



# Training Report for Feeding ,Breeding &Animal Health for Dairy Goat Groups of Gem and Emuhaya sub counties -ACK Church,Esianduba-Maseno North Diocese, 3rd September to 4th September,2024

“Improving farmers capacity in dairy goat farming “

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## **1.0 EXECUTIVE SUMMARY**

**Animal feeds are special food for domesticated animals that keep their bodies healthy and improves the quality of their products. Each type of animal has their own category of animal feed, which contains all the essential nutrients required for their wellbeing.**

**Animals just like humans, have various systems in place inside their body that protects them from all kinds of diseases and keeps them healthy, and just like humans have special dietary needs to their bodies functioning well at all times, animals' too have special requirements when it comes to food. This is the reason as to why domesticated animals are often given animal feeds.**

**Modern feeds are produced by carefully selecting and blending ingredients to provide high nutritional diets that both maintain the health of the animals and increase quality of such products like meat, milk or eggs. Ongoing improvements in animal diets have resulted from research, experimentation and chemical analysis by agricultural scientists. Animals in general require same nutrients as humans. Some feeds such as pasture grasses, hay and silage crops, and certain grains are grown specifically for animals, other feeds, such as sugar beet pulp, brewers' grains, and pineapple bran, are by products that remain after a food crop has been processed for human consumption.**

**Animal breeding is the mating of good quality animals to produce highly productive and suitable animals for enhancement of overall performance in the subsequent generations and to augment production and profitability.**

**The aim of the training was to equip the participants' wit equitable knowledge on importance and also the benefits that usually come along with proper feeding of livestock. Also, participants were to learn different types of animal feeds which have different nutrient compositions and values for maximum growth, disease prevention and also production. On the breeding bit, the participants learnt on the best breeding practices and also on those ill ones so that they could be successful when it comes in the multiplication of their herd for profit maximization and increase in the herd size.**

**The 2day training was planned to cover the animal feeding &breeding for the first day and animal health and disease control the 2<sup>nd</sup> day. The training targeted farmers' groups i.e. Ramula health Centre Community based organization for Gem sub county and Nganyi welfare group for Emuhaya sub county respectively. The training was done at ACK Esiandunba Church, Diocese of Maseno North as from Tuesday,3<sup>rd</sup> September,2024 and Wednesday 4<sup>th</sup> September,2024 involving 43participants (19women and 24men).**

# WORKSHOP PROCESS

## DAY ONE 3<sup>RD</sup> SEPTEMBER, 2024: FEEDING AND BREEDING OF DAIRY GOATS

### ACTIVITY 1: PARTICIPATORY INTRODUCTION & WORKSHOP NORMS

#### Purpose

Participants to work actively towards obtaining the main objective which is understanding livestock feeding & feeding and also implementing what they will learn in their respective farms. Participants will be able to reflect on issues and their own experiences and also analyze, share and enhance their knowledge. Participants discussed and agreed on the following likes & dislikes

Likes	Dislikes
<ol style="list-style-type: none"><li>1. Making new friends</li><li>2. Desire to ask questions</li><li>3. Time keeping</li><li>4. Learning new things</li><li>5. Appreciating to be taught</li></ol>	<ol style="list-style-type: none"><li>1. Noise making</li><li>2. Gossiping</li><li>3. Unclean participants</li><li>4. Sleeping during the training</li></ol>

### WORKSHOP NORMS

#### Purpose

To reduce social distance and ice breaking amongst the participants

1. Be an attentive listener
2. Keep all phones on silent mode
3. Be on time
4. Follow through with responsibilities
5. Ask questions and share ideas
6. Be proactive
7. Be positive about the activities and perspectives
8. Limit side conversations
9. Be open to new conversations

## **ACTIVITY 2: WORKSHOP EXPECTATIONS AND OBJECTIVES**

The following were the participants' expectations

1. Training will enable them learn new things and make them comfortable to adopt
2. Training should enable them gain insights on their capabilities
3. It should help them with techniques with which they need to do things
4. Should help them learn to blend with team mates when it's a group task
5. Should help them judge themselves at the end of the training program
6. Share ideas on dairy goat feeding & breeding
7. Understand preventive health for dairy goats

### **TRAINING OBJECTIVES**

1. Participants to understand with depth livestock feeding & breeding and what they entail.
2. Participants to know various types of animal feeds available and their nutritional composition
3. To understand on how to mix various feed rations for maximum productivity
4. To learn how to make their own feed rations at the farm level using the locally available feed material so as to cut on cost
5. Participants to understand the best breeding methods which will maximize production and also avoid inbreeding.

## **ACTIVITY 3: FEEDING OF A DAIRY GOAT**

### **Purpose**

Participants to understand requirements for dairy goat feeding and types of feeds required

- a) A dairy goat needs nutrients for its maintenance and mobility, growth, reproduction and milk production.
- b) The goat is a ruminant (animal that chew cud) and possess a large rumen which is full of micro-organisms which help in converting roughage into usable nutrients.
- c) The healthy co-existence of these micro-organisms with host goat is a well-balanced equilibrium and must always be considered when feeding.\

### **Nutritional Requirements**

- a) Energy and protein are the two major requirements for feeding dairy goats
- b) Energy is the most common nutritional deficiency limiting productivity, whilst protein is a vital requirement for growth, pregnancy and milk production
- c) Good pastures and fodder provide adequate protein for these needs
- d) Roughage has a low energy density and high fibre content, straw and maize husks are examples of roughages. Roughages are usually cheaper.
- e) Concentrates have a high energy density and low fibre content. Rice bran and maize flour are examples of concentrates; Concentrates are usually expensive.
- f) Feeding value is a general term which refers to the overall nutritional value of food.

