR LITTLE PROBLEM
AND
DON'T USE TOO LITTLE FOR BIG PROBLEM !!!

When too much is used for just a little problem, the CAHW loses, and if too little is used for a bigger problem, even though the farmer pays less, the animal will not get well so the farmer loses.

Calculating Overall Service Charge

Remember that the cost price of your services is the total cost of drugs and total cost of services. Mathematically,

Total cost price of services(C) = Total cost of drugs(D) + Total cost of services (S)

Total cost of drugs(D) = price of the drugs(d) + cost of delivery(v) [at times this is zero]

Total cost of services(S) = your time(t) + your skills(s) + distance covered(m) [bicycle or fuel or lorry fares]

Example:

You take okada and go to big town to buy drugs. You pay 2,000Le for okada and 30,000Le for drugs. Now, the total cost of drug (D) in this example is what you paid for drugs (30,000Le) or price of drugs (d), plus what you paid for okada (2,000Le) or cost of delivery (v). This then becomes 30,000 + 2,000 = 32,000Le.

The next day you get a call so you put your drug and instrument kit on your bicycle and ride to the next village to treat 10 animals in Papa Kamara's worreh. On the way you repair your bicycle tyre for 3,000Le. You diagnose the disease, administer drugs and advise Papa Kamara on how to keep and feed his animals. You spend a total of 4 hours in all. Now you have to charge Papa Kamara for your work.

The total cost of your services (S) will include the time spent 4hrs (in cash [2,000Le]) plus your skills/knowledge used to diagnose, treat and advise (in cash [4,000Le]) plus the cost of repairs on your bicycle (3,000Le). It becomes 2,000 + 4,000 + 3,000 = 9,000. Remember, the total cost of drugs was 32,000Le. So the overall service charge is now 32,000Le + 9,000Le = 41,000Le for the 10 animals.

In determining the service charges, the following are recommended:

- If possible a local committee should be appointed for that
- The current rate of inflation should be considered
- The CAHW should be able to dialogue and negotiate with the farmer
- There should be transparency

Why should the CAHW work on profit basis?

- To be able to purchase next batch of drugs for treatments
- To be able to mend bicycle or motorbike
- To be able to buy food for the family because he/she does not go to farm
- To be able to meet other minor daily expenses

Why does the livestock owner need the services of the CAHW?

- Traditional treatments cannot solve all livestock problems
- The livestock owner will have easy access to animal healthcare services
- The animals will get good health and multiply for more money
- The livestock owners family and other community members will not eat sick animals and get sick themselves
- Good health for animals will promote international trade and other businesses

REMEMBER:

A GOOD CAHW WILL ALWAYS RECOVER ALL HIS/HER COSTS AND MAKE PROFIT!

Calculation of profit and loss in business

A profit and loss statement measures your sales and expenses during a specified period of time. The purpose of a profit and loss statement is to total all sources of revenue and subtract all expenses related to the revenue. It shows your financial progress during the time period being examined.

Things You will Need:

Information on the net service charges collected
Other income made (in cash or in kind)
Cost of drugs used
Total travelling expenses made within the time period
Other expenses made (in cash or in kind)

A. Convert all income and expenditure into cash equivalent
B. Add-up all expenditure (D)
C. Add-up all income (C)
D. Subtract the total expenditure (D) from the total income (C) to get your profit (P) or loss (L)

If income C is more than the expenditure D, what you get is profit P. If it is the other way round, then you run into loss L. For example:

Income 20,000Le – expenditure 18,000Le = profit 2,000Le.
Income 20,000Le – expenditure 23,000Le = loss 3,000Le

Note that you might not have physical cash on you at the time of doing the calculation. This does not always mean that you are running at a loss. Maybe you would have invested the cash in something else. The result of your calculations, if done well, will tell you whether you are at loss or getting profit.
The success of any business or the activities of the CAHW depends on how the business skills as mentioned above in the text are used and improved upon. However, all that is expected from the service provider or YOU is QUALITY WORK in honest and dedicated manner.

CAHWs in their working clothes.

SUCCESS!

Resolution of conflicts between crops and livestock farmers

Conflicts between crops and livestock farmers are resolved through the following:

Formation of Cattle Settlement Committees (CSCS)

Cattle Settlement Committees should be formed in all districts where crop and livestock production are practiced to ensure proper implementation of the policy. The following committees will be established:

1. Area cattle settlement committee (ACSC).

The Committee shall operate in the area where the ranch is situated and the surrounding communities within a radius of 5-10 miles

a) Composition

- 2 elders in the community (preferably the eldest members who are acquainted with land ownership situation in the community)
- Town/Village Headmen within a radius of 5-10 miles
- Youth Representation within a radius of 5-10 miles (2)
- Women Representation (2)
- Crop Farmers Representation (2)
- Sectional Chief/s
- Head of cattle farmers group

b) Term of Reference

- Ascertaining the ownership of the land
- Identification of areas to be allocated to cattle/livestock owners(s)
- Arbitration of conflicts within the area
- Reporting to the Chiefdom Settlement Committee
- Establishing period for free grazing of livestock in the year.

2. Chiefdom cattle settlement committee (CCSC)

The committee shall operate in the chiefdom where the ranch/es is/are located

a) Composition

- The Paramount Chief – Chairman
- The relevant Sectional Chiefs.
- One representative of land owners
- One representative of crop farmers
- Crop Officer covering the chiefdom
- Livestock Officer in the chiefdom
- Ward councillor

b) Terms of Reference

- Setting rules and regulations (bye-laws) governing use of the land for grazing and crop farming within the confines of the laws of Sierra Leone.
- Enforcing implementation of rules and regulations (bye-laws) mentioned in (i) above.
- Investigating and setting cases of crop or livestock damage and theft.
- Referring defaulters to the District Cattle Settlement committee where the committee is unable to resolve the issue.
- Conducting annual census to ascertain the number of 'worrehs' in the chiefdom

3. District cattle Settlement committee (DCSC)

a) Composition

The committee will be chaired by the Chairperson of the District Council Committee on Agriculture and will include:

- The Local Unit commander of the Sierra Leone Police
- The District Director of Agriculture
- Civil Society Organization
- Office of National Security
- Council of Paramount Chiefs
- District/Senior District Officer
- National Farmers Federation

b) Term of Reference

The committee will be responsible for:

- Arbitrating matters from the Chiefdom Settlement Committee
- Enforcement of penalties on defaulters of rules and regulations
- Reassessment of the degree of damage to crops/livestock for settlement where such cases cannot be handled by the chiefdom settlement committee.
- Overseeing the activities of the Chiefdom Settlement Committee.

4. Registration of Ranches/Worrehs

4. Registration of Ranches/Worrehs

Proper records must be maintained to ensure efficient monitoring of movement of animals within the districts and country as a whole. To this effect the following rules shall be observed:

1. All 'worrehs'/ranches in each chiefdom shall be registered with the CCSC
2. The CCSC shall register all 'worrehs'/Ranches with the District council
3. A registration fee shall be paid to the CCSC every 5 year as follows:
    - 1-50 Heads Le100,000 (or the equivalent of $25)
    - 51-100 Heads Le 200,000 (or the equivalent of $50)
    - Above 101 Heads Le 300,000 (or the equivalent of $75)

This should be distributed as follows:

- Community Development - 60% (Chiefdom Authorities)
- ACSC – 20% for area Cattle Settlement Committee administration
- CCSC – 10% for Chiefdom Cattle Settlement Committee administration
- DCSC – 10% for District Cattle Settlement Committee administration

An annual Ranch/'Worreh' License fee shall be paid to the District council and distributed as follows:

- 1-50 Heads – Le 100,000 (equivalent of $25)
- 51-100 Heads – Le 150,000 (equivalent of $37.5)
- 101 and above – Le 200,000 (equivalent of $50)
- District council – 30% to be used for district development
- Chiefdom committee – 50% to be used for chiefdom development
- Area committee 0 20% to be used for area development.

5. Allocation of grazing land

Land availability is not a major constraint to cattle production. Insecurity of the tenure however contributes to conflicts between crop and livestock producers and prevents the adoption of improved range management techniques.

6. Land Allocation

- The area settlement committee responsible for allocation of grazing land should be guided by the following guidelines:
- An isolated area preferably demarcated/delineated by natural boundaries (i.e. River, Mountain, Forest etc).
- The area shall be allocated/leased for a period not less than 20 years.
- The area shall not be used for crop cultivation until the end of the period allocated for grazing
- Areas allocated for livestock should be a least five (5) miles away from crop production.
- The size of the herd must be considered when allocating land to prevent over grazing.