## Other nutritional requirements

- Major minerals- calcium, phosphorus, potassium, some minor minerals (eg copper, iron, selenium, combat) and vitamins are essential feeds components but are rarely limiting factors if grazing or green feed is provided.

## Water

- a) Fresh water should be provided at all times.
- b) To produce lots of kids and milk, feed dairy goats quite well.
- c) Pregnant and milking goats need extra balanced feeding.
- d) During the last month of pregnancy, they will need twice as much energy and protection as normal.
- e) Do not let them start using up their body reserves as their kids and future milk production will suffer.
- f) Level of feeding depends on
  - > Size of goat
    - level of activity
    - production level.

## ACTIVITY 4: FODDER ESTABLISHMENT AND MANAGEMENT

### Purpose

Planting a fodder ensures year-round feed availability and reduced production costs.

Every farmer must strive to obtain at least 70-80% of total roughage from within the farm.

Common fodder types for dairy goats in Vihiga and Siaya sub- countries includes:

- a) Napier grass
- b) Fodder trees- calliandra & leucaena
- c) Boma Rhodes
- d) Bricharia
- e) Fodder maize
- f) Natural grass
- g) Farm weeds
- h) Farm by products
- i) Sweet potatoes vine
- j) Bananas leaves.

Feed with at least 4-6 types of fodder varieties for palatability and quality.

For this purpose, we shall dwell on the practically viable in other farming system, these are:

- 1) Napier grass – KK I& KK II
- 2) Fodder trees – calliandra & Leucaena

- 3) Fodder maize
- 4) Boma Rhodes – in commercial production

### Establishment of fodder crops

Fodder Crops	Preparation & Management
Napier grass	<ol style="list-style-type: none"> <li>1) <b>Land preparation</b> –Prepare to a fine filth like you are planting maize. You can plant pure stand or contour line or Tumbukiza method.</li> <li>2) <b>Planting material</b> – Canes or root splits</li> <li>3) <b>Spacing</b> - 3 x2 feet, plant canes sloping at an angle of 45<sup>0</sup> to the ground.</li> <li>4) <b>Tumbukiza method</b> - Dig holes 2x2x2 feet dip -fill the hole halfway with Soil and manure and then plant 4 canes per hole.</li> <li>5) <b>Contour lines:</b> Plant along terraces for control of soil erosion. Spacing should be 2ft between the plants.</li> <li>6) <b>Weed control:</b> Regular weeding is necessary. Avoid use of herbicides in weed control in fodder establishments.</li> <li>7) <b>Cutting time:</b> First cutting is possible after 60-90 days if the weather is to its best condition. For cattle Napier should be cut 1”-2” inches above the ground.</li> <li>8) <b>Fertilizer application</b> Requires Nitrogen replenishment at a rate of 100kg CAN per/acre year. Manure should be provided in adlib and dug into the ground to avoid nitrogen losses.</li> </ol>
Fodder trees	<ol style="list-style-type: none"> <li>1. Calliandra &amp; leucaena seedlings are available from the Kenya Forest service nurseries around Maili Tatu- Maua</li> <li>2. The seedlings can be planted strategically along the border lines as line fencing between cash crops like miraa. They are good nitrogen fixtures.</li> <li>3. The seedling is planted in holes 6” inch deep. Well cured manure can be applied and 5-10grams of phosphate fertilizer applied per hole.</li> <li>4. <b>First cutting:</b> Prune the growing tip when one-meter-high to encourage branch and foliar growth. The young shoots can be harvested at 40-50 days interval.</li> <li>5. <b>Feeding:</b> The fodder tree leaves and stalks are of high protein value. Fodder trees should not be fed more than 30% of the total roughage.</li> </ol>



## ACTIVITY 5: CONSERVATION METHODS FOR FEEDS

Purpose

Farmers to understand various methods of conserving feeds to enhance dairy goat feeding

Plenary Presentation

Feeds	Mode Of Conservation
1. <b>Silage</b>	Fermentation of thick stem and high watery feed like Napier and green maize. To understand the process a practical demonstration is necessary at farm level.
2. <b>Hay</b>	Drying of thin stemmed grasses or foliar from thick stemmed grasses is possible. Drying under a shade removes excess water and the dry content of the grass remains. These are baled or stored as loose hay. Drying prevents rotting. This method is best for preserving grasses like Boma Rhodes
3. <b>Standing Hay</b>	Napier grass can be left for a long time in the field only to be harvested during time of need. Quality will be compromised especially for Napier when left standing
4. <b>Fodder trees:</b>	The tree stalks can be harvested, dried under the sun, put in bags and stored in a sheltered store. This can be mixed with wheat bran at a rate of 2kg dry fodder tree leaves and 8kg wheat bran.
5. <b>Maize</b>	Yellow maize is the preferred type for silage making. The seeds are planted in rows 50cm apart and seeds drilled at 10cm apart. The harvesting takes place when the maize is at milk stage. For low lies areas such as Nkiiri and Akui it takes 65-80days to harvest when under irrigation. Silage making process is best understood when demonstrated practically at farm level.
6. <b>Boma Rhodes</b>	This is a perennial grass planted for harvesting when green dried and made into hay tales ready for storage. After land preparation, the seeds are broadcasted 3-4 kg per acre during the rains. Weeding can be done manually or using selective Herbicides <b>Harvesting</b> First harvesting is between 70-90days after planting. The grass can be feed green or dried and conserved as hay.