7. Land Lease Agreement

There shall be a five year Land Lease Agreement between the landowners and cattle settlers, witnessed by the ACSC and endorsed by the Paramount Chief. The annual lease payment shall be the Leones equivalent of US$5/acre, to be distributed as follows:

- Landowners – 65% as compensation to landowners
- ACSC – 20% for area development and administration of area Settlement Committee
- CCSC – 10% for chiefdom development and administration Chiefdom Cattle Settlement Committee
- 5% for district development and administration of District Cattle Settlement Committee

8. Obligations of Cattle Farmers

- All cattle owners should register their ranches with the local authorities accordingly.
- Cattle owners should ensure that all animals are kept within a sleeping paddock at night.
- All cattle owners with more than 100 heads of cattle should have not less than 5 cow heads to tend the animals during the day to prevent them from destroying crops. In effect, the ratio between cattle heads and cow-hand should be 20:1
- All cattle owners should ensure that they have a source of clean water for their herds by sinking bore-holes/water wells within the settlement where natural water sources are not available.
- All cattle owners should ensure authentic Land lease Agreement
- All cattle owners should comply with the by-laws governing their areas of settlement and with the decisions taken at various levels of cattle management structures.
- All cattle owners should support crop farmers make fence around their second/third crops.
- All cattle owners should ensure that their animals are kept within a fenced settlement area

9. *Obligations of Crop Farmers*

- All crop farmers should ensure that they cultivate their crops in farm sites of at least 5 to 10 miles radius from the area selected for grazing.
- Small scale vegetable farmers should make fence around their second/ third crops to protect their farms.
- Crop farmers should assist livestock farmers in preventing straying of animals into cropping areas during the day.

10. ***Bye Laws***

Considering the fact that the districts differ in terms of population and ecology, the existing district by-laws as long as they do not contradict the issues above will remain valid and complementary to this policy.

11. Support and Advice

The potentials of the livestock sub-sector are to a great extent still untapped. A good scope still exists for increased production from all sections of the sub-sector. To attain the required growth, the following issues must be addressed:

- Agricultural extension staff are to educate farmers improve the nutritional status of ruminants through more widespread use of crop residue along with the introduction of multipurpose trees as live fence, establishment of pastures and provision of clean drinking water.
- Financial institutions to provide credit lines for investment in more intensive management systems with credit for breeding stock, infrastructure and initial drug requirement.
- Livestock Farmers Association should be formed throughout the country and should be structured into a national organization.
- MAFFS and NGOs to organize periodic workshops to educate stakeholders on issues of cattle settlement
- Promote a national cattle settlement scheme (NCSS). For that purpose, a prototype NCSS should be developed and established in each of the affected districts to serve as demo and training site for herders
- Promote mixed farming among crop and lives farmers.
- Help organize rearers into legal entities in order to benefit from available loan facilities and services for better management and intensification of the livestock industry in the country.
- MAFFS to provide routine veterinary services and training for livestock farmers especially cattle farmers.

SAMPLE FORMS FOR VACCINATION

(Crest) AFRICAN UNION Inter African Bureau for Animal Resources	 SIERRA LEONE GOVERNMENT Ministry of Agriculture ,Forestry and Food Security, Youyi Building, Freetown	(Crest) EUROPEAN COMMISSION

DISTRICT:.....TOWN/VILLAGE:.....

CHIEFDOM:.....DATE:.....

VACCINATION OF SMALL RUMINANTS AGAINST PPR

REGISTRATION FORM.

No.	Name	Address	Sheep	Goats	Remarks

TOTAL			

(Crest) **AFRICAN UNION** **Inter African Bureau for Animal Resources**	**SIERRA LEONE GOVERNMENT** **Ministry of Agriculture ,Forestry and Food Security, Youyi Building, Freetown**	**(Crest)** **EUROPEAN COMMISSION**

DISTRICT:.....TOWN/VILLAGE:.....
..

CHIEFDOM:.....DATE:.....

VACCINATION OF CATTLE AGAINST

REGISTRATION FORM.