## ACTIVITY 6: BREEDING OF DAIRY GOATS

### Purpose

#### Understand the breeding process for dairy goats

Breeding is the purposeful mating of male and female animals to improve certain characteristics in the progeny and it must be goal-driven. Breeding can be done by pure breeding or crossbreeding. Selection is the process whereby certain individuals are chosen for use as breeding animals for a certain period. Selection is an important decision that a farmer takes, because the effect of selected animals remains in the herd or flock for many years. Animals are selected from the new kid crop for breeding purpose. Selection can be done through:

- a. Natural selection – adaptation and survival
  - b. Artificial selection – by man
- > Visual appraisal/appearance
  - > Pedigree recorded information
  - > Performance recorded information
  - > Combination of the above

## ACTIVITY 7: BREEDING OBJECTIVES & CRITERIA

### Purpose

#### Help participants understand various objectives & criteria for breeding goats

Breeding objectives refers to decisions as to which traits the livestock keeper wants to improve, maintain or introduce in their herds or flocks. The breeding objectives are achieved through selection criteria. The selection criteria refer to the traits actually used in the selection of an animal.

Examples of breeding objectives and selection criteria as stated below;

Breeding Objectives	Milk production	Meat production	Fertility
Selection criteria	Milk yield	Weaning weight	Scrotal
	Udder conformity	Yearning weight	Kidding interval
	Body capacity	18month growth weight rate	Age at 1 <sup>st</sup> Kidding

## **ACTIVITY 8: SELECTION OF BREEDING BUCK**

### **Purpose**

#### **Help participants in selection of good bucks to enhance breeding**

Buck contributes more to genetic improvement in a herd as one buck can serve a number of females in a herd. Selection of inferior breeding buck means increase in number of poor quality animals. Buck can be selected at weaning (3 to 4 months of age) using weaning weight, using post-weaning growth evaluation at 6 to 8 months of age. The buck should be replaced in the herd or flock every three years to prevent inbreeding and to make genetic improvements in the breeding stock. The following are examples of structural characteristics that can also be looked at when selecting a buck:

- a) Masculinity
- b) Standard buck vocalization
- c) Uniform pair of testes and a fine sheath
- d) Large scrotum circumference

## **ACTIVITY 9: SELECTION OF BREEDING DOE**

### **Purpose**

#### **Help participants in selection of good does**

Selection of the replacement females is based on weaning weight and the development of the female (average daily gains). Further selection is done when the female is ready to breed. At this stage she must show signs of oestrus and become pregnant at first mating. The final selection is made after the female has weaned its first kid. The following are examples of structural characteristics to be considered when selecting a doe:

- a) She must be feminine
- b) She must be fertile
- c) Good milk production
- d) Well-structured udder with two functional teats
- e) Large body capacity and volume (associated with ability to breed, carry and rear kids and good milk production)

## **ACTIVITY 10: CULLING OF ANIMALS**

### **Purpose**

#### **Participants to understand the rationale of culling of animals**

This is the removal of animals from a breeding flock or herd. Animals can be culled due to several reasons. General reasons for culling include:

- a) Low production or reproduction levels
- b) Unproductive animals
- c) Genetic defects or pre-disposition to disease
- d) Physical problems
- e) Disease – decrease the amount of sub-clinical diseases and chronically ill animals
- f) Age – old, thin animals that no longer eat well

## **ACTIVITY11: CASTRATION OF MALE KIDS**

### **Purpose**

#### **Understand the rationale of castration**

It is the removal or destruction of the testes, epididymis and a portion of each spermatic cord from a buck. Castration should ideally be done at less than three weeks of age.

The importance of castrating male kids:

- a) To maintain and control the breeding program
- b) To successfully carry out breed improvement
- c) To improve on farm safety for animals and handlers because castrated buck is usually less aggressive and easier to manage.
- d) To lessen goat smell: meat from castrated male has less smell than tainted odor in the meat from intact bucks.
- e) For improvement of carcass composition and weight development

## **DAY TWO,4<sup>TH</sup> SEPTEMBER,2024: ANIMAL HEALTH FOR DAIRY GOATS**

### **ACTIVITY 12: OBJECTIVES OF ANIMAL HEALTH**

- a) To help learners define and identify disease and their causes.
- b) To help learners develop models for disease control.
- c) To help learners to set up a road map to achieve performance targets.

#### **12.1 Outcomes**

- a) Learners should define disease and what causes disease.
- b) Learners to set their disease control and prevention models at farm level
- c) Learners should identify disease pre-exposing conditions.

#### **12.2 Introduction**

- a) A disease is a condition that affects normal body function.
- b) It is generally caused by multiple factors e.g. infectious (brucellosis, rabies),
- c) or non-infectious (trauma or poisoning).
- d) Clinical signs may or may not be obvious, and they may range from minor
- e) conditions to death.

#### **12.4 Causes of goat diseases**

There are many causes of ill health in goats. The following list covers most if not all causes of goat diseases.

- a) Viruses
- b) Protozoa.
- c) Bacteria.
- d) Fungi.
- e) Helminthes
- f) External parasites (ticks,
- g) mosquitoes and manges)
- h) Poisons

- i) Physical injuries
- j) Nutritional disorders.
- k) Nutritional deficiencies.
- l) Stress due to adverse
- m) environment
- n) Genetic problems

### ACTIVITY 13: HEALTH MAINTENANCE IN DAIRY GOATS ‘

- Dairy goats’ well-being is determined by proper maintenance, feeding and care, which strengthens the goat’s resistance and prevents the development of disease.
- Dairy goats produce best when in good condition and healthy free from diseases.
- Goats are hardy and are easy less susceptible to illness.
- It is better to maintain good health of goats than to treat diseases when they get sick.

#### Dairy goat good healthy can be attained by:

- ✓ Adequate feeding in terms of quantity and quality feeds.
- ✓ Observing hygiene-clean house, feed and water
- ✓ Construction of a well ventilated and draft free dry pens.
- ✓ Regular exercise of goats • Parasites and disease prevention
- ✓ Observing routine hoof care.
- ✓ Close observation of the goats on daily basis for heat signs and good health

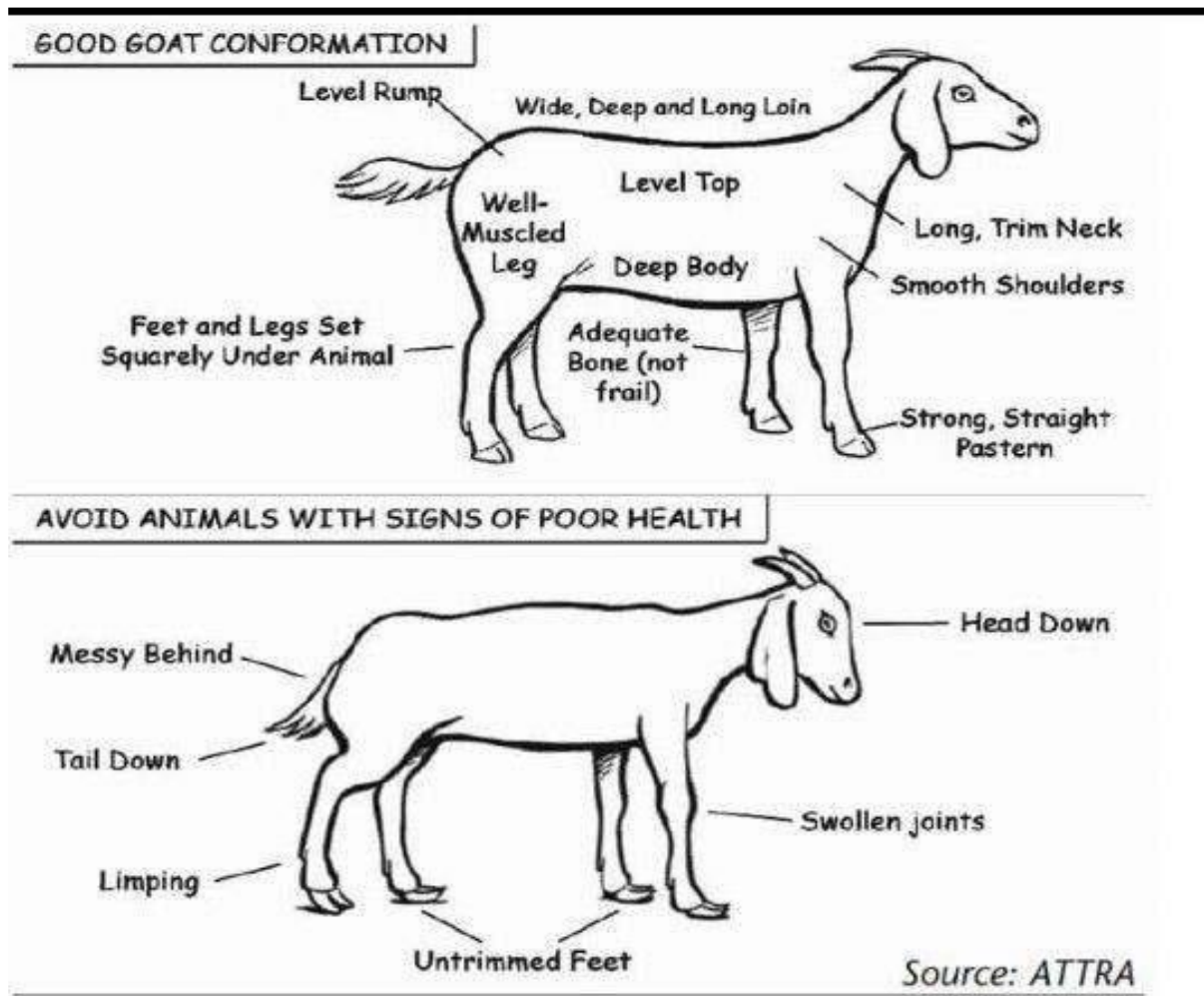
#### ANALYSIS OF HEALTHY AND SICK DAIRY GOAT

CHARACTERISTICS OF A HEALTHY GOAT	A SICK GOAT
<ul style="list-style-type: none"> <li>a) Has a smooth shiny coat.</li> <li>b) Has bright brown clean urine</li> <li>c) Feeds well and chew its cud</li> <li>d) Is lively, alert and sociable</li> <li>e) Is well nourished but not fat</li> <li>f) Drops dung in firm little balls</li> <li>g) Has normal body temperature of 39-40C</li> <li>h) Has clear, clean nose and eyes</li> </ul>	<ul style="list-style-type: none"> <li>a) Rough coat with an arched bac</li> <li>b) The goat eats very little or on eating at all.</li> <li>c) The goat is sometimes bloated</li> <li>d) Does not chew cud and rumen shows no movement</li> <li>e) Sometimes the goat urinates bloody urine.</li> <li>f) Walks with a limping gait</li> <li>g) It has swollen joints</li> <li>h) Has diarrhea and lies down a lot</li> <li>i) Has too low or high temperature</li> <li>j) Has pale mucus membranes a sign of jaundice</li> <li>k) Discharge from nose and muzzle</li> <li>l) Has swollen body of glands</li> <li>m) Is always malnutrition <b>NB.</b></li> <li>n) Sick goats should be treated immediately they get sick and provided with tender loving care (TLC) for quick recovery.</li> <li>o) Sick goats should be isolated from the healthy ones to prevent spread of diseases</li> </ul>

## ACTIVITY 14: CONSEQUENCES OF ILL HEALTH FOR DAIRY GOARS

Reduced production or weight	Reduced milk production in lactating goats	Emaciation	Infertility	Death
<ol style="list-style-type: none"> <li>1. In most cases, ill health animals will not grow and will lose weight.</li> <li>2. They fail to attain market weights within the recommended time frame</li> </ol>	<ol style="list-style-type: none"> <li>1. Lactating goat may fail to wean their kids and most of them will die before reaching the age of weaning</li> <li>2. If the kids are weaned most of them are underweight thus affecting time to attain age of puberty and subsequent reproductive cycles</li> </ol>	<p>They are usually very thin and have a very poor body condition score</p>	<ol style="list-style-type: none"> <li>1. Experience nutritional anoestrus</li> <li>2. May fail to conceive</li> <li>3. They usually abort</li> </ol>	<ol style="list-style-type: none"> <li>1. In most cases ill health animal die</li> <li>2. They have a very poor immunity system hence succumb easily to</li> <li>3. outbreak of diseases</li> </ol>

## ACTIVITY 15: VISIBLE SIGNS OF GOOD HEALTH AND POOR HEALTH GOAT



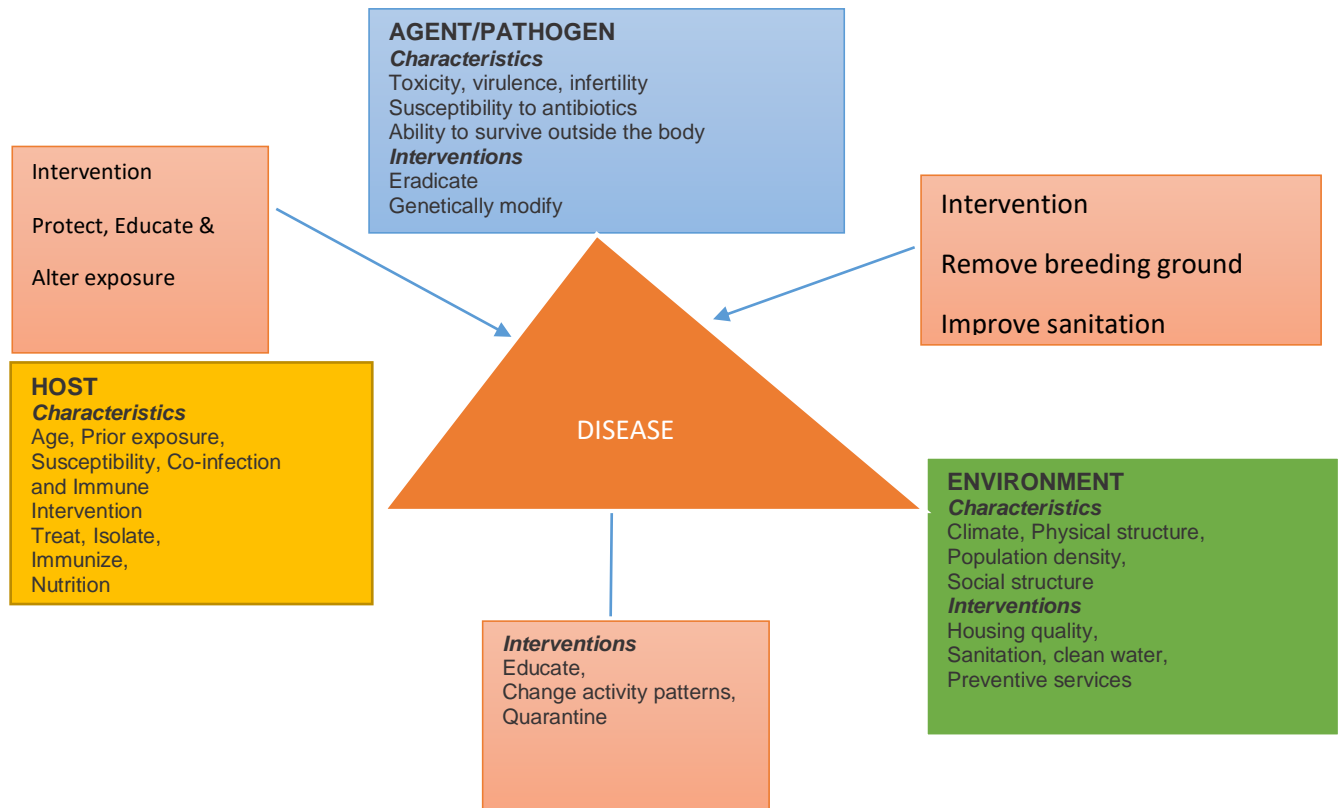
**Illustrations of goat in good goat conformation and one to avoid with signs of poor health Adopted from ATTRA.**

<b>Keeping goats healthy</b>	<b>Health strategies</b>
<ol style="list-style-type: none"> <li>1. Farmers and stockmen should know how to prevent, control and treat animal diseases through farm health planning and close working with vets.</li> <li>2. As a farmer, you have to prevent the spread of disease - between animals, from animals to humans, and from humans to animals.</li> <li>3. The general strategy to prevent outbreaks of clinical disease is to minimize the level of pathogen challenge while maximizing herd and individual immunity.</li> <li>4. Poor management might result in a population of animals with naive immune systems encountering novel pathogens or in stress leading to a weakened immune system in vulnerable animals.</li> <li>5. Alternatively, management errors might result in an overwhelming pathogen challenge in the case of an endemic disease or the entry of a new pathogen into a population of goats without specific immunity.</li> </ol>	<ol style="list-style-type: none"> <li>1. Preventive management is essential to maintaining a healthy goat flock.</li> <li>2. Correct nutrition, sanitation, and ventilation, as well as timely vaccinations, isolation of sick animals, and treatment or culling of problem animals, helps</li> <li>3. keep the herd in good health and reduces health care costs</li> </ol>

### 3- KEY STRATEGIES FOR HEALTH GOATS

<b>First</b>	<ol style="list-style-type: none"> <li>1.Those designed to live with endemic diseases caused by pathogens that survive in the environment and are too difficult to eliminate, or they are ubiquitous organisms that generally cause little problem.</li> <li>2.Endemic pathogens are handled by maximizing immunity and minimizing the challenge.</li> <li>3.Ubiquitous organisms cause disease flare-ups that are often triggered by environmental-management deficiencies, which if corrected will restore the healthy state in the herd</li> </ol>
<b>Second,</b>	<ol style="list-style-type: none"> <li>1.Some pathogens can be eliminated e.g. <i>Sarcoptes scabiei var. caprae</i> (<i>Mange mites</i>) can be eliminated from a herd.</li> <li>2.It is usually desirable in the long-term to eliminate the diseases, if possible and if it results in savings from reduced routine medication or vaccination.</li> </ol>
<b>Third</b>	<ol style="list-style-type: none"> <li>1.Include strategies to prevent pathogens from entering the herd.</li> <li>2.As herd size has increased, the emphasis on maintaining the population of animals free of certain diseases has increased in importance</li> </ol>





**The interaction of the components of the triangle can affect the course of disease**

## ACTIVITY 16: COMMON PROBLEMS OR DISEASES FOR ADULT GOATS

Common diseases and condition affecting adult goats are listed below

Condition	Signs	Treatment	Preventive
1. <b>Heatwater</b>	Fever. Collapse, convulsions and death in a few hours	Tetracycline injections (early) on advice of your vet. Seek assistance	Dip/Spray the goats against ticks
2. <b>Pulpy kidney: (Enterotoxaemia)</b>	Sudden depression and deaths of kids. Unable to eat Watery brown faeces, some with blood or green pasty diarrhoea. Fever. Death within 2 -4 days. Drunken appearance. Lies on side when close to death, paddling legs.	Use oral antibiotics on vets' advice	Reduce feed intake. Vaccination with clostridia vaccines 3 to 4 weeks of age and then boost at 6 to 7 weeks and finally at 6 months. Give concentrates gradually to kids. Note: It is often advised that animals first be vaccinated against pulpy kidney before deworming
3. <b>Infectious pneumonia:</b>	Coughing Breathing with difficulty; Running nose; Fever.	Antibiotics	Vaccination
4. <b>Mastitis:</b>	Fever; toxæmia. Lameness on the affected side. Swelling, gangrene of udder, belly wall. The udder will become hot and painful. Milk is watery and contains clots of blood	Apply antibiotics via the teat as instructed by the vet. In severe cases of infection, an injection of antibiotics may be necessary. After weaning check the udders of high yielding goats for mastitis. Frequent milking and massaging of the affected udder	Provide a clean bedding area
5. <b>Worms</b>	Eggs may be observed in faeces. Stunted growth. Rough coat. May have a swelling under the jaw and may also have swelling under the abdomen. May have diarrhea	Use dewormers	Avoid contaminated feeds. Deworm before the rains and just after. Good housing that prevents contamination of feeds with faeces.
6. <b>Anaplasmosis</b>	Severe anaemia Weight loss. Yellow mucus membranes	Tetracycline injections on advice of your vet.	Tick control by spraying or dipping
7. <b>Babesiosis</b>	Fever; Depression; Urine dark red in colour	To be effective the treatment must be urgent. Use diminazine aceturate on advice of your vet.	Control ticks
8. <b>Abscesses</b>	Swelling on the skin	Open and drain the abscess when it has a yellow spot on it or when it softens. This can be done by cutting a cross over the soft spot.	Control ticks and improve on general hygiene. The disease is spread by direct contact with an infected animal or through contaminated equipment or a contaminated environment.
9. <b>Tapeworm cyst in the brain</b>	Affected goats walk in circles due to permanent brain damage		Regular deworming
10. <b>Mange</b>	Loss of hair and skin irritation	Use appropriate acaricide	Dipping with a suitable dip if there are signs of mange in the area.
11. <b>Orf</b>	Wart-like sores on the animal's lips and nose and around the mouth of especially young lambs and kids and on the teats of their mothers	Spray the affected areas with an iodine spray daily. Hard scabs can be softened with Vaseline or glycerine to make it easier for the animals to eat.	Isolation of diseased animals Vaccination of all lambs and kids when the females have stopped lambing for the season.
12. <b>Footrot</b>	Lameness	Iodine spray to the hoofs (between the claws). An appropriate	Keep sheds clean. Footbath containing 10% zinc sulphate solution. The goats must be made to stand in the footbath for a period of 5

		antibiotic	minutes. Keep affected goats separate from the rest of the flock to prevent spread.
<b>13. Excessive hoof growth</b>		Trimming	Regular hoof trimming. Avoid excessively sandy pastures
<b>14. Limping associated with abscesses</b>	Swelling in the foot that is hot, red and painful. Sometimes, they burst open and ooze pus.	Open and drain the abscess when it has a yellow spot on it or when it softens. Apply an acaricide to kill the ticks.	Regularly check your goats' feet for ticks, especially the ones that are limping.
<b>15. Bloat</b>	The animal's stomach swells. Animals become uncomfortable and may lie down and cannot breathe and may die.	Drench with cooking oil (50 ml) or bloat guard. Do not let it lie down. If it is down, get it back on its feet and make it walk around until it has burped. In very bad cases stab the bulging area with sharp pointed knife to let air escape.	Goats must be introduced gradually to green lucerne and given large quantities of hay before grazing lucerne for a short while. Maize may also cause bloat. Make sure there is no wire or plastic lying around where animals graze.
<b>16. Abortion</b>	Loss of a fetus at some stage in the pregnancy	Generally, no treatment required unless there are complications.	The first step is to keep records of how many goats are aborting (as a percentage of the herd) and when they are aborting in order to try and identify the real cause of the problem (whether food or disease).
<b>17. Black Quarter/Quarter Evil</b>	Fever, loss of appetite, depression, stiff gait and reluctance to move due to lameness, gaseous bubbles in the muscles before death, sometimes nose bleeding and swelling of the head.		Vaccination.
<b>18. Pregnancy Toxemia</b>	Depression and anorexia until the doe becomes too weak to stand.		Properly manage the weight. Overweight and excessively thin ewes or does are at a higher risk for ketosis. Feeding grains with increased energy density during the third trimester, or about six weeks prior to kidding, will help to prevent pregnancy toxemia. Providing higher quality hay is also a good idea for gestating ewes or does
<b>19. Lactic Acidosis</b>	Discomfort, anorexia, teeth grinding, muscle twitching, ruminal stasis, and diarrhoea that may be off in colour with a watery consistency		High grain diets should be introduced slowly over a period of 10 to 14 days. Dietary buffers, such as limestone or calcium carbonate, can also be fed to neutralize acid present in the rumen and keep appetite and feed intake high. Do not store grain in areas where sheep or goats can access it easily.
<b>20. White Muscle Disease</b>	When the skeletal muscles are affected, the animal will arch its back with a hunched appearance and have a stiff gait. When the heart muscle becomes affected, the animal may present with difficulty breathing; fever; and frothy, blood-stained nasal discharge.	Vitamin E and selenium injection	Feed and mineral supplementation. Injections of selenium and vitamin E can also be given (consult a vet).

## ACTIVITY 17: DISEASES OF YOUNG GOATS, THEIR PREVENTION, CONTROL AND TREATMENT.

CONDITION	SIGNS	TREATMENT	PREVENTION
<b>1. Coccidiosis</b>	Sudden onset of diarrhoea. Foul smelling faeces containing mucus and blood. Perineum matted with bloodstained stool. Sudden death may occur. Severe straining. Anorexia. Common in housed goats	Give anticoccidial drugs.	Reduce stocking density. Clean and make sure pens are well drained and dry. Minimize contamination of feed and water with feces. Use of coccidiostats in feeds to keep egg level low but allow goats to become immune.
<b>2. Colibacillosis</b>	Fever at the beginning and later, fever drops down. Dry mouth. Diarrhoea (yellowish to whitish). Depression and weakness. Goat found lying down. Survivors of the infection may show nervous signs and problems with joints	Give plenty of clean water (oral fluids). Give antibiotic preparation on vet's advice. Isolate affected goats. Treat new cases immediately	Give colostrum at birth. House new born kids separately. Disinfect the navel with iodine solution at birth. Avoid contamination of feeds and utensils by keeping clean. Avoid overcrowding. Regular feeding should be kept
<b>3. Colostrum deprivation</b>	Dry mouth. Fever. Severe weakness. Most die.	Use oral antibiotics on vets' advice.	Cleanliness of the pen. Quarantine of kidding pen if diseases occur with kids. Clamp and disinfect the navel. Give 10% of the birth weight of colostrum in the first 24 hours. Avoid moving late pregnant does to new, distant locations to avoid exposing their offspring to infections of which they have not met before. Supervise birth to make sure births and animals do not get cold or too high temperatures.
<b>4. Enterotoxemia Pulpy kidney</b>	Sudden depression and deaths of kids. Unable to eat Watery brown faeces, some with blood or green pasty diarrhoea. Fever. Death within 2 -4 days. Drunken appearance. Lies on side when close to death, paddling legs.	Use oral antibiotics on vets' advice	Reduce feed intake. Vaccination with clostridia vaccines 3 to 4 weeks of age and then boost at 6 to 7 weeks and finally at 6 months. Give concentrates gradually to kids. Note: It is often advised that animals first be vaccinated against pulpy kidney before deworming
<b>5. Internal Parasites</b>	Sudden death. May have swelling under chin. Anaemia and weakness. Poor exercise tolerance. Severe weight loss. Break in hair/falling off of hair	Use dewormers	Avoid contaminated feeds. Deworm just before the rains and after. Good housing to prevent contamination of feeds with faeces.
<b>6. Suffocation</b>	No physical signs of disease. Can occur if many kids and adults are kept together, especially in cold climates	First aid if found not dead	Avoid overstocking the kid pens
<b>7. Malnutrition</b>	Weakness, no stomach fill. Dramatic fall in milk production. Staggered gait and recumbence when deprivation is severe. Weight loss. Mental depression	In cases of complete deprivation give small amounts of highly digestible carbohydrates and protein feeds through the mouth. Avoid fats	Feeds (diets) should be balanced
<b>8. Tetanus</b>	Causes stiffness that leads to paralysis and then death. Animals are at high risk when using the elastic band method of castration as this makes a wound		Vaccination

## ACTIVITY 18: SUGGESTED VACCINATION PROGRAM FOR GOATS

MONTH	ESSENTIAL VACCINES	OPTIONAL VACCINES
<b>January</b> Kids (1 –3 months of age) Weaning Adult animals	Enterotoxaemia (oil vaccine) Epididymitis (male goats) ( <i>Brucella melitensis</i> )	Quarter evil (1st inoculation) Botulism (first inoculation) Anthrax (in areas where the disease occurred in the last 5 years)
<b>February</b> Adult animals (4 –6 weeks before breeding season) Kids (5 –6 months old)	Enzootic abortion (Chlamydia) Enterotoxaemia (oil vaccine)	Blue udder Wesselbron disease Rift Valley fever Wesselbron disease Quarter evil (2nd inoculation) Botulism (2nd inoculation) Anthrax (only if disease occurred in the area for the last 5 years)
<b>March</b> From 15 March breeding season		
<b>April/May</b> All animals		Botulism Pasteurella Quarter evil
<b>June</b> Adult animals (not immunised before) (6–8 weeks before kidding) All animals	Tetanus (if kids are castrated using rubber ring) (1st inoculation) Vitamins A, D, E Deworm	Blue udder (1st inoculation)
<b>July</b> Adult animals (not immunised before) (2-4 weeks before kidding) Adult animals (2 –4 weeks before kidding)	Tetanus (if kids are castrated using rubber ring) (2nd inoculation) Vitamins A, D, E Pasteurella Tetanus Pasteurella	
<b>August</b> Kids (2 weeks old)		Pasteurella Vitamins A, D, E Heart water (in heart water area)
<b>September</b> All animals Kids (6 weeks old)	Enterotoxaemia (alum) Deworm	Pasteurella Pasteurella
<b>October</b> All animals	Deworm	



## ANNEX 1: WORKSHOP PHOTOS



**1.Facilitator making a presentation**



**2.Plenary discussions**



**3.Plenary & Group discussions**



**4.Presentation by facilitators**



**5.Group discussions**



**6.Plenary Presentations**

## **ANNEX 2: WORKSHOP AGENDA**

### **DAY ONE 3<sup>RD</sup> SEPTEMBER, 2024**

#### ***THEME: DAIRY GOAT FEEDING & BREEDING***

- a) Participatory Introduction & Workshop Norms (Project Officer, Linet)
- b) Workshop Expectations & Objectives (Project Officer, Linet)
  
- c) Feeding of Dairy Goats (Livestock Officer, Damary Afande)
  
- d) Fodder Establishment (Livestock Officer, Damary Afande)
  
- e) Conservation Methods for Feeds (Livestock Officer, Damary Afande)
  
- f) Breeding of Dairy Goats (Livestock Officer, Damary Afande)
  
- g) Breeding Objectives & Criteria (Livestock Officer, Damary Afande)
  
- h) Selection of Breeding Buck (Livestock Officer, Damary Afande)
  
- i) Selection of Breeding Doe (Livestock Officer, Damary Afande)
  
- j) Culling of Animals (Livestock Officer, Damary Afande)
  
- k) Castration of Male Kids (Livestock Officer, Damary Afande)

### **DAY TWO 4<sup>TH</sup> SEPTEMBER 2024**

#### ***THEME: ANIMAL HEALTH FOR DAIRY GOATS***

- a) **RECAP** (Project Officer, Linet)
- b) Objectives of Animal Health (Livestock Officer, Damary Afande)
  
- c) Health Maintenance for Dairy Goats (Livestock Officer, Damary Afande)
  
- d) Consequence of Poor Health in Dairy Goats (Livestock Officer, Damary Afande)
  
- e) Visible Signs for Healthy & Poor Health Dairy Goats (Livestock Officer, Damary Afande)
  
- f) Common Problems, Diseases, Prevention & Treatment for Adult Dairy Goats (Livestock Officer, Damary Afande)
  
- g) Common Disease, Problems, Prevention, Control & Treatment for Young Dairy Goats (Livestock Officer, Damary Afande)
  
- h) Suggested Vaccination Program for Dairy Goats (Livestock Officer, Damary Afande)