No.	Name	Address	Male	Female	Remarks

TOTAL					

POULTRY VACCINATION

FIRST VACCINATION

Vaccine used:.....(Name) ☐ **Bivalent vaccine ND+AI (check)**
Vaccine: ☐ Live ☐ Inactivated Administration: ☐ SC ☐ IM Dose:____ml Dat e: ____/_____/____

Number of fowl concerned

	Chicks	Hens, Pullets, Cockerels, Roosters	Ducks	Guinea fowl	Turkeys	Other: (specify)
Number of birds vaccinated against HPAI						
Total number present on farm						

Means of identification of vaccinated Poultry (compulsory for booster):

☐ Ring
☐ Colored mark
☐ Kept in cages/separate housing

The Vaccinating Officer **(Name and signature)**	**Date** ____/___/____
The Owner or representative **(Name and signature)**	**Date** ____/___/____

SECOND VACCINATION (BOOSTER) - 4 -6 weeks after the First Vaccination

Vaccine used:.....(Name) **Bivalent vaccine ND+AI (check)**
Vaccine: ☐ Live ☐ Inactivated Administration: ☐ SC ☐ IM Dose:____ml Dat e: ____/_____/____

Number of fowl concerned

	Chicks	Hens, Pullets, Cockerels, Roosters	Ducks	Guinea fowl	Turkeys	Other: (specify)
Number of birds vaccinated against HPAI						
Total number present on farm						

Visa of the Veterinary Authority.

The Vaccinating Officer (Name and signature)	Date ___/___/___
The Owner or representative (Name and signature)	Date ___/___/___

Date: _____/____/_____/

(regional department or district office
Of the State Veterinary Service)

IF THE VACCINATION IS TO BE PAID: COMPULSORY PART TO FILL OUT Unit cost of 1 vaccination (1 dose for 1 fowl) = 0000 Leones

Total cost of vaccination on the farm: _____Leones (Le.) *Payment made in:*

☐ *Cash*

☐

Kind(specify):_____

Surname, first name and signature of the accounting officer:

FIRST VACCINATION - Around 8 weeks old for Layers

Vaccine used:.....(Name) ☐ Bivalent vaccine ND+AI (check)

Vaccine: ☐ Live ☐ Inactivated Administration: ☐SC ☐ IM Dose:____ ml

Date____/_____/____

Number of fowl concerned

	Chicks	Hens, Pullets, Cockerels, Roosters	Ducks	Guinea fowl	Turkeys	Other: (specify)
Number of birds vaccinated against HPAI						
Total number present on farm						

Means of identification of vaccinated Poultry (compulsory for booster):

☐ Ring

☐ Colored mark

☐ Kept in cages/separate housing

The Vaccinating Officer (Name and signature)	Date ___/___/___
The Owner or representative (Name and signature)	Date ___/___/___

SECOND VACCINATION (BOOSTER) - 4 -6 weeks after the First Vaccination

Vaccine used:.....(Name) Bivalent vaccine ND+AI (check)

Vaccine: ☐ Live ☐ Inactivated Administration: ☐SC ☐ IM Dose:____ml Dat e: ____/_____/____

Number of fowl concerned

	Chicks	Hens, Pullets, Cockerels, Roosters	Ducks	Guinea fowl	Turkeys	Other: (specify)
Number of birds vaccinated against HPAI						
Total number present on farm						

THIRD VACCINATION (BOOSTER) - 35-40 weeks old.

Vaccine used:.....(Name) Bivalent vaccine ND+AI (check)

Vaccine: ☐ Live ☐ Inactivated Administration: ☐ SC ☐ IM Dose:____ml Dat e: ____/_____/____

Number of fowl concerned

	Chicks	Hens, Pullets, Cockerels, Roosters	Ducks	Guinea fowl	Turkeys	Other: (specify)
Number of birds vaccinated against HPAI						
Total number present on farm						

Visa of the Veterinary Authority.

The Vaccinating Officer (Name and signature)	Date ____/___/____
The Owner or representative (Name and signature)	Date ____/___/____

Date: _____/____/_____/

(regional department or district office
Of the State Veterinary Service)

THE VACCINATION IS TO BE PAID: COMPULSORY PART TO FILL OUT Unit cost of 1 vaccination (1 dose for 1 fowl) = 0000 Leones

Total cost of vaccination on the farm: _____Leones (Le.) *Payment made in:*

☐ *Cash*

☐

Kind(specify):_____

Surname, first name and signature of the accounting officer: