



# TRAINING MANUAL

## ON GOAT REARING

INCLUDING MGNREGA INTERVENTIONS

ENHANCING RURAL RESILIENCE THROUGH APPROPRIATE DEVELOPMENT ACTIONS



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# **TRAINING MANUAL**

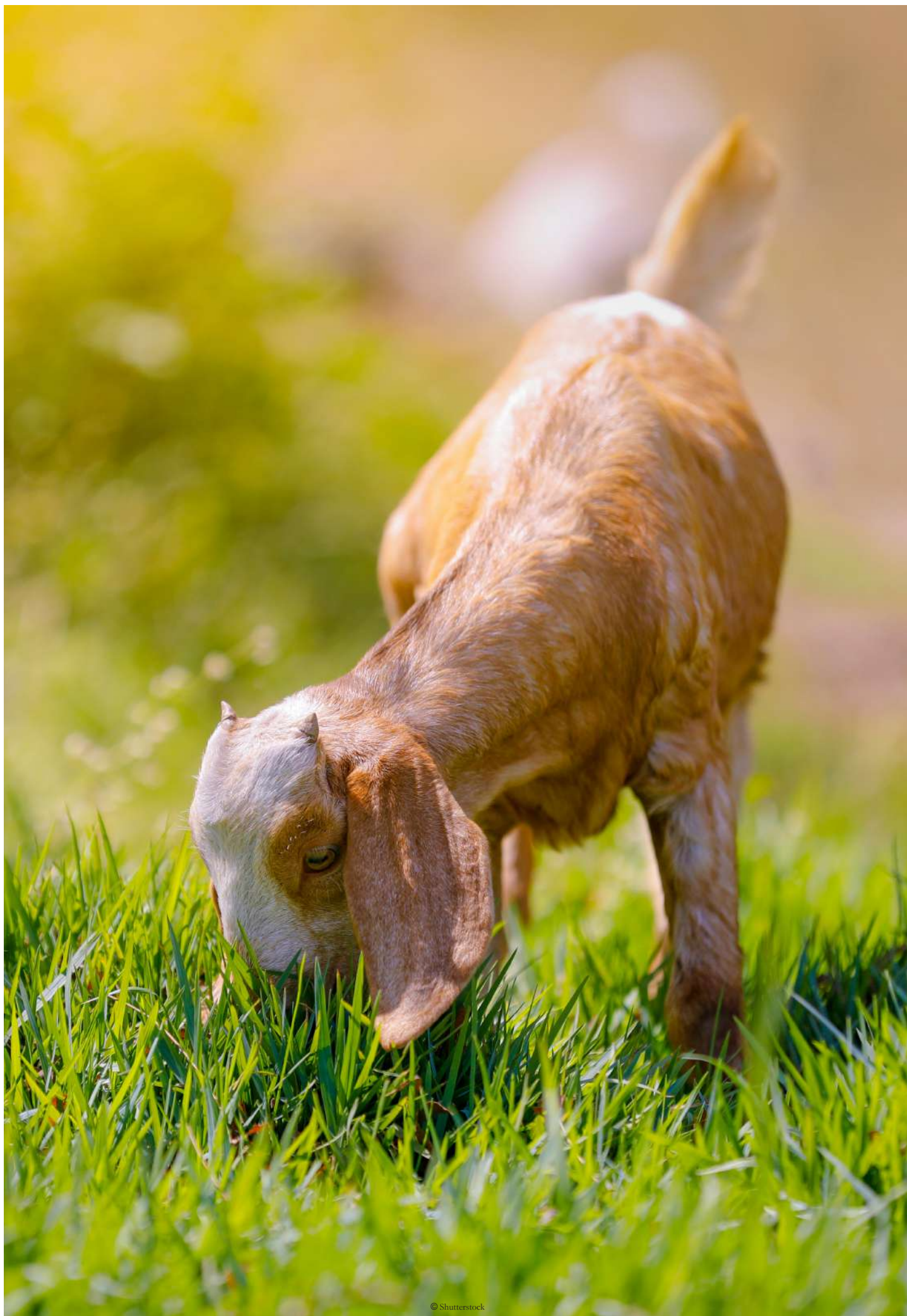
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## **ON GOAT REARING**

### **INCLUDING MGNREGA INTERVENTIONS**

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**ENHANCING RURAL RESILIENCE THROUGH APPROPRIATE DEVELOPMENT ACTIONS**





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# LIST OF ABBREVIATIONS

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& - And

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sq m - Square Meter

---

g - Grams

---

kg - Kilograms

---

ml - mililitre

---

mm - Milimeter

---

ltr - litre/liter

---

PPR - Peste Des Petits Ruminants

---

sq. ft. - Squre Feet

---

cm - Centimeter

---

ft. - Feet

---

VIT. - Vitamin

---

ET - Enterotoxaemia

---

TT - Tetanus Toxoid

---

SHG - Self-Help Group

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GST - Goods and Services Tax

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MGNREGA - Mahatma Gandhi National Rural Employment Guarantee Act

---

NRLM - National Rural Livelihood Mission

---

CSOs - Civil Society Organizations

---

NGOs - Non-Governmental Organizations

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FGD - Focused Group Discussion

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INR - Indian Rupee

---

GOVT. - Government

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## ABOUT THE TRAINING MANUAL

Goat rearing is one of the allied agriculture activities, contributing 20-25% of the household income in the rural area. The initiation, production and maintenance of goats is easy and does not require many skills. However, in the current scenario of decreasing nutritious fodder in the grazing area, emergence of diseases, and decreasing immunity, the production and profit are compromised. The rough estimation of the losses was around INR 11,720 million<sup>1</sup> (2003) and the preventive methods can help to save the losses of farmers and nation's GDP.

An important factor which was identified in the poor production is the knowledge gap, and awareness level among the rearers about better and scientific goat management. The lack of awareness is not able to create sufficient demand for the services and inputs of production. Also, incomplete knowledge is giving rise to new issues like rampant use of antibiotics, faulty feeding practices and fraudulent marketing practices.

Goat rearing produces food in the form of meat and milk, which is consumed by humans. Poor production practices or any malafide intention in the production to gain income will have a deleterious effect on human health. Therefore, creating awareness at all levels of the value chain becomes important in both ways to protect the livelihood of farmers as well as consumers' interest in wholesome food.

The present Training Manual on Goat Rearing is for all the stakeholders participating in improving the knowledge of farmers, local resource people, and other stakeholders. The goat rearers, in large part, are the same beneficiaries of both MGNREGA and NRLM. The manual can also help enrich the knowledge of officials who are implementing these programs.

<sup>1</sup>Economic implication of diseases in goats in India.

# A NOTE TO THE INSTRUCTOR





# 1. A NOTE TO THE INSTRUCTOR



## Rationale for Training

Agriculture and livestock are the widest occupations practiced in rural areas of our country. The farmers are dependent on agriculture for their food requirements and income. The production practices in our country are highly variable; some states follow advanced practices, while some states opt for the traditional ones. In most of the states, goat production and productivity are constrained due to insufficient skills and knowledge of the farmers. The farmers are not able to achieve the desired income against the potential due to diseases and market risks. There is high mortality among all age groups of goats. The poor production systems somehow do not economically justify the used labour for grazing and managing goats apart from any investments.

There are limited income-generating opportunities in the rural areas, therefore, most people still depend on goat rearing. Goat rearing is still practiced by the poor and weaker sections of the society. The engagement and dependency of women in goat rearing are significant. So, it is important to intervene in multiple ways to enhance the production and productivity of goats, which, in turn, will certainly impact the income and living conditions of the farmers.

The improved goat-rearing is targeted to decrease the mortality of goats, enhance weight gain, and increase the productivity of the mother goats. The interventions required to achieve the above three goals are improved feeding management, comfortable housing, better general management, and preventive measures for the diseases.

As goat farmers are highly dependent on their goats for cash income, they fear taking the risk of changing the production process due to their low confidence. Moreover, they lack money for investing in minor things like vaccination, deworming and supplementation.

The practice and adoption of all the interventions require knowledge and skill enhancement along with the easy accessibility of the inputs. The training in the form of discussion in farmer's field school, process and result demonstration becomes important for the adoption of new practices and improvement in current practices.

The goat rearers are devoid of both formal and informal education systems, so the gained experiences and knowledge are not exchanged at any level. Also, the rearers have very little time and resources to seek knowledge to enhance their production and productivity. The low awareness among goat rearers also reduces the impact of various government schemes of poverty alleviation through goat rearing. There is a need to reach out to the goat rearers with an interactive and creative approach to knowledge building.

## Training

The training is a process to enhance the knowledge and skills of a particular person. Here the training is related to imparting knowledge and skills to the goat rearers to improve their production and enhance their income.

## An Instructor

The person who teaches practical skills is called an instructor. Here the instructor will impart better goat management skills to the goat rearers.

## Qualities of an Instructor

The instructor's get-up, behaviour, communication skills and training skills have a great influence on the output of the training. Here in the case of goat training the instructor must have the following qualities –

- a. They should have a thorough knowledge of the subject along with practical skills.
- b. The knowledge of local practices of the trainees will be good to relate.
- c. The instructor must be aware of the education and status of the trainees.
- d. The instructor must have good leadership qualities for the training.
- e. The instructor must have good stories and examples from the local area.
- f. The instructor must answer all the queries of the trainees but must be focused on the training content.
- g. The instructor must give importance to all the trainees and listen to them carefully.
- h. The instructor must take feedback from the trainees to understand their needs.

## Goat Trainees

The goat farmers have very little time to invest in enhancing their knowledge. It is tough for the grazer to spend time in training. So, it becomes important to utilise multiple ways to train them. The instructor must be aware of the following things about the goat trainees:

- a. Most of the goat rearers are less educated or left the formal education system long back, so the written materials have less significance.
- b. The goat rearers have less time as they have multiple household chores to perform, so the training must be precise and clear.
- c. Most of the goat rearers are of a mid-age group (30-55 years), so they have an extensive experience in goat rearing, which makes it easy for them to grasp logical things.
- d. Most of them are poor, so they will be reluctant to adopt expensive interventions.

## Process of Training

The training on goats is related to skill enhancement, so a classroom lecture might not be effective. The instructor should adopt various ways to impart training on goats like:

- a. **Focussed Group Discussion (FGD):** The FGDs are conducted on relevant topics in which every trainee has some experience. The group is asked to discuss and present the learnings to the larger group. The FGD must ensure participation of all members for effective learning.
- b. **Facilitating in the Farmer's Field School:** The instructor can be a facilitator in the farmer's field school for an informal discussion on a particular topic and conclude. The group can also participate in the result or method demonstration.
- c. **Demonstration:** The instructor can involve the trainees in the demonstration of activities like better shed management, improved feeding practices, the impact of supplementation, etc. The trainees can practice the activity in front of the instructor to gain confidence.
- d. **Storytelling:** The instructor or trainees can be facilitated for true storytelling on the specific topic of goat rearing. The story must be short and must conclude with a learning.



- e. **Field Visit:** The field visits along with the instructor are very helpful in relating various things in goat management practices. The instructor can demonstrate various activities in the field like holding goats, medication, castration, feeding, etc.
- f. **Site Visit:** The instructor can take the trainees to the actual site of production and marketing to demonstrate the things. The site visit may include, feed plants, veterinary dispensaries, government farms, markets, etc.
- g. **Lecture:** The lecture mode of training is the easiest way of training, usually practiced in formal education system. The adoption of lecture mode must be accompanied by photographs and videos in digital mode.

## How to Make the Training More Effective

The training on goats should include technical knowledge and new information for the trainees. The trainees may get detached or bored during the training, therefore, the instructor must adopt the following practices to make the training more effective:

- a. **One Concept at a Time:** The trainers must deal with one concept at a time and clarify the concept in multiple ways.
- b. **Engagement:** The instructor must involve the trainees in the learning process through activities, quizzes, discussions, etc.
- c. **Language & Delivery:** Local language, along with a slow and easily understandable tone must be used to deliver the training. The instructor may need to repeat the concept many times till the trainees understand.
- d. **Simple Content:** The content of training must have simple language and technical definitions must be avoided.
- e. **Games:** The instructor must engage the trainees with games to improve participation.
- f. **Sharing of Learning:** It is important to have a thorough understanding of what has been learned. The instructor must facilitate the trainees to share their understandings.



# INTRODUCTORY SESSION



## 2. INTRODUCTORY SESSION



### Instructions to Trainers

- The trainer/instructor must introduce themselves and set a background of the training.
- Get acquainted with the trainees by knowing their names and understanding their needs and comfort in the training hall through discussions.

### Objectives of the Session

- The objective of the session is to get acquainted with each other.
- Understand the expectations of the trainees from the training.
- Make the training session comfortable for learning and understanding.

### Skills Learned After the Session

- i. The trainees and trainers must know each other and get an overview of the goat rearing livelihood.

### Materials Required:

- i. Small Cards, Pens, Pencils, etc.

### Method of Delivery:

- i. Lecture, Discussion & Games.

### Training Contents

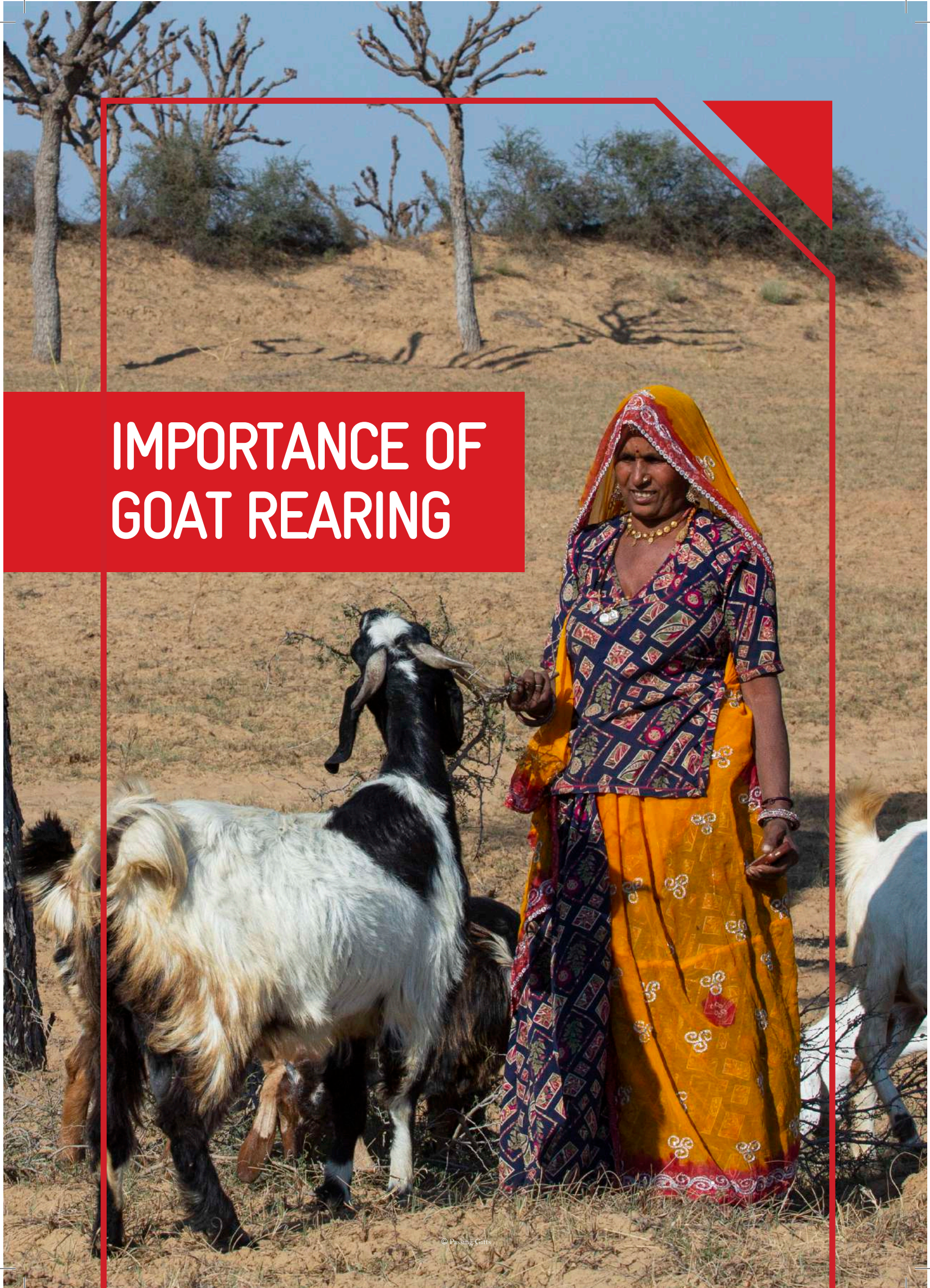
The introductory session sets the environment of training and improve the participation of trainees. The effectiveness of the training largely depends on various factors like engaging participations and creative engagement of trainees in the learning processes.

The introductory session must cover the following points:

- Check the necessary items required for training and arrangements of projectors, board, light, fan, etc. as per comfort.
- Arrange the seating of trainees for maximum participation and those who need more attention should be asked to sit in the front row. Any discrimination based on caste, religion, or economic status needs to be avoided.
- Formulate the rules to be followed related to timings and discipline during the training.
- Give an overview of the training plan and the topics which will be covered.
- Get the expectations of the trainees from the training on the board or on the paper card.



# IMPORTANCE OF GOAT REARING





### 3. IMPORTANCE OF GOAT REARING



#### Learning Objectives of the Session

- The trainees must compile their knowledge about the importance of goat rearing.

#### Skills Learned After the Session

- Knowledge enhancement on the importance of goat rearing as a livelihood.

#### Materials Required:

- i. Chart paper, pens, and presentation board.

#### Method of Delivery

- i. Focused group discussions.
- ii. The trainees should discuss the topic among small groups and present to the larger group.

#### Training Contents

Goat rearing is practiced as one of the alternative livelihoods along with agriculture for some extra income. It provides cash support to families in case of emergency. The domestication of goats has a long history, as they can adapt well to harsh conditions along with humans. The goats provided milk, meat, and leather to human civilization in earlier days.

Although the goat is regarded as a poor man's ATM, large-scale commercialization like dairy is still waiting to be adopted.

There are inherent characteristics of goats, which make them suitable for rearing by the poor section of the society, such as:

- Goat rearing requires little investment to start up. There is a poor section in our society where anyone can get goats on lease and start the rearing.
- Goat rearing provides a ray of hope to the poor people, as it requires less space and there are no recurring expenses for 2-3 goats. It also provides maximum returns on their investments. The low-income families plan to sell goats for marriages, house repairs, medical emergencies, and to purchase paddy seeds in the agricultural seasons.
- The goats thrive and adapt well to the poor-quality fodder in the lean season to high-quality fodder in flush seasons.
- Less human interference is required for feeding, breeding, and taking care of the goats.
- Goats are incredibly easy to handle, making them a suitable choice for anyone, including women and older individuals.
- There are no social taboos attached to goat rearing, so anyone can adopt.

There are several advantages of goat rearing, which makes it a good livelihood for anyone:

- The goats give birth to multiple kids in a year as their gestation period is small. There is faster growth in kids if they are managed well and attain the market weight very early.
- Goats are easily sold in the market at any age due to the high demand for meat. So, they are

considered equivalent to cash.

- Goat rearing can be a source of income for the landless, widows, the old, and even people without homes. Entrepreneurs or youths can also adopt it as a livelihood option.
- The products from goats, like milk, have high nutritional value and are recommended for disease conditions.
- The meat from goats is regarded as lean meat with less fat as compared to other red meat.
- The goats in the hilly region produce a fine-quality fiber called pashmina and mohair, which is used to make premium woollen clothes.

However, many challenges prevent it from being commercialized.

### Practical Session

- a. Identify the factors that prevent the large-scale rearing of goats as a primary livelihood. (Note- Facilitate the discussion focusing on diseases and limited fodder and space availability)

### Discussion

- a. What resources will be required to make goat rearing an enterprise?

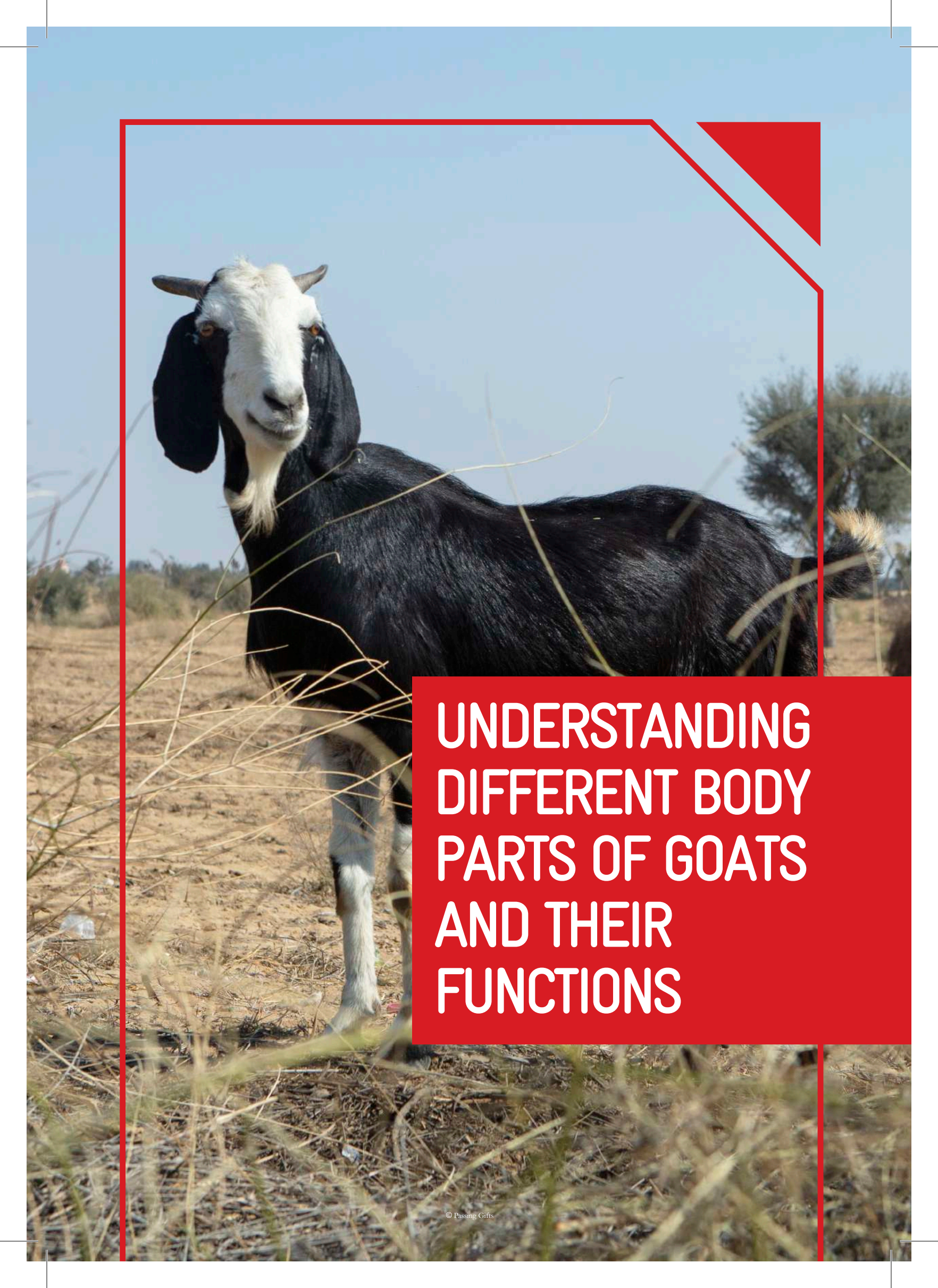
### Questions to Think Upon

- a. Why is goat rearing not practiced like dairy or poultry livelihood?



© Passing Gifts



A black and white goat is the central focus, standing in a dry, grassy field under a clear blue sky. The goat has a white face and neck, with black fur on its body and large, floppy ears. A red geometric overlay, consisting of a large rectangle with a triangular cutout in the top right corner, frames the right side of the image. Overlaid on this red area is the title text in white, bold, sans-serif capital letters.

# UNDERSTANDING DIFFERENT BODY PARTS OF GOATS AND THEIR FUNCTIONS

## 4. UNDERSTANDING DIFFERENT BODY PARTS OF GOATS AND THEIR FUNCTIONS



### Learning Objective of the Session

- The trainees must understand the different parts of the goat's body and their relation with varying production functions.

### Skills Learned After the Session

- Identification and handling of different parts of the goat.

### Materials Required

- Live goats or models are good for this training.
- Chart papers and pens.

### Method of Delivery

- The trainer will demonstrate the different parts of the goat's body and ask the trainees about their functions.
- The trainees must relate the different parts of the goat body with humans to understand their importance.
- The trainees can draw the goat image and label the important organs.

### Training Contents

The goats are called small ruminants and belong to the same family, Bovidae, of cows. They are closely related to goat antelopes and domesticated from ibex of Southwest Asia and Eastern Europe.

The farmers must know the different parts of the body for:

- The knowledge of different parts helps in understanding the usefulness of animals, such as strong legs, which are related to better growth and grazing habits; capacious udders, which are related to milk production; and strong thigh muscles, which are related to meat production, etc.
- Understand the change in size and consistency of the body part in case of diseases and explain the changes to the expert.
- Knowledge of different parts is also required to recognize a breed.
- Understand the growth of different parts and relate it with normal growth.

### Functions of Different Body Parts

The different parts of the goat's body give it a unique adaptation feature and contribute to production. The different body parts of the goats are:

## Basic Goat Body parts Doe

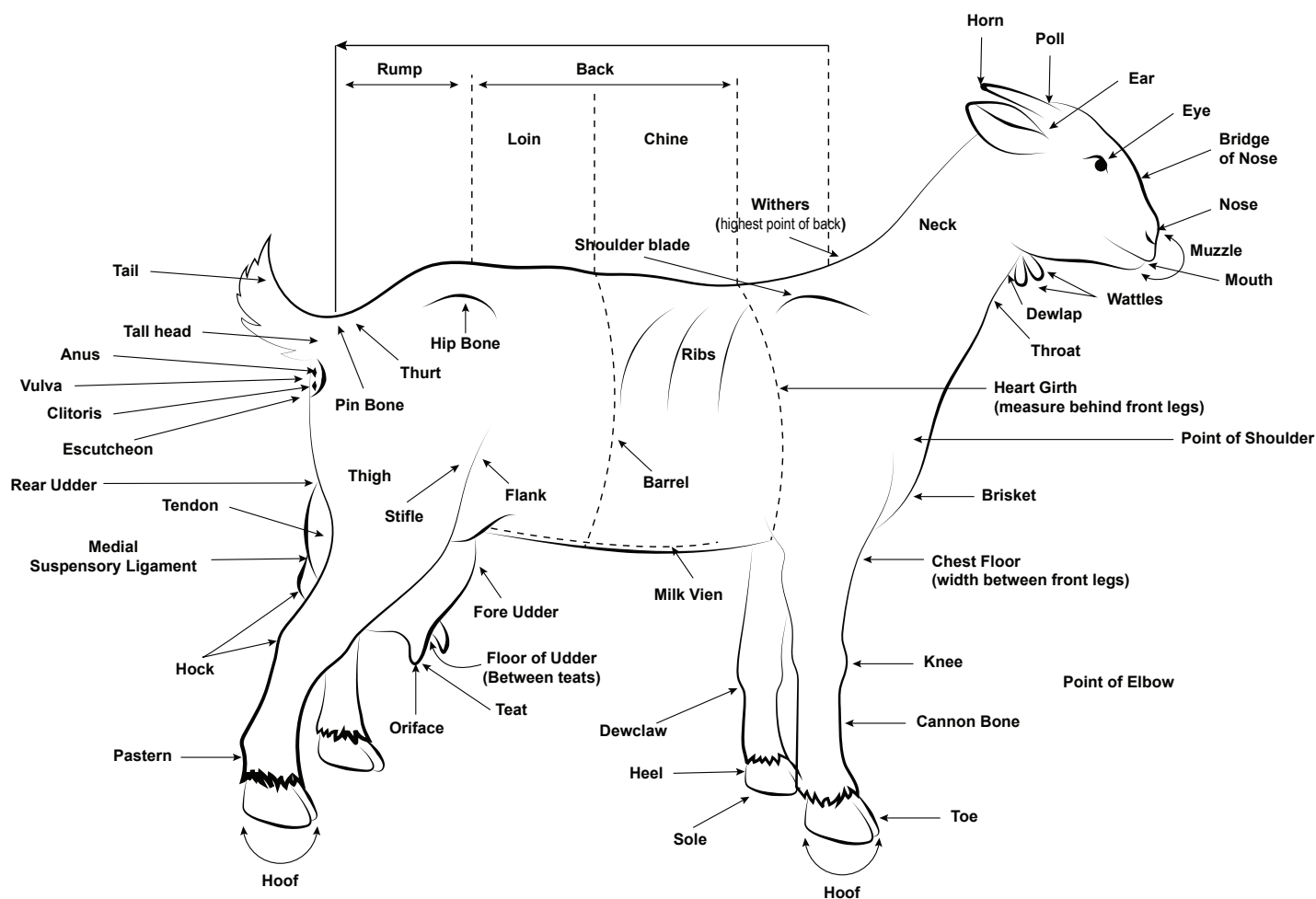


Figure 1- Goat Body Parts (Source-pinterest.com)

**Head-** The head of a goat is conical in shape, with a pointed mouth. The pointed mouth helps in close and selective cutting of soft leaves.

**Eye-** The eye colour of the goat is yellow, brown, and blue. The goat pupil is rectangular, which gives it a 3200 vision. It can see a wide area along with the back and side, which helps them graze in a large area while alerting them of predators.

**Ear-** The ears of the goats are cartilaginous and thin, which helps in heat dissipation in large goats.

**Nose-** The nose helps smell food and other animals.



**Lips-** The goats have mobile lips, which help in close grazing.

**Tongue-** The goat has a prehensile tongue for food tasting.

**Neck-** The neck is cylindrical and long, which attaches the head to the body. This is muscular in males and long and cylindrical in does.

**Brisket-** The part of the body between the front legs. This should be muscular in good meat animals.

**Stomach-** The stomach occupies the left portion of the body. It should not be protruded outside the body or hanging below the body line.

**Legs-** The legs of goats must be long, cylindrical, and strong to bear the body weight.

**Hooves-** Hooves are the end portion of the legs with two claws. The hooves must be strong and plain from below to hold the body weight.

**Udder-** The goats have two teats and two mammary glands. The udder of good mothers is capacious and large.

**Tail-** Tail is the triangular end portion of the spine area. The tail helps in different behaviour demonstrations.

**Reproductive Organs-** The reproductive organs open below the anal opening, under the tail. The opening is protected by the thick muscular vulval opening.

## Practical Session

- a. Draw a diagram of a goat and label the different parts.

## Discussion

- a. Discuss the different parts of goat for meat production.

## Questions to Think Upon

- a. How to know the quality of a goat for milk production based on body confirmation?



# HANDLING OF GOATS FOR VARIOUS PURPOSES

## 5. HANDLING OF GOATS FOR VARIOUS PURPOSES



### Learning Objective of the Session

- The trainees get acquainted with various handling methods.
- Understand the dos and don'ts of goat handling.

### Skills Learned After the Session

- Goat handling, weighing, hoof trimming, castration, etc.

### Materials Required

- i. Measuring tape
- ii. Weighing balance
- iii. Hoof trimmer
- iv. Castrator
- v. Painkillers, injections and syringes (2ml, 5ml)

### Method of Delivery

- i. The handling of goats must be demonstrated on the field or farm.
- ii. The trainees must be given a chance to practice the skills in front of the instructor.
- iii. The instructor must demonstrate the various precautions and risks associated with the activity.

### Training Contents

The goats must be restrained for various purposes like medication, treatment, transportation, wool shearing, milking, etc. Goats are very sensitive animals, and they can smell strangers and predators and move towards their herd mates for protection. They resist handling, and there are chances of accidents and damage to both animals and restrainers. So, extra precautions must be taken during handling. It becomes easy to handle the goats when the rearer regularly associates with them. The instructors need to demonstrate the handling of goats to the trainees.

#### Restraining of Goats:

The goats need to be restrained in a standing position by holding their chest and neck area. Holding them by legs and horns needs to be avoided. The kids must be held through their bodies.

#### Tagging of Goats:

Plastic tags are applied to the ears of goats for identification and insurance. The ear veins are to be avoided while piercing.



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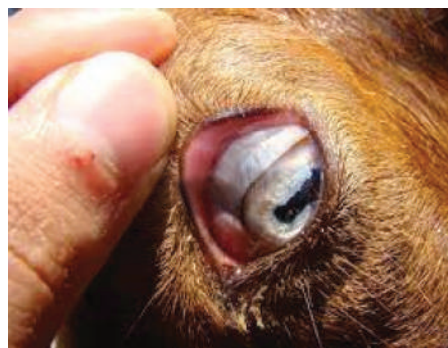
Figure 2- Restraining of goats for Vaccination.



**Site of Examination of Goats for Their Body Functions:**

The goats are restrained for examination and recording of the following parameters -

- a. Temperature- The temperature is recorded by inserting a thermometer into the rectum through the anal opening. The thermometer bulb must be tilted to touch the rectal wall
- b. Pulse- The pulse is recorded by putting fingers on the middle artery in the back of the tail.
- c. Respiratory Rate- The respiratory rate is recorded by counting the chest movements of an undisturbed goat.
- d. Ruminal Motility- The ruminal motility is recorded by pressing the fist in the left triangular area which is bordered by the last rib in front and the lumbar region above.
- e. Eye Conjunctiva- The eye conjunctiva is observed by opening the upper eyelid and pressing the lower eyelid.
- f. Any lesions on the body are to be examined after carefully restraining the goats.



© Passing Gifts

Figure 3- Examination of eye conjunctiva.

**Site of the Administration of Medicines, Vaccination:**

The various sites for the administration of medicines and vaccines are:

- a. Oral- This route is used for drenching liquid medicine, tablets, and powders.
- b. Thigh and Neck Muscles- For intramuscular injections.
- c. The Vein in Neck- For intravenous injections.
- d. Loose skin on the neck or upper chest for sub-cutaneous injections and vaccines.

**Weighing of Goats:**

Goats are weighed on hanging balance and platform balance. It is an important activity to ascertain the growth rate, market weight, and selling price.

**Hoof Trimming:**

The hoof trimming is done to cut the extra grown hoofs, which cause difficulty in movements and pain.

**Castration:**

The male goats are castrated with the help of a Burdizzo castrator. The spermatic cords of both sides are pressed to block the blood circulation to the testes. The testes shrink and get dysfunctional. The castration decreases the hormone level in male goats so that it has good muscular growth on all the body parts. The castration also inhibits the buck smell.

It is good to castrate male kids in the age of 55 to 75 days

Early castration may lead to urinary blockage, and late castration will result in high amounts of fatty meat.

**Practical Session**

- a. Demonstration of handling, weighing, castration, injection, and oral drenching is to be done on live goats.

**Discussion**

- a. What precautions should be taken during vaccination and deworming?

**Questions to Think Upon**

- a. What are the benefits of castration of goats?



# GOOD CHARACTERS OF A GOAT & SOME BREEDS



## 6. GOOD CHARACTERS OF A GOAT & SOME BREEDS



### Learning Objective of the Session

- How to identify good goats for breeding, milk and meat.
- Understand the quality of different breeds of our country and their characters.

### Skills Learned After the Session

- Identification of good goat.
- Identification of goat breeds based on their character and shape.

### Method of Delivery

- i. The good quality goats are to be demonstrated in the field with live examples.
- ii. The instructor can demonstrate different types of breeds through photographs and videos in the classroom.
- iii. The exposure of any farms can also help to understand about the breed.

### Contents of Training

The goats are reared for two purposes: one is milk, and the other is meat. The two production traits are different and the breeds are different. The milk-producing breeds in India are Jamunapari, Jhakrana, etc. Some of the breeds known for their meat quality are Black Bengal, Osmanabadi, etc., some are dual purpose like Beetal and Sirohi, etc.

The size stature is different for different breeds of India. The breeds of Rajasthan, Madhya Pradesh, Uttar Pradesh are large goats, and goats of hilly regions are small.

### The Characters of Good Quality Milk Goats

The goats can produce milk up to two to three liters per day. In India, Jamunapari goat produces the highest milk. Some good characters of milker goats are:

- a. The goat should have a deep body and a good stomach capacity.
- b. The neck should be straight and erect.
- c. Both hind legs are well placed apart, with two capacious udders hanging.
- d. Both the udders should be equal in shape and size.
- e. The udders should shrink after milking.
- f. The udders should not be hard.

### The Characters of Good Quality Meat Goats

The goats producing meat have good muscle growth in the hind legs, loin, and lumbar regions. The goats should be active and good feed converters. The famous meat goats from India are Black Bengal, Osmanabadi, etc.



## Breeds of Goats

The common breeds of goats and their characteristics are:

### Black Bengal

Black Bengal goat is famous for its meat taste. This breed is found in Jharkhand, West Bengal, Bihar, Assam, and other Northeastern States. The breed is white, black, or brown. It is highly prolific and produces twins and triplets.

The breed is hardy and thrives well in harsh conditions.

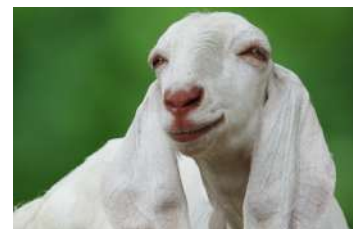


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### Jamunapari

The breed is regarded as the Milk Queen of India and can produce up to 3 litres of milk per day. They are commonly found in Uttar Pradesh, the breed is very big with strong long legs, long drooping ears and a protruded nose.

- The udders are big and capacious.
- The colour is usually white.
- Thrive well in harsh conditions.



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### Beetal

The breed is smaller than Jamunapari. It is a dual-purpose goat, reared for both milk and meat. The goat is found in the Punjab area.

- The colours are black, red, and tan.
- Produces milk up to 1.5-2 litres per day.



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### Sirohi

The breed is from the Rajasthan area, smaller than Jamunapari and Beetal. This is also a dual-purpose breed.

It thrives well in harsh conditions, and can also produce twins.



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### Osmanabadi

The is also a dual-purpose breed. Its meat quality is better than other breeds. The breed is from Andhra Pradesh, the Bidarbh area, and Southern Maharashtra. The colour is black, brown, and spotted.



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### Boer

The breed is from Africa and is good for meat production. The breed thrives well in Indian conditions.

The mature body weight of males reaches up to 150 kilograms



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There are other breeds in India, which are famous in the states. Each breed has some peculiar characteristics. The goat breeds in the Himalayan areas produce good quality fibres called pashmina, which are used for making warm clothes.

### Practical Session

- a. Identification of different characters of breeds.

### Discussion

- a. Which breed is to be selected for milk business or meat business?

### Questions to Think Upon

- a. How to conserve the local breeds of goat?





# HOUSING MANAGEMENT FOR GOATS

PLASTIC FLOORING BASED  
TWO TIER HOUSING FOR GOATS  
AICRP ON PEASEM, ICAR-CIRG



## 7. HOUSING MANAGEMENT FOR GOATS



### Learning Objective of the Session

- Understand the housing requirements of goats.
- What are the effects of poor housing?
- How to construct comfortable housing for goats.
- Importance of cleaning sheds.

### Skills Learned After the Session

- Shed layout and calculation of space as per the number of goats.
- Construction and maintenance of goat shed.

### Method of Delivery

- i. The instructor can visit the nearby village to demonstrate the housing requirements of goats.
- ii. The trainees can develop a goat shed model with the help of available materials.
- iii. The trainees must calculate the housing requirement for their own goats.

### Contents of Training

The farmers rearing one to five goats usually keep all the animals in one house or the corner of his house. It is advisable to have a separate goat shed when the farmer has six or more adult goats. The availability of less space and poor housing never allow the goat number to increase, so it is advisable to provide sufficient comfortable space to the goats.

Unlike other domestic animals, goats require different types of housing. The general characteristics of the goat house must have include:

- The goat shed should have a pucca floor.
- There must be sufficient sunlight in the shed in the daytime. At night, the goats require mild light as they fear dark sheds.
- The shed should protect the goats from heavy rain, and cold and hot weather.
- The goat doesn't sweat like humans, so the shed should be well ventilated. Making a shed near trees is advisable.
- The goats have the habit of perching and climbing, so providing an elevated place for sitting is desirable.
- In places of heavy rainfall, the goat shed should have a raised floor.
- Raised flooring can be made of bamboo, wood, or plastic. There are certain advantages of raised floors, like:
  - o The goats can easily climb and sit on machans.
  - o The ammonia produced in the goat shed is much below the sitting floor. Ammonia is a heavy gas that accumulates on the floor. It damages the lungs and makes the goats prone to respiratory infections.
  - o The shed remains clean as the urine and droppings fall below the floor.



- o There will be good ventilation from below the shed as well.
  - o There will be less worm infestation.
- The farmer's shed should have a fenced area where the goats can be kept open during the day for resting.

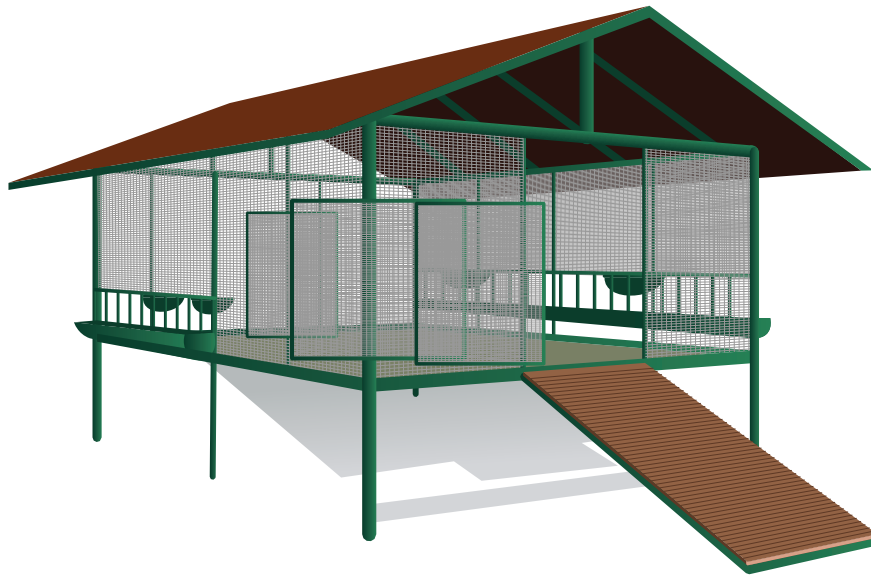


Figure 4- Ideal shed made up of iron and wood.

### Space Required for Goats

- The adult goats require 1.5 square meter in shed area and double space in open area.
- The kids require space of 0.5 square meter.
- Generally, a 6 meter long and 4 meter broad shed can carry 10 adult and their kids.

### Facility in Goat Sheds

- The goat shed should have facility for clean drinking water, feed, and hooks to hang the tree leaves.
- The shed can be covered in case of heavy cold.

### Effects of Poor Sheds

The poor quality sheds have the following effects on the income of farmers:

- Less space per goat causes stress and reduces goat fertility.
- Poor sheds are responsible for the spread of infections and mortality due to diseases.
- The goats have respiratory infections and their growth is reduced.
- There are cases of abortions in goats due to poor space and infighting.

Layout of a Goat Farm

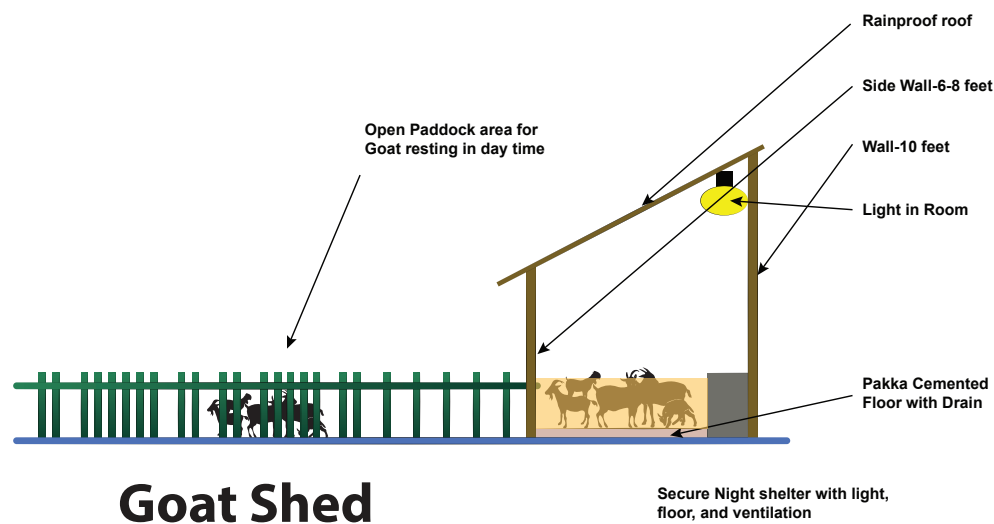


Figure 5- Model Goat Shed

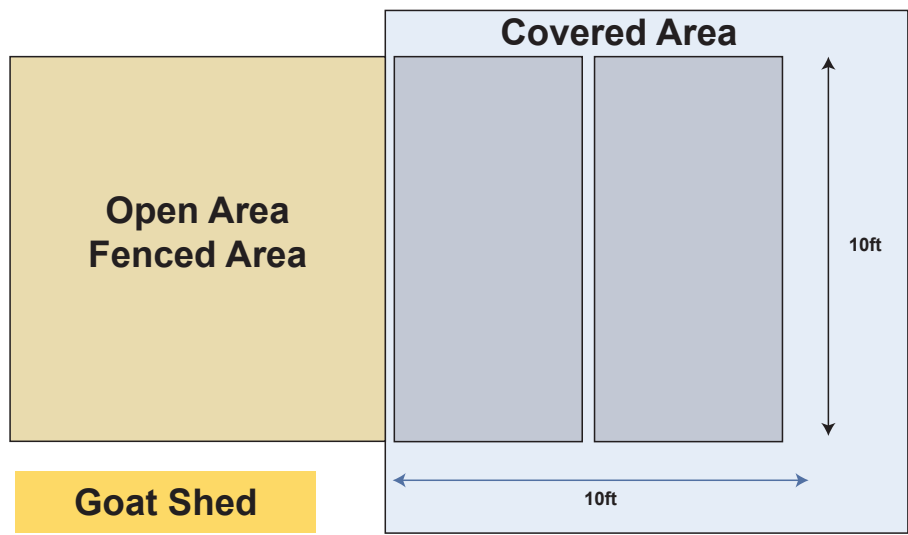


Figure 6- Layout of Goat shed.





Figure 7- Low-cost Goat Shed Constructed with Bamboo

© Passing Gifts

### Practical Session

- Construction of a goat shed with available material in-house.
- Audit of a farmer's shed for comfort available to goats.

### Discussion

- Poor housing and its relation with disease spread.

### Questions to Think Upon

- How a goat shed can prevent the spread of diseases?





# FEEDING MANAGEMENT OF GOATS



## 8. FEEDING MANAGEMENT OF GOATS



### Learning Objective of the Session

- Know the feed requirements of a goat.
- Know the types of feed included in the ration.
- How and what to feed the goats in the lean season?

### Skills Learned After the Session

- Balance feeding to goats.
- Manage feeding in lean seasons.

### Method of Delivery

- The trainees can collect the different types of feed materials during the field visit and the instructor can discuss with them on
  - Type of feed- leguminous or non-leguminous
  - How much to feed
  - Seasonality of the plant
  - Any poison or toxin available in the plant, etc.
- The instructor can arrange the preparation of feed mixture from local ingredients.

### Contents of Training

The goats are also ruminants, and like other domestic animals, they are very adjustive in dwelling space but very selective in feeding. They prefer to eat clean, fresh, and tasty grass if provided. Domestication has impacted change in the feeding behaviour of goats as compared to wild living, they have to eat whatever is being provided. Goats have a high affinity towards grains and cooked food, and try to engorge their stomach if provided. Like other animals, they also require all types of vitamins and minerals in trace amounts for production and growth. If goats are provided with sufficient time to graze in forest areas, all their nutritional requirements will be achieved.

### General Feeding Behaviour of Goats

- The goats don't eat foul-smelling and trampled feed, so it's advisable to feed the goat by hanging the feed.
- The goats are selective and are variety feeder, they prefer eating different types of leaves, if provided.
- Unlike cows, they like soft grass and dry leaves. The cow can also digest high-fibrous dry hay, but goats can adjust well to coarse fodder in the absence of soft fodder.

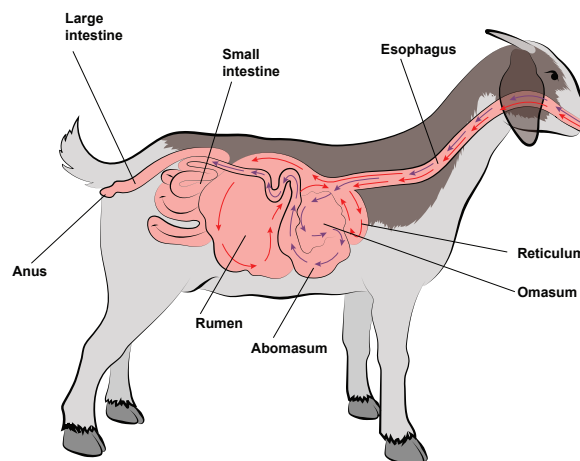


Figure 8- Goat Digestive system.

- While grazing, they spend 25-30% of their time searching & screening the area for different types of grass and leaves. After that, they spend time on browsing the best.
- They try to eat more in the afternoon hours while grazing. In the morning, they prefer selective feeding in small quantities.
- In the house, they must be kept away from the household kitchen grains or cooked food.
- Sometimes, they take the rotten fruit waste from the streets in town areas, which can cause indigestion and sometimes death.

## Principles of Feeding Goats

- The goats should be grazed at least 6-7 hours in a day.
- If there are fewer hours of grazing, they must be provided with tree leaves in the house.
- The grass and feed must be provided above the ground by hanging it or in a feeding trough.
- Providing concentrates of at least 150 grams per day for adult goats of small breeds (250-300 grams for larger goats) after grazing is good for growth, milk production and pregnancy.
- The kids aged 21 days and above should get 10-15 grams of creep feed. The feed should increase as the kids grow and can go up to 40-50 grams daily for meat goats/female growing goats.
- The farmer must feed a mineral mixture of at least 5 grams per day regularly to have better growth and fertility.
- The goats should be provided with clean water on the farm for 24 hours.

The farmer can manage the fodder and concentrate at home for better nutrition of goats.



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Figure 9- Goat taking water in a sunny day.

## Ration of a Goat

Goat ration refers to the feed that is provided to the goats in 24 hours. The goat ration must include the following for better health and growth:

Ration Parts	Amount in Kg	Source
Green Fodder	2 kg	Green leaves and grazing materials
Dry Fodder	500 g	Dry leaves, straws, concentrates mixtures
Minerals	4-5 g	Mineral salt licks and mineral mixtures
Water	As required	Clean water

(A goat eats 3-4% of its body weight in 24 hours on a Dry matter basis.)



Feeding Concentrate to Goats

The balance concentrates are prepared by mixing the available by-products of grains and pulses, and oil cakes. The balanced concentrate ration must have at least 15% crude protein (higher in lactating and pregnant goats) for better growth. The fibre content in the feed should be at least 12% and 60% energy.

It is costly to feed concentrate around the year, but a supplementation during the important period will enhance production and productivity.

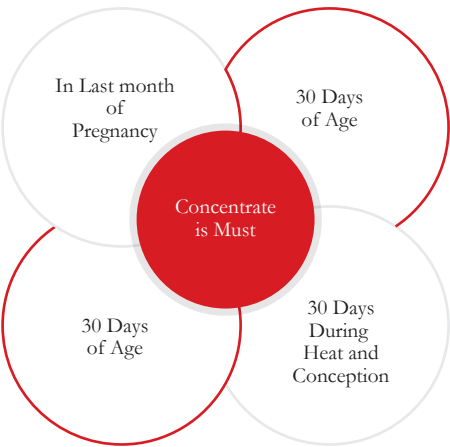


Figure 10- Compulsory Concentrate feeding Periods.

Fodder Cultivation in Backyard

Fodder Tree

Usually one fodder tree of Subabul, Moringa, can feed a goat for the lean period. So it's advisable to plant 20-25 trees for rearing 15-20 goats.



Figure 11- Subabul Plant



Figure 12- Moringa Plant

## Azolla

Azolla can be grown easily in-house in an 8-inch-deep pit insulated from all sides. The pit should be filled with 4-inch water and an equal quantity of soil and 7-day-old cow dung should be mixed well and poured into the pit. For A 10 feet long and 3 feet broad pit requires 10 kilograms of each. 10 grams Azolla seeds brought from any other pit are to be spread over it. It takes 15 days for the first harvesting to grow and 200 grams can be extracted daily at 200g.

The azolla is extracted, cleaned, and mixed with any grains and salt to feed.

It is rich in protein and gives good growth to the animals.

## Practical Session

- a. Azolla bed preparation.
- b. Concentrate mixture preparation.

## Discussion

- a. How to feed a herd of 20-25 goats.

## Questions to Think Upon

- a. How to prepare balanced feed in-house?



Figure 13- Azolla for goats.

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# MANAGE DIFFERENT STAGES OF GOATS

## 9. MANAGE DIFFERENT STAGES OF GOATS



### Learning Objective of the Session

- Understand the care and management of goats at different age and conditions.

### Skills Learned After the Session

- Management of goats during kidding, lactation, and growing stages.

**Method of Delivery:** On-field demonstration, video shows and lectures

### Contents of Training

The goats pass through the different stages of life, and each stage is important for the goat and the farmer. Proper care and management not only improve production but also prevent diseases and mortality. The highest mortality in goats happens during 0-3 months due to mismanagement and improper care. The disease mortality happens in adults as they move out for grazing and get the infection. The management of goats at different stages requires special care.

### Management of Pregnant Goats

- The pregnancy period is 154 days in Black Bengal goats and  $\pm 5$  days in other breeds.
- Once the farmer is assured that the goat is pregnant, it should be separated from the bucks and young males.
- The goats should be given 100-150 grams (small breeds) of concentrate feed daily along with grazing. The feed needs to be supplemented with 1% mineral mixture (100 grams mineral in 10 kilograms feed).
- As the goats advance to pregnancy in 3-4 months, they need to be separated from the herd.
- The pregnant goats should be dewormed with proper drugs at the 4th month. Deworming later or in the later stages of pregnancy may cause digestive disturbance.
- Proper records need to be maintained.

### Management of Goat at Kidding

The care during kidding is very important and little assistance may be required. The goat becomes restless and starts bleating. They sit and look upward and bleat. The hind portion of the goat becomes loose and the vulva becomes swollen. The following care and management are required for such goats:

- Keep the area clean.
- No animals and humans stranger to the goat should be present nearby.
- The goat lies down stretches and sometimes stands and tries to push the foetus.
- The kidding is completed in 2-3 hours. If it's getting delayed, professional assistance will be required and an experienced person needs to be called. The farmer must keep clean warm water, blade, and antiseptic ready.
- The goat gives 2-3 kids one by one and removes the placenta within 6 hours of kidding.
- After kidding, they should be cleaned with dry clothes and provided with fresh water. After providing fresh water, any medicated water like gud (jaggery) water, turmeric water can be provided after some time.



- The teats must be cleaned and checked for milk letdown. The kids are to be assisted for learning sucking.
- **Post Natal Care-** This is to be done immediately after kidding and the following interventions need to be done:
  - o The naval cord of kids is to be cut after leaving one inch, if it is long. Two drops of betadine solution need to be applied to the fresh naval cord.
  - o The kids are to be provided with 1 ml of Vitamin A solution.
  - o The kids must get the colostrum within 30 mins of birth.
  - o The mother goat is to be provided with 20ml of any uterine tonic and repeated for three days.



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Figure 14- A woman Pashu Sakhi providing post-natal care to kids.

## Management of Kids Just After Birth

After birth, the kids are vulnerable to death due to many factors, like they are easily preyed on by eagles, dogs, jackals, snakes, etc., if not properly managed. The kids are also trampled by other animals. Sometimes, the kids die due to hunger, cold, and heat. The following care and management are required for the kids just after birth:

- The kids should get the post-natal care.
- The mother should be assessed for milk production if the production is less. The kid should be fed from other goats.
- The kid should get at least 20% milk of its body weight in the initial ten days.
- The colostrum is available for 3-4 days, so the kid should be fed at least 7-8 times a day, every 2-3 hours.
- In the initial ten days, the kids should be covered with the basket, and warmth needs to be provided.
- The milk should be fed in a limited quantity; more milk will lead to enteritis and diarrhea.



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Figure 15- Management and care of kids.

## Management of Kids From Birth to Three Months

After 4-5 days, the kids learn to suckle, play and identify their mothers. They are still vulnerable to many accidents and atrocities. The following care and management will be required:

- Please keep the kids of two mother goats separately.
- The male and female kids can be kept.
- At the age of 25 days, start giving a small quantity of crushed grains in the plate for licking.
- At the age of 30 days, give the first deworming to the kids.
- Castration- At the age of 45 days, the male kids need to be castrated for meat production. The Paravets/Pashusakhi need to be called for this.

- The male kids who need to be promoted as bucks should not be castrated.

### Management of Kids After Third Month to Market

This is a very important phase of rearing; these kids are called growers. They are very important and called cash crops, the following care and management will be required:

- Separate the male and female kids at this stage and they can be reared in different pens.
- The kids for meat production should be fed with 40-50 grams concentrates, and they should gain at least 50-55 grams daily.
- The vaccination should start after the age of 4 months.
- The kids need to be dewormed every three months till they are sold.
- They must get 1% mineral mixture in feed.

### Management of Bucks

The male bucks are aggressive and should be kept separate from the other goats. In the breeding season, they should be fed at least 200-250 grams of concentrate mixture.

### Growing Good Bucks on Your Own Farm

The breeding bucks are in high demand due to the commercialization of the goat business. It is easy to rear and grow bucks for breeding on the home track (where the breed originated). For example, the Black Bengal bucks can be grown in the eastern part of Jharkhand, Bihar, West Bengal, and Assam. The good quality bucks fetch twice the price of meat goats. The growing of bucks is very easy, and the following strategy needs to be adopted.

- The mother goat and the father the buck should belong to the same breed and should not have any deviation or deformity.
- The selection of male kids for the buck is to be done based on certain criteria, like
  - o The first-born kid should be avoided if the weight is less than other kids
  - o The kid with a good birth weight needs to be selected
  - o The male kid should not have any deformity
  - o It should be active and true to the breed
- The selected male kid should be taken care of from the first day.
- It should get the colostrum for 3-4 days at 2-2.5 hours intervals.
- No extra milk should be fed.
- The kid should not be castrated.
- The kid should be fed like others and sold for breeding at the age of 9-10 months.

### Practical Session

- a. Weighing of kids
- b. Post natal care
- c. Kids management
- d. Castration

### Discussion

- a. How can mortality be avoided on the farm?

### Questions to Think Upon

- a. How to plan of kid crops as per market season?



A photograph of a herd of goats running across a dry, open landscape. The goats are in various colors, including brown, black, and white. The background features sparse trees and a clear sky. A red geometric overlay is present on the right side of the image, containing the title text.

# OESTROUS DETECTION AND BREEDING MANAGEMENT



## 10. OESTROUS DETECTION AND BREEDING MANAGEMENT



### Learning Objective of the Session

- How to identify the goat for breeding?
- Know about heat detection and breeding in goats.
- Know about herd breeding management.

### Skills Learned After the Session

- Heat detection of goats.
- Herd breeding management.
- Identification of infertile goats.

### Method of Delivery

- i. Demonstration in field.
- ii. Through video shows.
- iii. Through lectures and discussions.

### Content of Training

The goats are seasonal breeders, and their oestrous is related to the availability of favourable weather and plenty of feed. They come in heat twice a year, during the months of February-March and September-October. The female goat starts coming into the heat after attaining an age of 7-8 months, and the mother goat starts coming into the heat after 45 days of kidding.

After coming in heat, the female goats start seeking males for breeding. It is advisable to keep the male bucks in the vicinity of the same household. The farmers, with the small number of goats, can keep a cloth rubbed on bucks in the goat shed. The pheromones of males stimulate the oestrous cycle of the females. Taking the goats away from home for breeding decreases fertility. The goats should be kept in observation for a repeat of oestrous, and in case there is no oestrous for the next 45 days, the goat would have become pregnant.

### Oestrous Signs in Goats

The following oestrous signs are noted

- Tail wagging
- Frequent urination
- Constant bleating
- Male seeking

The oestrous signs in goats repeat after 19-21 days and the oestrous period last for 24-36 hours.



## Crossbreeding

The mating between the two breeds is called cross-breeding. The cross-breeding with Jamunapari goats is done to improve the milk production.



Figure 16- A good quality Black Bengal Buck

© Passing Gifts

## Breeding Management of Herd

The goats are kept in the herd, so the following practices must be adopted for better production:

- The sex ratio should be 1:20 or less. This means that there should be one buck for every 20 breed-able female goats.
- In the breeding season, all the males and females should be mixed, while grazing and housing.
- The adult females should be provided with extra concentrate during the breeding season.
- The bucks should be exchanged after 18 months to avoid inbreeding in herd.
- After successful mating, the female goat should be observed for pregnancy. The pregnancy period is of 154 days in Black Bengal goats.

## Infertility Management in Goats

Goats produce kids, which are reared and sold live as products. So, it is important to have good fertility in the mother goats. The goats are reared in the herd and in the farmer's house. Monitoring the fertility of

the herd is difficult, and most of the time, it goes unnoticed. The farmers lose the kids due to the poor fertility of the herd.

So, it is important to have a close watch on the number of goats who are pregnant. There are certain principles which should be known to farmers to have high fertility in the shed

### **Ratio of Buck to Goat**

If farmers have ten and above female goats, they should have their own male buck of good quality. In case of a small number of goats, there should be a good buck in the vicinity. The poor fertility of bucks and the low male-to-female ratio in the village area are the reasons for infertility. It has been observed that two hundred to three hundred goats depend on a single male in a village. The male needs to be properly cared for and fed as there is a high chance of disease transmission by the village's free wandering bucks.

### **Supplementation of Mother Goats**

The mother goats need to be supplemented with grains during the onset of breeding months, like in February and September.

### **Supplementation With Minerals**

The mother goats must be regularly supplemented with 5 grams of mineral mixture. This is highly effective in maintaining high fertility in herds.

### **Grazing of Goats**

- i. The goats prefer variety in their feed, and they usually do not face a vitamin deficiency if they are grazed in a good forest area. The goats need at least 6-8 hours of grazing daily for good fertility.
- ii. If the goat is found to be not getting conceived in 12 months, the goat should be culled out.
- iii. In any time between the middle of two breeding seasons, 85-90% of the goats should be pregnant.

### **Practical Session**

- a. Heat identification in goats and mating.
- b. Identification of infertile goats in the herd.

### **Discussion**

- a. How to do breeding management of the herd.
- b. How to improve the fertility of herds.

### **Questions to Think Upon**

- a. How many goats should be pregnant in the herd during/after the breeding season?





Source: Passing Gifts

# IDENTIFY HEALTHY AND SICK ANIMALS



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## 11. IDENTIFY HEALTHY AND SICK ANIMALS



### Learning Objective of the Session

Early identification of sick animals and finding possible reasons for that.

### Skills Learned After the Session

- Observation skills of animal behaviour and herd behaviour.
- Skills for identifying different types of lesions and their causes.
- Identifying various symptoms to differentiate between normal and sick goats.

### Method of Delivery

- The comparison of healthy and sick animals requires the physical presence of diseased and healthy goats.
- The trainees must see and record the various parameters/changes of the goat.

### Contents of Training

The differentiation of sick and healthy goats in the presence of an expert helps in knowing the minor symptoms that usually go unnoticed. The change in behaviour and symptoms are the warning signs of diseases, and proper action needs to be taken.

Goats exhibit the disease symptoms after 4-7 days of infection. In acute disease, there is rapid onset and the animals die in a few hours. A good farmer knows his goat's body and its behaviour, and any unusual symptoms must be noted and treatments are to be arranged.

The disease which is identified early can be cured easily, and the spread to other animals can be prevented.

The following are the common differences between healthy and sick animals/goats:

S. No	Body Parts/Condition	Healthy Animal	Sick Animal
1	Animal whole body observed from a distance	Masticating, standing and moving	Silent, no mastication, in most cases lying down
2	Respiration	Normal 18-20/minute	Rapid or very slow
3	Eyes	Normal, shining	Dull, red and some times liquid is coming out
4	Ear	Moving	No movement
5	Muzzle	Moist	Dry, crusty, wounds, etc.,
6	Neck	Straight up and moving	Down and dull
7	Stomach	Some movement	No movement, swollen in case of bloat
8	Dung	Oval, round, dry droppings 9 - 12 times in a day	Liquid or very hard and more frequent or 1-2 times in a day
9	Tail	Moving	No movement
10	Skin	Shining and moving	No movement and dull



The list is indicative, and some of the signs, like running and maniacal behaviour, need attention. In some cases, the signs are very slow to develop and cannot be observed, such as in the case of worm infection or deficiency syndrome.

### Practical Session

- i. Observe a goat and record
- ii. Rumen movement
- iii. Respiration rate
- iv. Eye color
- v. No urination in a day
- vi. Feed quantity
- vii. Milk production

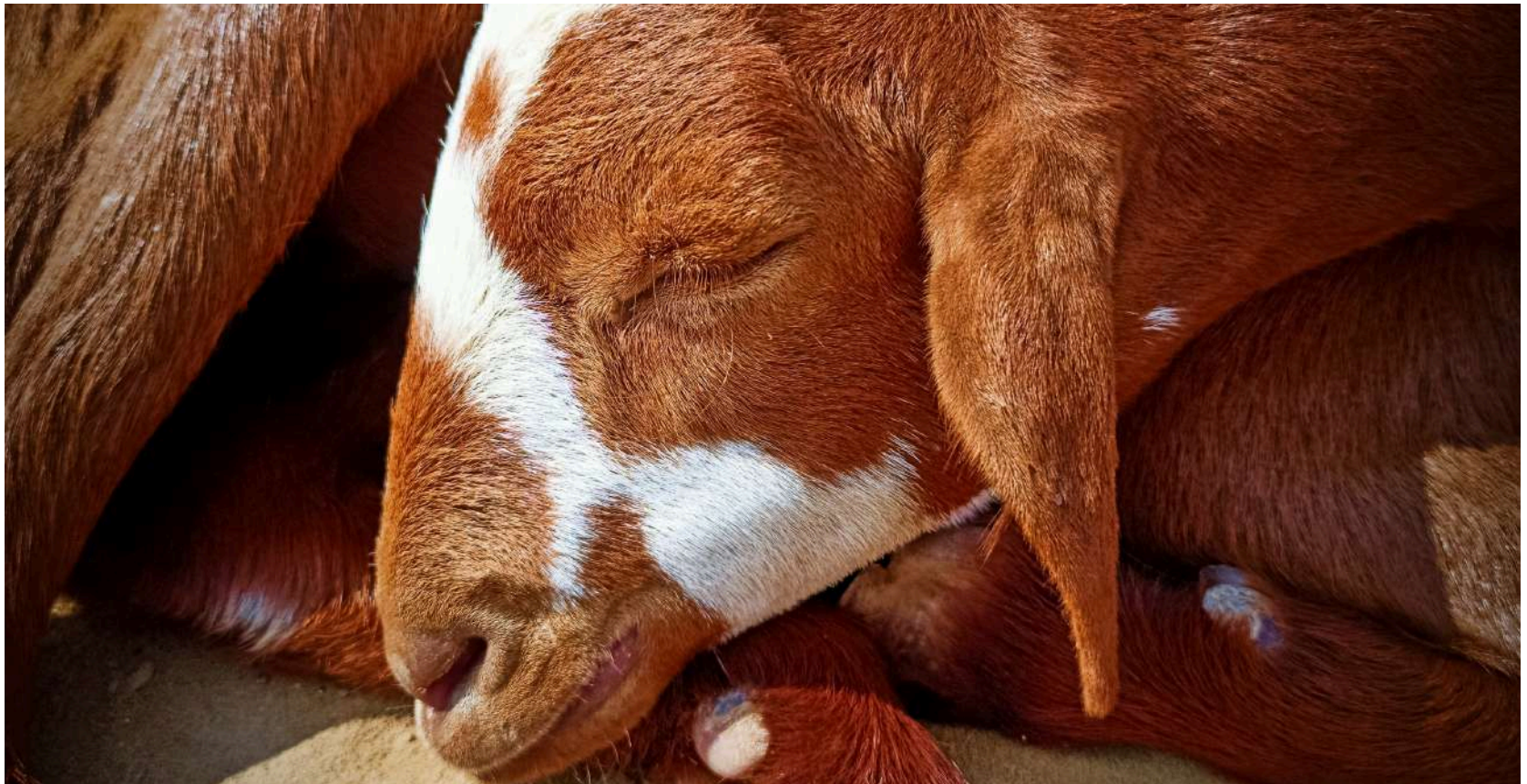
Compare the condition between healthy and sick animals.

### Discussion

- a. When to take the animals to the vet, immediately after onset, or to wait and watch? Why?

### Questions to Think Upon

- a. What are the emergency conditions, and how can they be managed? Precautions to prevent the emergency occurrence.



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A close-up photograph of a goat's face, focusing on its mouth and eyes. The goat has light-colored fur and large, dark eyes. Its mouth is severely affected by a disease, showing extensive tissue damage, including dark, necrotic areas and exposed, yellowish, fibrous material. The text "WHAT ARE THE CAUSES OF GOAT DISEASES" is overlaid in white on a red rectangular background in the upper right portion of the image.

# WHAT ARE THE CAUSES OF GOAT DISEASES



## 12. WHAT ARE THE CAUSES OF GOAT DISEASES



### Learning Objective of the Session

- Know about the different disease-causing agents of goats.

### Skills Learned After the Session

- Identification of various agents that can cause diseases in goats.

### Method of Delivery

- i. Instructor can demonstrate the various agents with pictures.
- ii. Can create a role-play of various diseases.
- iii. Can show videos of various diseases.

### Contents of Training

Diseases in goats are a major cause of production loss and mortality. Diseases also decrease the productivity of animals and increase the cost of rearing them. The farmers/paravets should know the causative agents to assess.

- Severity of infection.
- Understand the source of infection so that treatment and prevention can be done.
- Design preventive measures for future use.
- Create awareness among the goat rearers to take proper measures to control the diseases.

The diseases causing agents in goats can be classified into:

Living Organisms (Biotic)		Non-Living Factors (Abiotic)	
a	Virus	a	Heat/Fire
b	Bacteria	b	Cold
c	Fungi	c	Accidents
d	Protozoa	d	Nutritional deficiency
e	Parasites	e	Metabolic issues
f	Insects, etc.	f	Food related

### Predisposing Factors for a Disease



Figure 17- Factors for producing disease.

### The disease occurs due to various factors like –

- a. **Availability of causative agents-** The causative agents like virus bacteria are always present in the environment due to endemicity. They attack the animals when the other two factors are compromised.
- b. **Unfavourable environmental conditions-** Unfavourable environmental conditions like a change of owner, transport, heat & cold, rain, etc. can stress the goats. The stress lowers the immunity of the goats and the causative agents attack and proliferate to cause disease.
- c. **Health condition of the animals-** The poor health conditions due to nutritional deficiency or malnutrition also decreases the immunity of the goats and makes them prone to attack by disease-causing agents.

### Transfer/Spread of Disease-Causing Agents

Disease causing agents like viruses, bacteria, fungi and parasites are always present in the endemic area. They live in diseased, carrier, or reservoir animals and are carried from one place to another through various means, like:

- Air, water, food.
- Movement of carrier birds, animals with infection (direct contact).
- Inanimate objects like tools, utensils, vehicles, etc.
- Movement of infected or contaminated persons dealing with the animals.

The above disease-transferring agents must be prevented from entering the farm to prevent the infection.

### Practical Session

- a. Identification of various disease-causing agents like viruses, bacteria, parasites, etc.

### Discussion

- a. How to prevent the diseases?

### Questions to Think Upon

- a. Can robust immunity prevent the disease? How to build robust immunity?



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A close-up photograph of a goat's eye, showing the iris, pupil, and surrounding fur. The eye is framed by a red border that has a small notch at the top right corner. The background is a soft-focus view of the goat's head and fur.

# **VIRAL & MYCOPLASMA DISEASES OF GOATS**

## 13. VIRAL & MYCOPLASMA DISEASES OF GOATS

### Learning Objective of the Session

- To know the signs, symptoms, preventions, and treatments of various viral diseases in goats.
- To understand the severity of an infection to estimate the losses.

### Skills Learned After the Session

- Diseases identification.

### Method of Delivery



The instructor can use the following to help the trainees understand:

- Appropriate pictures and videos of the disease conditions.
- The experienced farmers can narrate the story of similar outbreaks in the village, and the instructor can help the trainees to understand the signs and symptoms.

### Contents of Training

The common viral diseases of goats are -

#### A. Peste des Petits Ruminants (PPR)

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The disease starts with high fever, animals become depressed, with discharge from eyes and nose. There are also signs of laboured breathing, severe diarrhoea. In the later stage the animals become weak and crusty lesions appear in eyes, lips, and nose.	The red raw mucosal erosions are found in the mouth mucosa, lips, tongue etc. The goat is almost dehydrated and in bony condition.	The disease can be identified by its clinical signs as well as severity. The lab diagnosis always preferred for confirmation.	There is no specific treatment.  The vaccination in endemic area. The young animals must be targeted.
<div>   </div> <div> <p>Figure 18- Lesions in PPR</p> <p>Figure 19- Goat dehydrated with diarrhoea</p> </div>			





The disease is also called goat plague due to its high severity and mortality. The disease is caused by a virus called Paramyxovirus. The PPR is responsible for the highest mortality in the herd. The disease infects goats and sheep.

The older animals have immunity from the survival of the first infection, and the young ones have immunity from colostrum.

**Seasons-** A high spread of infection occurs in heavy rains or in the winter season.

**B. Goat Pox**

Goat pox is another goat disease that is commonly found in India. The disease is caused by a virus (Parapoxvirus). The virus spreads through close contact and abrasions.

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The disease starts with high fever, with nasal discharge and conjunctivitis. The goat goes off feed. The lesions start developing with red circular lesions with popular growth. The lesions change to crusty lesions and remains for 4-6 weeks. There are also signs of severe diarrhoea.	The goat appears dry and dehydrated with round crusty lesions on the skin.	The disease can be identified by its clinical signs as well as severity. The lab diagnosis always preferred for confirmation.	There is no specific treatment.  The vaccination in endemic area. The young animals must be targeted.
 <p>© Passing Gifts</p>		 <p>© Passing Gifts</p>	
Figure 20- Pox lesions in goats			

**C. Orf/Contagious Ecthyma**

The Orf or Contagious ecthyma is a common disease of goats, characterized by pustular swellings on the lips and around the mouth. The Parapox virus also causes the disease. The virus is shaded in the crusts of the lesions and remains in the soil for many months. So, changing the floor soil every 2-3 months is advisable.

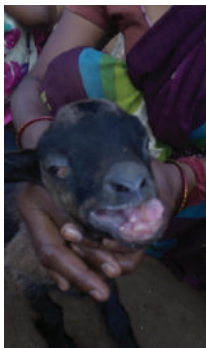

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The disease starts with fever and in 2-3 days pustular and scabby lesions appear around the mouth. The lesions can also be found in other parts of body like udder, foot etc. The lesions grow like swelling on the lips.	The pustular signs on the lips and nostrils. Ulcers in nose. Swelling of intestine.	The disease can be identified by its clinical signs. Must be differentiated from pox in which lesions are round and flat.	There is no specific treatment.  Application of antiseptic cream, and povidone iodine can help.  Application of lime on floor and change of floor soil is beneficial.
 © Passing Gifts		 © Passing Gifts	

Figure 21-Orf lesions

#### D. Foot & Mouth Disease in Goats

This disease is also caused by a virus, but rarely diagnosed and observed in field conditions.(Parapoxvirus). The virus spreads through close contact and abrasions.

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The disease starts with high fever, drooling of saliva. There are necrotic lesions on nose and foot area. The goats are unable walk and take feed.	Necrotic lesions in mouth, intestine, stomach.	The disease can be identified by its clinical signs.	There is no specific treatment. Treatment with antibiotics and supportive medicines under the guidance of veterinary doctor.  Application of antiseptic cream, and povidone iodine on wounds can help.  Vaccination for FMD can be done in endemic areas.





### E. Disease Caused by Mycoplasma

The mycoplasma are also small organisms that cause severe forms of pneumonia (Pleuropneumonia). The disease usually goes unnoticed due to the unavailability of diagnosis.

### Practical Session

- a. Visit the village to identify the sick goats and record the signs.

### Discussion

- a. How can we break the spread of a disease?
- b. What is the role of colostrum in preventing viral diseases?

### Questions to Think Upon

- a. How good care at birth help to prevent viral diseases?



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# UNDERSTANDING THE BACTERIAL DISEASES IN GOATS



## 14. UNDERSTANDING THE BACTERIAL DISEASES IN GOATS



### Learning Objective of the Session

- To know the signs, symptoms, preventions, and treatment of various bacterial diseases in goats.
- To understand the severity of an infection to estimate the losses.

### Skills Learned After the Session

- Disease identification

### Method of Delivery

To make the trainees understand, the instructor can take help of the following:

- i. Appropriate pictures and videos of the disease conditions.
- ii. The experienced farmers can narrate the story of similar outbreaks in the village and the instructor can help the trainees to understand the signs and symptoms.

### A. E. Coli infection

*Escherichia Coli* is a type of bacteria, which is usually present everywhere in the environment, but their number is higher in dirty places. The kids easily get infected by licking or through the raw umbilical cord at birth. The bacteria produces a type of toxin in the body and causes severe diarrhoea and death.



© Passing Gifts

Figure 23- Abortion in Goats

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The disease affects the young ones, it starts with mild fever and diarrhoea. The diarrhoea sometimes gets converted to dysentery. The joints are also infected and swollen. The kids look depressed and dehydrated.	There are signs of swelling in intestine, and dehydrated carcass of kids.	The disease diagnosis is tough, but a tentative diagnosis can be done with the help of signs of diarrhoea.	There is no specific treatment.  Management of diarrhoea, and infection is to be done.  Keep the kids in clean and hygienic place and provide iodine treatment to umbilical cord at birth.

## B. Brucellosis

Brucellosis is also severe diseases, that cause large-scale abortions in goats. It is caused by a bacteria called as *Brucella melitensis*, the disease is of zoonotic importance as it gets infected to humans also.

The infected goats abort in the last 2 months of pregnancy and usually, multiple abortions are observed in the area at the same time. The bacteria are shed in milk, faeces, urine, and vaginal discharge (for 2-3 months). The bacteria easily enter the body through the oral route.

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The disease starts with mild fever and non-specific signs of anorexia, and indigestion. The abortion happens if the environmental condition is very stressful, or there is nutritional deficiency.	There are swelling of placenta with blood points. The foetal skins also have blood spots, and the skin is thin.	The disease can be identified by its clinical signs of large-scale abortion. It's advised to get the laboratory diagnosis for confirmation.	There is no specific treatment.  The female kids need to be vaccinated at the age of 3-6 months.

## Symptoms in Human Beings

The humans get infected by handling the abortion cases and dystocia cases or placenta. The disease also spread with infected meat and milk. The signs in humans are intermittent fever, joint swelling, and infertility

## C. Tetanus

Tetanus in goats is caused by a bacterium called *Clostridium tetani*, which is usually present everywhere in the soil and the goat's rumen. The goats get infections through unmanaged wounds like cuts, surgeries, etc. The bacteria grow and multiply once there is stress or nutritional deficiency. It produces a toxin while growing, which causes contraction of the muscles.



© Passing Gifts

Figure 24- Tetanus in goats.

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The disease starts with fever and the goats become alert and anxious, sometimes bloat is also there, the goats take a stiff gait, with both forward and backward movements, it fell on the ground with stretched head, erected ear and tail, and dilated pupil.	There are no specific findings on postmortem.	The diagnosis can be done on the typical clinical symptoms.	There tetanus can be treated with antibiotics and antiserum by the vets.  Tetanus Toxoid to kids (250-300 IU) and adults (500 IU) in late pregnancy. Enterotoxaemia and Tetanus (ET+TT) vaccine



## D. Enterotoxaemia (ET)

This is also a fatal disease in goats caused by *Clostridium perfringens*, which is usually present in the rumen and grows when there is sudden engorgement with feed. There is a high onset of the disease when there is a high consumption of lush green feed or a sudden change in feed.

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The disease is acute, and goats are found dead on the pasture field. The disease starts with fever 105 °F, severe swelling of stomach and pain. The goats start beating and kicking at belly before death.	The kidneys are swollen (Pulpy).	The disease can be identified by its clinical signs.	There is no specific treatment.  The goats must be vaccinated with the ET vaccine annually.

## E. Anthrax

This is also an important disease caused by a bacteria (*Bacillus anthracis*) in some of the endemic areas. There is a sudden onset of disease with high mortality. The dying animals will have oozing of blood from all the body openings. The disease of zoonotic importance as it spreads to human beings also. The disease can be controlled by vaccination against the anthrax in the endemic areas.

## F. Coccidiosis in Goats

The infection with coccidia is common in goats reared in unhygienic conditions. The signs of coccidiosis are diarrhoea and dysentery with less feed intake. The conditions are prevalent, such as a mixed infection with bacteria and worms. The coccidia can be treated with anti-coccidial drugs like Amprolium.

## Practical Session

- Visit the village to identify the sick goats and record the signs.

## Discussion

- Which is the most common disease infection in your area?

## Questions to Think Upon

- Is the bacterial or viral disease coming alone or as a mixed infection?





# UNDERSTANDING FUNGAL DISEASES IN GOATS



# 15. UNDERSTANDING FUNGAL DISEASES IN GOATS



## Learning Objective of the Session

- To know the signs, symptoms, preventions, and treatments of various fungal diseases in goats.
- To understand the severity of an infection to estimate the losses.

## Skills Learned After the Session

- Disease identification

## Method of Delivery

To make the trainees understand, the instructor can take help of the following:

- Appropriate pictures and videos of the disease conditions.
- The experienced farmers can narrate the story of similar outbreaks in the village and the instructor can help the trainees to understand.

## Contents of Training

The fungal infections are not very common in goats unless they are reared in highly humid areas. The fungus grows when there is nutritional deficiency and the goat is weak.

### A. Ringworm

There are a variety of fungi that are responsible for the skin infection.



Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
The signs of fungal infections are round, crusty with hair loss.	No specific signs Only skin lesions are visible.	The disease can be identified by its clinical signs.	The topical application of antifungal ointment will help along with vitamins.  The goats must be kept in clean dry area.
 <p>© Passing Gifts</p>		 <p>© Passing Gifts</p>	

Figure 25- Fungal infection in goats

### Practical Session

- a. Observe and identify various skin lesions of goats.

### Discussion

- a. How does a skin lesion affect the growth of a goat?

### Questions to Think Upon

- a. What are the home-made remedies for the fungal treatment of goats?



Source: Stock Image





# DIGESTION, METABOLIC AND NUTRITIONAL DEFICIENCY IN GOATS

## 16. DIGESTION, METABOLIC AND NUTRITIONAL DEFICIENCY IN GOATS



### Learning Objective of the Session

- To know the signs, symptoms, preventions and treatment of various digestion-related issues in goats.
- To understand the severity of an infection to estimate the losses.

### Skills Learned After the Session

- Diseases identification

### Method of Delivery

To make the trainees understand, the instructor can take help of the following:

- i. Appropriate pictures and videos of the disease conditions.
- ii. The experienced farmers can narrate the story of similar outbreaks in the village and the instructor can help the trainees to understand the signs and symptoms.

### Contents of Training

#### Digestion Related Issues

The digestion related issues are non-specific and happen when there is a change in feed, nutritional deficiency and disorders of liver and stomach. The various issues related to digestion are -

Symptoms	Postmortem Signs	Diagnosis	Treatment & Preventions
Anorexia	Not interested in grazing, body temperature is normal, the goat prefers to stand at one place.	Anorexia is first symptom of many diseases, it can occur due to vitamin deficiency, worms, liver disorders, poor feed.	The goats must be supplied with minerals, vitamins, and herbal powders for improving appetite.
Low Feed Intake	Low feed intake, and the goat is getting weak day by day, body temperature is normal.	Worms' infestation, poor quality feed, liver disorders, nutritional deficiency	
Bloat	The left side of stomach is distended with gas and fluid, goat is dull and depressed, in later stage diarrhoea.	Feeding of high volume of easily fermentable carbohydrates like rice, flour etc	Must be treated immediately with sodium bicarbonate powder or liquid.
Acidosis	The left side of stomach is distended with gas and fluid, goat is dull and depressed, in later stage diarrhoea.	feeding of high volume of easily fermentable carbohydrates like rice, flour etc	Must be treated immediately with sodium bicarbonate powder or liquid. Delayed treatment may cause death of animal.



Diarrhoea & Dysentery	<p>Passing of loose stools, when mixed with blood it is called as dysentery.</p> <p>The goat is weak and dehydrated in few hours.</p>	<p>Diarrhoea happens in some of the viral, bacterial, and protozoal infections. It also happens in worms, acidosis, and stale feed intake.</p>	Must be treated with herbal preparations and antibiotics.
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## Metabolic Diseases

The metabolic diseases happen when there is an imbalance of feeding based on body requirements. The body tries to compensate for the loss of nutrition through body reserve and develops other conditions.

Name of Condition	Signs/Symptoms	Possible cause	Treatment & Preventions
Ketosis	<p>The goats become weak &amp; bony condition, eyes are dull and reject any type of concentrates. The dung pellets are black and constipated.</p>	The ketosis happens in advanced pregnant goats and early months of lactation, due to underfeeding of feed in the last pregnancy and sometimes overfeeding.	<p>Require critical care support, feed balancing and treatment with propylene glycol 60space 2-3 times daily till recovery.</p>

## Nutritional Deficiency

A goat's body requires various macro and micro minerals in small quantities for their body functioning and growth. These minerals are supplied through the feed, and if the feed is deficient in these minerals, the deficiency happens in goats as well.

A goat's stomach/body produces almost all types of vitamins, and the deficiency only happens in disease conditions and off-feed conditions.

Name of Condition	Signs/Symptoms	Treatment & Preventions
Vitamin A Deficiency	Vitamin A deficiency is associated with dry lustreless skin, dull and depressed goat, problems with vision & infertility. The young kids are lethargic and poor in growth.	Requires Multivitamins and mineral supplementation to goats.
Calcium Deficiency	Calcium deficiency cause poor muscular function and growth, the kids become stunted, and weak bones.	

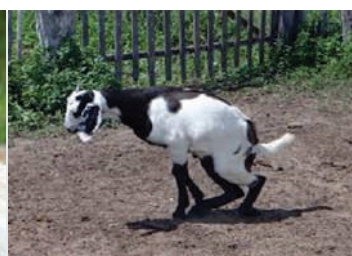
Phosphorus Deficiency	Phosphorus deficiency symptoms are like calcium, but the goats develop “pica”, eating of anything other than food.	Requires Multivitamins and mineral supplementation to goats.
Copper Deficiency	Copper deficiency is associated with hair texture and colour, there is discoloration of skin hairs, impaired nerve functions, alopecia around eyes and tail (fish tail), etc	
Zinc Deficiency	Zinc deficiency cause hyper keratinisation of skin	
Cobalt Deficiency	Cause anaemia	
Iron Deficiency	Cause anaemia	



Calcium Deficiency in kids (Stunted Growth)



Phosphorous deficiency (pica)



Sway Back Posture in Copper Deficiency

© Passing Gifts



Spectacled Eye in Copper Deficiency



Anaemia in Copper and Iron Deficiency



Vitamin A and nutritional deficiency-Birth of weak kids



Skin Problem in Zinc Deficiency

© Passing Gifts

## Practical Session

- Examine the goats for any signs of deficiency during the field visit.

## Discussion

- How does the mineral and vitamin deficiency happen in goats?

## Questions to think Upon

- How does a goat prepare all the required vitamins inside the body?





# MANAGING MINOR WOUND, ABSCESS, FRACTURE AND DOG BITE CASES

## 17. MANAGING MINOR WOUND, ABSCESS, FRACTURE AND DOG BITE CASES



### Learning Objective of the Session

- To know the various conditions that develop due to physical abuse to the goat's body.
- To understand the severity of infection to estimate the losses and take proper care.

### Skills Learned After the Session

- Identification and management of the conditions.




### Method of Delivery

The instructor can take the help of following for the understanding of the trainees:

- Appropriate pictures and videos of the disease conditions.
- The instructor can demonstrate the management of wounds and abscesses during the field visits.

### Contents of Training

The goats suffer from physical abuse due to accidents, fighting, or willful damage by the animals or humans. The blow or cut to the body of goats develops into a wound if not managed or treated. The various conditions observed in the field conditions are:

Name of Condition	Details (Cause & Symptoms)	Treatment or Management	Picture
Abscess	The abscess is closed wound filled with pus, seen as soft swelling on the body.	Requires veterinary care and support, any opening may	 © Passing Gifts
Open Wound with Maggots	The cut or bruise in the body get infected with the flies and maggots develop. Common in case of goat's vaginal area after abortion or birth.	It requires cleaning and removal of maggots. The para-vets must apply proper antibacterial lotion regularly till recovery. Must apply terpene oil to remove maggots and repel flies.	 © Passing Gifts
Cuts	These are internal wound caused by blunt objects.	If the size of cut wound is large, it must be sutured. Apply antiseptics till healing.	
Bruise	The fracture of any bones can happen due to accidents.	Require proper immobilisation if it is on bones. Painkillers and rest will be required.	
Fracture Dog Bite Cases	The stray dogs bite the grazing goats.	Require proper immobilisation and veterinary care.  Require veterinary care, treatment of wound and post bite vaccination on 0,3,7,14 & 28 days.	 © Passing Gifts



### Practical Session

- a. Observe the type of wounds in goats during field visit.

### Discussion

- a. How can we prevent the dog bite cases in the area?

### Questions to Think Upon

- a. What herbal preparations can be used on wounds in rural area?



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# MANAGING WORMS IN GOATS





## 18. MANAGING WORMS IN GOATS



### Learning Objective of the Session

- Understanding of different types of worm infestations in goats.
- Know the different deworming methods.

### Skills Learned After the Session

- Identification of different types of worms in goats.
- Diagnosis of goats with worm infestation.
- Identification of different types of medicines used and their dosage in goats.
- Deworming of goats.

### Method of Delivery

- i. Demonstration of worms in goats through different signs and symptoms.
- ii. Result demonstration through deworming of goats.
- iii. Story narration about the impact of deworming.

### Content of Training

#### What is Parasite?

The parasites are the organisms that stay on other animal's bodies either inside or outside and they feed and reproduce on the animal's body.

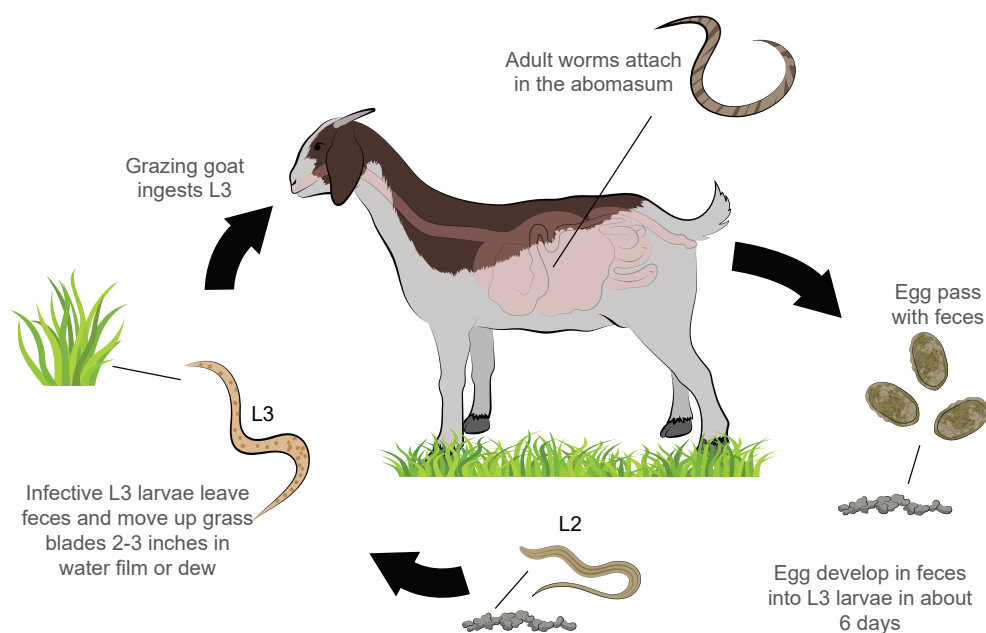


Figure 26- Roundworm life cycle in a goat (Source- Victoria Farmers Fed)

## Types of Internal Parasites in Goats

There are three types of internal parasites in the goat body.

- i. **Roundworms** they are like **small snake**- like worms with a mouth sucker at one end. Their size varies from a few millimetres to centimetres. They attach themselves to the walls of internal organs and suck the blood/plasma and nutrients. They damage the animal's body by sucking the blood and nutrients.
- ii. **Flat Leaf-like Worms**- These worms are flat-leaf-like and penetrate the organs' tissues. They damage the organs by migrating, moving and sucking, and feeding on them.
- iii. **Tapeworms**- They have a head that attaches itself to the intestine wall and have a long-segmented body. They damage the body by sucking blood, and sometimes, their eggs migrate to other parts of the body and develop into cysts. In goats, the “circling disease” is most common, which is caused by the cyst of tapeworms in brain.

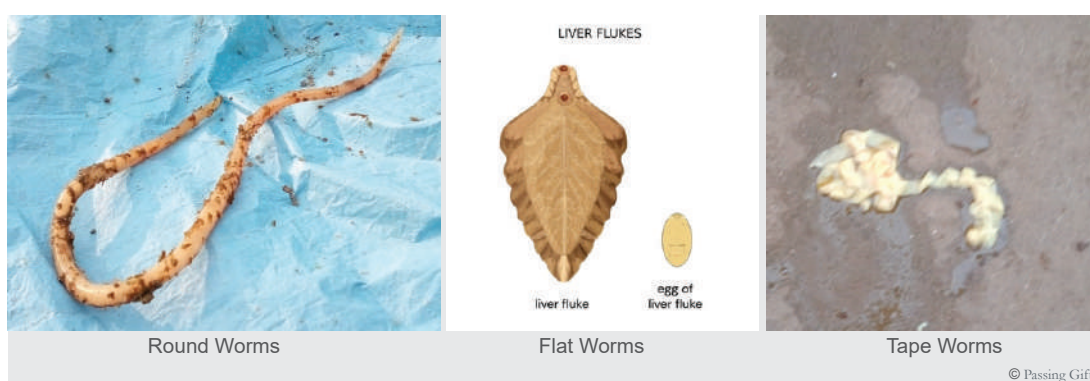


Figure 27- Internal Parasites of Goats

## Seasonality of Infection of Parasites

There is seasonality in worm infestations, such as the flukes, which are more prevalent in floods and after floods, as their life cycle depends on snails.

Roundworm infestation is common in winter.



Figure 28- Kid infested with worms.

## Predisposing Factors for Worm Infestation

There are some of the factors that predispose goats to heavy worm infestation are:

- i. Nutritional deficiency makes the goats weak, and immunity is less and predisposes them to worm infestation.
- ii. The deficiency of minerals like copper makes the animals prone to worm infestation.
- iii. Young ones graze in contaminated grasslands.
- iv. Grazing in contaminated land with human feces makes them prone to tapeworm infestations.
- v. Grazing near the water sources makes them prone to fluke infections.
- vi. The underdosing of deworming drugs makes the worms resistant to medicine, increasing their number.

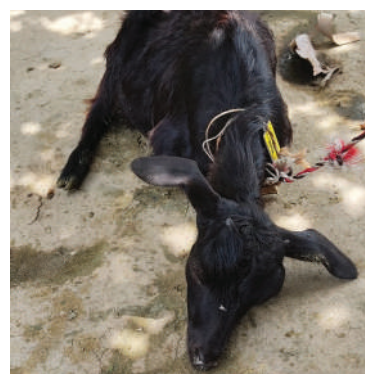


Figure 29- A goat infested by Worms.



## Damage Caused by Parasites

The internal parasites stay in the body's organs and tissues and damage the body by cutting, sucking blood, migrating in the tissues, and causing damage. Some parasitic cysts migrate through the blood and sit in the brain, causing epileptic seizures and gid.

- i. It decreases the production of goat meat and lifetime productivity.
- ii. The animals become weak and prone to any disease infection.
- iii. The mother goat becomes weak and are unable to come in heat and conceive.
- iv. The kids become lethargic and weak and may die at an early age.

## Management of Internal Parasites

The use of drugs is the way to get rid of internal parasites. The deworming schedule to be followed for goats are:

S.No	Dose	Age
1	First Dose to Kids	The kids should be dewormed first at the age of 25-30 days.
2	Second Dose to Kids	Every months till 3 months
3	Annual Doses	Deworming is to be done at least twice in a year Once before rain (March-April) and other after rain. (Sept-Oct)

## Precautions for Deworming

- i. The deworming drug should be changed every time.
- ii. There are drugs to deworm the pregnant animals.
- iii. The deworming should be done before vaccination.
- iv. The deworming drugs should be selected under the guidance of veterinary doctors.
- v. The deworming should be done under the guidance of a vet or paravet.

## Practical Session

- a. Identification of goats with worm infestation.
- b. Deworming of drugs through drugs.

## Discussion

- a. Calculate the cost benefits of medicines and economic benefits of dewormings.

## Questions to Think Upon

- a. How to prevent worm infestations at farm?

A photograph of a brown goat with a red collar, lying on a concrete surface. The goat is facing left, and its head is turned slightly towards the camera. The background is a blurred, sandy or dusty area. A red rectangular overlay is positioned on the right side of the image, containing the title text.

# MANAGING PROBLEMS OF ECTO PARASITES



## 19. MANAGING PROBLEMS OF ECTO PARASITES



### Learning Objective of the Session

- Understanding of different types of insects' infestation on goats.
- Know the different methods to control the external parasites.

### Skills Learned After the Session

- Identification of different types of external parasites on goats.
- Identification of different types of drugs used and their dosage in goats.
- Treatment for external parasites on goats.

### Method of Delivery

- i. Demonstration of external parasites on goats through different signs and symptoms.
- ii. Result demonstration through the usage of drugs.
- iii. Story narration about the impact of external parasite control.

### Content of Training

#### What is Parasite?

Parasites are the organisms that stay on the other animal's bodies either inside or outside and they feed and reproduce on the animals's body.

#### Types of External Parasites of Goats

The different types of external parasites commonly found on the goat body are:

- i. **Lice-** They are small insects of less than 2 mm length; they move in the hairs of goats and suck on the blood and tissue. They cause irritation and itching.
- ii. **Ticks-** They are small flat insects with 3 (larvae) to 4 pairs of legs, and they also suck the blood from soft area.
- iii. **Fleas-** The fleas are flat spring like insects jumping in the hairs of goats.
- iv. **Mites-** They are very fine insects less than 0.1mm and not visible by naked eye. They also feed upon the tissues of skin causing skin inflammation.



Ticks



Fleas

© Passing Gifts



Types of Mites in Goats

© Passing Gifts



Figure 30- External Parasites of goats.

© Passing Gifts

## Types of Lice in Goat

## Seasonality of Infection of Parasites

As the insects move from body to body and cannot live without host body, so in winter seasons they spread fast, when the goats sit together.

## Predisposing Factors

The factors that are responsible for the spread of external parasite infestation are:

- i. Poor quality shed give breeding place for the parasites,
- ii. Also overcrowding or less space per animal spreads the infection fast.
- iii. In winters, the animals sit closer, so they facilitate the spread of parasites.
- iv. Weak animals are more prone to parasite infestation.

## Damage Caused by the Parasites

The external parasites also feed on the tissues and blood by biting and scratching. The parasites cause irritation and itching.



Figure 31- Mange infestation in kids.

© Passing Gifts



## Management of External Parasites

The goat skin gets infested with ticks, lice, mites and flies. The external parasites keep annoying the animals while feeding, sleeping and sitting. Some parasites suck the blood and inject poisons/toxins into the body.

The process to minimise and prevent the menace of external parasites are:

- a. Clean the vegetation and shrubs around the farm.
- b. No open drains around the farm, which attracts flies.
- c. The goats should not be mixed with sheep and dogs, which move extensively.
- d. The inner walls of the shed should be plastered and painted at least 4 feet above the ground. The ticks lay eggs in the wall cracks.
- e. If the infestation is very high, use the following:
  - Clean all the animals of the farm with 1ml of cypermethrin (10%) per litre of water. Usually, it requires 10 litres of water to soak the goat. After soaking, keep the animals in wet condition for 30 minutes and then wash them.
  - Use the same chemical 20ml/ltr and spray to all the corners of the house. It is better to soak the walls below 4 feet along with the floors.
  - Both the activities are to be done on the same day.
  - The drug is quite safe, but avoid licking of wet body and drinking of medicated water. The animal should be provided with clean water before treatment.
- f. Some of the household materials are also effective on the ectoparasites, with good safety, some of the examples are:
  - Use mustard oil cake soaked in water to make a paste to clean the animals. This removes the ticks with 2-3 times cleaning. It also improves the skin's hair shine and texture.
  - The common plants used for removing ectoparasites are Neem, Gulvel and Nirgundi. They can be used in combination or individual paste soaked in water to wash the animals. They are quite safe.
  - The feeding of 10 grams of garlic to goats gives encouraging results in tick control.
  - Soak a few tobacco leaves in water overnight & wash the animal the next day. Repeating the same over a fortnight gives good results.
  - One may apply the ash from the burnt wood. It could also be mixed with some camphor for better results.

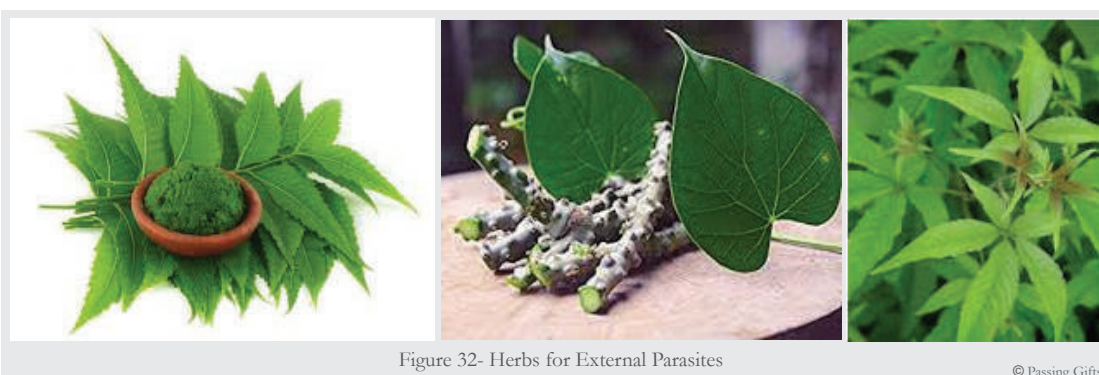


Figure 32- Herbs for External Parasites

© Passing Gifts

### Practical Session

- a. Identify different external parasites of goats

### Discussion

- a. What are the damages caused by an external parasite?

### Questions to Think Upon

- How can we control the external parasites by home remedies?







# VACCINATION & DEWORMING SCHEDULE

## 20. VACCINATION & DEWORMING SCHEDULE



### Learning Objective of the Session

- Understand the importance of vaccination in goats.
- Schedules to be followed for deworming and vaccination

### Skills Learned After the Session

- How to deworm and vaccinate the animals.

### Method of Delivery

- i. Demonstration of dilution of vaccine and conducting vaccination in goats.

### Content of Training

#### Vaccination of Goats

The vaccination of goats helps in the development of immunity in the body and it protect the goats from natural infection of the disease. The vaccination needs to be done under the guidance of vets and paravets.

The vaccination schedules for goats are:

S.No	Disease	First Dose	Repeat/ Booster	Subsequent
1	PPR	4 months and above	After 1 months	Annually
2	ET	3 Months and above	-	Annually (Before monsoon)
3	HS (Hemorrhagic Septicemia)	4 months and above (Only in epidemic area)	-	Annually
4	Brucellosis	4 months and above to only female calve	-	Once in life
5	Goat Pox	4 Months	After 1 months	Annually in epidemic area.

### Precautions During Vaccination

- a. The animals must be dewormed before any type of vaccination.
- b. The vaccination is to be done under the guidance of vets/paravets.
- c. The farmers should ask for vaccines for those diseases that are reported in that particluar area.
- d. The vaccination can be done around the year, but the farmers should avoid the following months with heavy rainfall, hot weather, cold, floods, etc.
- e. The ideal time for vaccination is when the animal is happy and is stress free.



## Practical Session

- a. Vaccination of goats.

## Discussion

- a. What precautions should be taken during vaccination for cold chain?

## Questions to Think Upon

- i. What are the vaccines to be done in your area?





A photograph of a brown goat standing in a dirt yard. In the background, there is a wooden building with a staircase. The image is framed by a red border. A red rectangular box is overlaid on the right side of the image, containing the text "PRODUCTION OF GOOD QUALITY MEAT" in white capital letters.

# PRODUCTION OF GOOD QUALITY MEAT



## 21. PRODUCTION OF GOOD QUALITY MEAT



### a. Learning Objective of the Session

1. How to raise meat goats.

### b. Skills Learned After the Session

1. Weighting, identification of good meat goats.

### c. Method of Delivery

- d. Field demonstrations.

### e. Content of Training

The goats are reared for milk and meat production. Goat meat is preferred meat in India over other meats and it fetches a premium price. The production of goats for meat is easiest, and depending upon breed, the animals are ready for sale after attaining a certain body weight.

There is a wide variety of preferences for goat meat, and the different products in the market are:

1. Non-castrated mature male goat meat
2. Castrated male mature goat meat
3. Any sex's goat meat

Castrated goat meat is the most preferred and has high demand in almost all of the states. The non-castrated bucks are preferred for ritual purposes, and are in good demand in Maharashtra.

The goats preferred in Bakri eid, an Islamic festival, should be free from any faults/blemish, etc. It should have a beautiful erect healthy body and should be active. The price of Bakri eid goat depends on the body weight, body shape, body colour and attractiveness of the buck. The Bakri eid goat raisers feed a lot of grains and pulses for good muscle development.

Usually, the farmers rear goats to sell the castrated male to local markets in case of emergency. The Black Bengal goat breed reared in the eastern part of India attains a body weight of 15 kilograms at the age of 9-10 months.

The farmer needs to adopt the following strategies to have better productivity and good profits:

- a. The care and management of male kids starts before their birth. The good care and management of pregnant goats increases the birth weight of kids, which attains market weight early.
- b. After birth, the kids should be provided with naval cord treatment, colostrum and warmth to protect them from diseases.



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Figure 33- A mature black Bengal goat for sale.

- c. The kid should be fed on mother's milk for 30 days and a few grams of crushed grain should start at the age of 25 days.
- d. The male kids should be castrated at the age of 6-7 weeks.
- e. The male and female kids should be separated at the age of 3 months and reared in different groups.
- f. The growing male kids should get sufficient space (9 sq. ft./kid), and space to play, climb and jump.
- g. Along with grazing and sufficient tree leaves, they should get 40-50gram per day of concentrate after 3 months for good growth.
- h. After attaining the age of 15-18 kilograms, the goat should be sold to market. Keeping the animals for more days increases the cost of production and the weight gain is less.

### Practical Session

- a. Identification and weighing of market animals.

### Discussion

- a. Cost benefits of holding the goats after attaining market weight.

### Questions to Think Upon

- a. Can we improve the meat quality of goats through proper feeding?



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A young boy with dark hair and a light blue shirt stands behind three goats in a grassy field. The goats are of different colors: a small brown one on the left, a black one in the middle, and a white one with black spots on the right. The background is a soft-focus landscape with green foliage and a hint of a rainbow in the sky. A red geometric border frames the right side of the image.

# SERVICES REQUIRED FOR GOAT FARMING

## 22. SERVICES REQUIRED FOR GOAT FARMING



### Learning Objective of the Session

- The farmer should know what services will be required on the farm.
- Why the different services are important for the farm?

### Skills Learned After the Session

- Managing insurance, vet consultancy, etc.

### Method of Delivery

- i. The instructor should demonstrate the different services required on a farm during visits.

### Content of Training

The farmers keep just a few goats at their house and they are unaware of the services available for them. There is also a belief that the services are costly, so they prefer local medication in case of any disease. Nowadays, the Pashusakhi/Pranimitra/A-Help Workers are being trained by different agencies in the village to provide primary veterinary care and extension services at the doorstep. They are important in knowledge dissemination and providing other information. The goat farmers can look for the following services in their area:

**Insurance of Animals-** The service is provided by the insurance company, with the help of a local veterinary doctor. The features of goat insurance are:

- The goat of age 9 months and above can be insured.
- The premium is around 10.5% of the value, excluding GST for three years.
- There is no claim period for the initial 15 days, after paying the premium.
- The tagging is compulsory, the tag needs to be submitted at the time of claim. If there is no tag, there is no claim.
- A photograph of goat is required, with a visible tag number.
- The insurance proposal needs to be filled out by the insurance agent, correctly and signed.
- The insurance company issues a policy document within 2-3 days of receipt of the documents

Almost all General Insurance Companies provide goat insurance.

**Financial Support-** The small farmers need some financial support to introduce new animals in the herd. Since the cost of goat is very low, it can be managed through SHG financing.

**Paravets/Pashusakhi Services-** The paravet services are required for the first aid, deworming and vaccination. The trained paravets are available at government clinics. In case the animal is not responding to the treatment by Paravet, it should be immediately rushed to the veterinary doctor.

The Pashusakhi, if available, is also trained in providing minor veterinary services and they can link the case to paravets and veterinary doctors. Sometimes, a timely action saves the herd and animals.



**Veterinary Support-** Veterinary support is required in case of animals not being in proper condition. The government veterinary hospitals to be contacted for the services.

### Practical Session

- a. Doing insurance and understanding about different documents required.
- b. What records need to be maintained.

### Discussion

- a. Quality of good service provider.

### Questions to Think Upon

- a. How to operate a farm without service providers in the area?-



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A photograph showing a person's arm holding a white sack, pouring a pile of dry straw or hay into a larger yellow sack. The yellow sack is already partially filled with dark, rich compost. The scene is outdoors, with green plants and a stone path visible in the background.

# COMPOSTING



## 23. COMPOSTING



### Learning Objective of the Session

- How to manage the goat shed waste?

### Skills Learned After the Session

- Composting technique.

### Method of Delivery

- i. Demonstration in field.

### Content of Training

The goat shed produces a good amount of waste, which needs to be stored and converted into compost. The goat droppings are dry and odourless, so they can easily be collected and stored. Since they are selective feeders, a lot of feed and fodder is rejected, which needs to be decomposed to compost. The goat droppings contain lots of microorganisms, as they release lots of heat and may burn the plant roots, if applied directly. The use of compost and manure in the field is like returning the nutrients to the soil, after productive use.

### Advantages of Using Compost in Field

- The compost enriches the soil with organic nitrogen, phosphorus, etc.
- It loosens the soil for aeration.
- It improves the soil structure and water-holding capacity.
- It favours the growth of useful microbes in soil.
- It helps in the decomposition of other organic materials and the formation of humous.

### Steps in Composting & Duration Required

The composting for goat waste requires both air and without air process, as there is less water content.

The steps in composting are:

- a. Select a pit of desirable length (10-15ft), breadth (4-5ft) and depth, which should not be more than 90cm. The length and breadth depends on the number of animals and the space available to the farmer.
- b. The pit must be cemented and have a slope so that waterlogging can be prevented.
- c. The waste from the goat shed is mixed with urine, droppings and rejected leaves. The leaves need to be separated from the branches. It can be directly filled into the pit.
- d. There will be requirement of sprinkling water to have 50-60% humidity in the pit.
- e. The goat droppings can also be mixed with waste of other animals for composting.
- f. After complete filling, the pit should be closed to make it air-tight.
- g. After 40 days, the pit can be opened and compost should be turned to start the decomposition with air.
- h. The compost will be ready in 70-90 days. The process is faster in summers and slower in winters.

## Practical Session

- Steps in composting and waste disposal area.

## Discussion

- What is the disadvantage of applying fresh manure to the field?

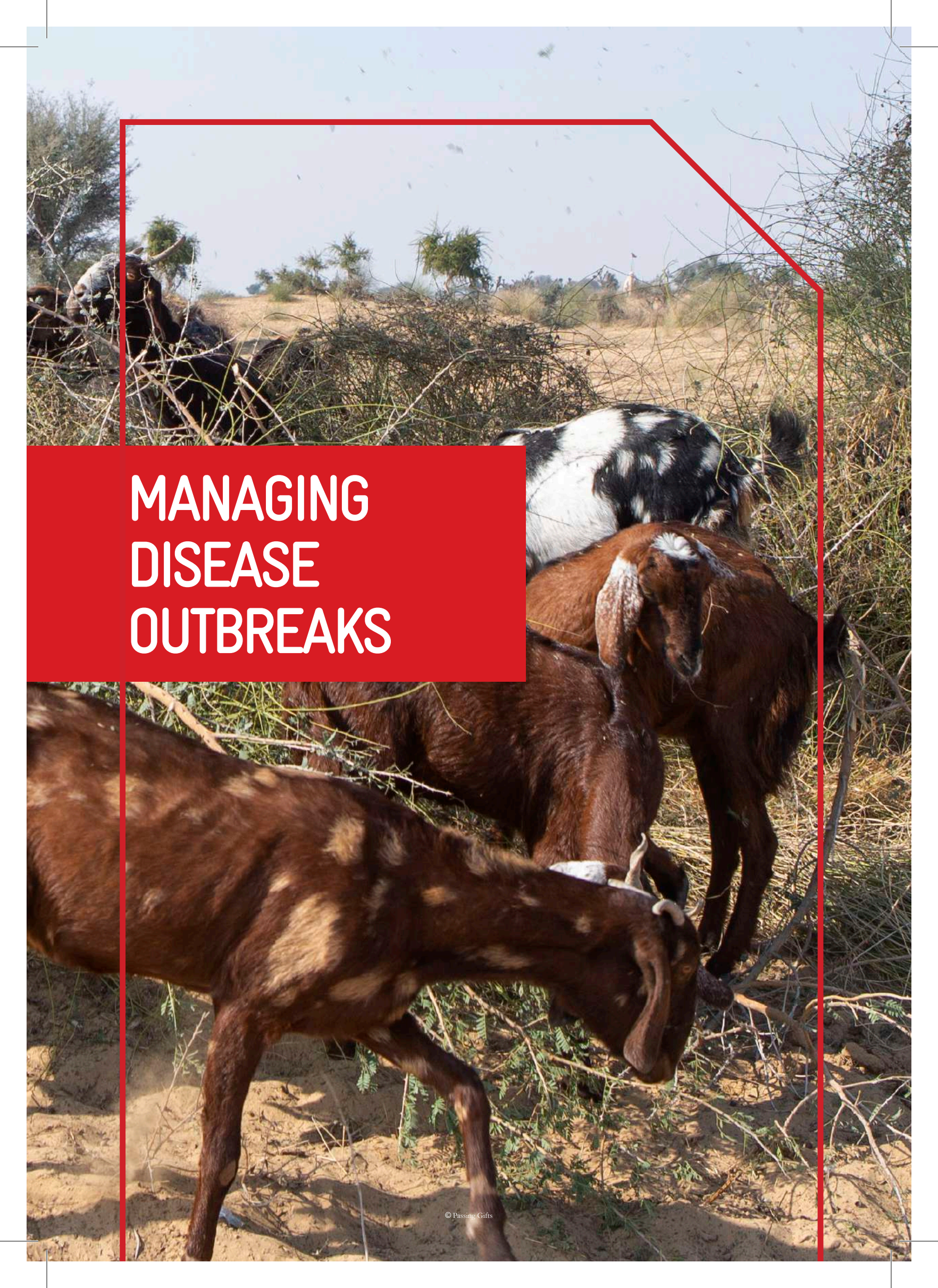
## Questions to Think Upon

- How does composting control the worm infection?



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# MANAGING DISEASE OUTBREAKS



## 24. MANAGING DISEASE OUTBREAKS



### Learning Objective of the Session

- How to prevent the spread of diseases on farms.

### Skills Learned After the Session

- Biosecurity measures of farm.

### Method of Delivery

- Discussion and demonstration of live farm with bio-security.

### Content of Training

The goats are prone to various seasonal diseases due to various factors. The disease spreads quickly within the herd and is responsible for high morbidity and mortality. The disease starts in one village and spreads to another village through contact, water and air. The stress due to rain, hot-cold weather, and housing stress make the animals prone to disease attacks. The better nutrition and comfortable housing, improves immunity and protects the animals from diseases.

#### Certain guidelines need to be followed during the spread of diseases in goats:

- The farmers should avoid grazing of animals during disease outbreaks.
- Avoid visiting other farmer's shed with infected animals.
- Keep the animals on good food and regular mineral supplementation.
- During the outbreak of goat disease, never visit any goat market for sale or purchase.
- In case of a disease outbreak on the farm, separate the healthy and diseased animals.
- The veterinary and para-vet personnel should follow proper hygiene measures to prevent the spread of disease to other villages.
- Please don't dispose off the dung, urine or any discharge in the open area. The waste needs to be buried in pit.
- The dead animals should be buried 3 feet below the ground with salt and calcium spread over the dead animals.

### Biosecurity Measures in Small Farms

It's difficult to take biosecurity measures on small farms, where the farmer keeps 5-6 goats in the corner of the house. Still, following things need to be practiced:

- Provide comfortable housing and proper nutrition to goats.
- Keep the goats in separate corners with some partitions.
- Maintain good spacing between the animals to prevent the spread of diseases.
- Keep the floor clean and clean any utensils used for feeding animals.
- The farm visit by strangers should be avoided.

### Practical Session

- a. Separating infected and healthy animals.

### Discussion

- a. Role of feeding on boosting immunity.

### Questions to Think Upon

- a. How to bring biosecurity in behaviour?





# SCHEMES IN MGNREGA & NRLM TO SCALE UP GOAT LIVELIHOOD



## 25. SCHEMES IN MGNREGA & NRLM TO SCALE UP GOAT LIVELIHOOD



### Learning Objective of the Session

- To know about the various schemes on goat rearing and to understand their process and eligibility criteria.
- To get the benefits of ongoing schemes to enhance income.

### Skills Learned After the Session

- Process for availing schemes on goat farming.

### Method of Delivery

- It is good to involve the actual implementing agency officials to convey the process of the schemes.
- Visit nearby farms constructed or established under the scheme.

### Content of Training

The goat-based livelihood requires the following things to start and establish:

S.No	Items Required	Source of Investments	Any schemes	Government Department
1	Land for Constructing Shed	Self	No	No
2	Land for Cultivation of Fodder Trees	Self	MGNREGA & Horticulture departments	Rural Development Departments
3	Construction of Sheds	Bank/Grant/Self	MGNREGA scheme is there for shed construction.	Rural Development Departments
4	Knowledge on Goat Rearing	Self/Govt./NGOs	Training and capacity building schemes	Animal Husbandry departments/ State Livelihood Mission/ CSOs/NGOs
5	Live Goats for Production	Govt./Self	Subsidy schemes	Animal Husbandry department and special schemes of state Govt.
6	Input like Deworming Vaccination, feed & Supplements	Self	No	Animal husbandry departments and Private
7	Labour for Care and Managements	Self	No	No
8	Marketing of Goats	Self	No	Through private traders



### Practical Session

- a. Involve the trainees in developing a layout of a farm.

### Discussion

- a. What measures should be taken for the identification of the site for the new shed?

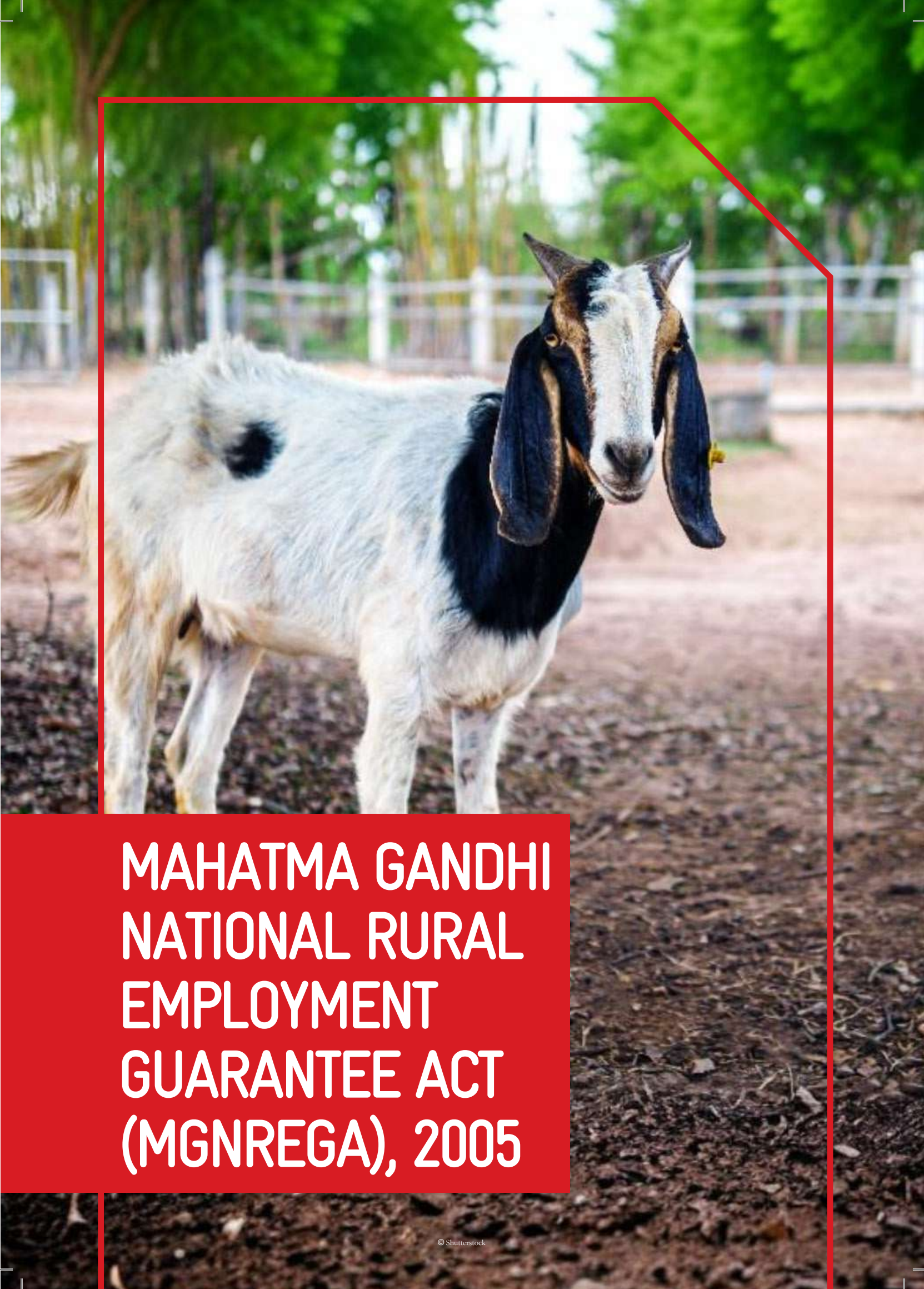
### Questions to Think Upon

- a. How to plan for marketing of the goats?



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A black and white goat with long, floppy ears is the central focus of the image. It is standing on a dirt path or field, looking directly at the camera. The background is a blurred scene of green trees and a white fence. The entire image is framed by a red border that has a small notch in the top right corner.

# MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE ACT (MGNREGA), 2005



## 26. MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE ACT (MGNREGA), 2005

Initiated on September 7, 2005, MGNREGA aims to enhance rural livelihood security by guaranteeing at least 100 days of wage employment annually to each rural household that requests unskilled manual work. The Act focuses on creating productive assets to support the livelihood of the rural poor and has positively impacted on food consumption, dietary patterns, and nutritional security.

The Key Features of MGNREGA include:

- Employment focus: 100 days of wage employment for rural households.
- Asset creation: Emphasis on durable assets to improve livelihood resources.
- Categories of work (266 permissible works under 45 categories):
  - i. Public works related to natural resources
  - ii. Individual assets for vulnerable sections
  - iii. Common infrastructure for Self-Help Groups (NRLM-compliant)
  - iv. Rural infrastructure

Livestock-related permissible works under MGNREGA include creating infrastructure for promotion of livestock such as, poultry shelter (brooder house), goat shelter, piggery shelter, cattle shelter and fodder troughs for cattle including their repair and maintenance as applicable; Pasture Development / fodder farm, infrastructure for azolla cultivation etc.

MGNREGA also offers convergence opportunities in collaboration with State Rural Livelihood Missions, Panchayati Raj Institutions, and other departments to create sustainable income and employment for the rural poor, enhancing the effectiveness of the program.

Goat Value Chain and its potential Convergence with Mahatma Gandhi MNREGA and other stakeholders				
Components of Goat value chain/- Goat-based livelihoods	Mahanta Gandhi NREGA	National/State Rural Livelihood Missions (N/SRLM)	National Livestock Mission (NLM)	Departments/ Institutions
<b>1. Inputs</b>				
Goats		NRLM/ SRLM	NLM	Department of Animal Husbandry and Dairying; NABARD
<i>Feed &amp; fodder (including Pastureland/ Silvi-pasture development)</i>	MGNREGA Supports	NRLM/ SRLM	NLM (Sub-mission II)	Department of Animal Husbandry and Dairying, Ministry of Agriculture and Farmers' Welfare (MoA&FW) IGFRI CAZRI CIRG

2. Infrastructure development				
<i>Housing/ Goat Sheds</i>	MGNREGA Provisions	NRLM/ SRLM	NLM	Department of Animal Husbandry and Dairying, NABARD CIRG (develops models)
<i>Water troughs</i>	MGNREGA Provisions			
<i>Azolla tanks</i>	MGNREGA Provisions	NRLM/ SRLM		Department of Animal Husbandry and Dairying, CIRG (pilots)
<i>Marketing (village Bakri Bazar/ haat development)</i>	MGNREGA Provisions	NRLM/SRLM organize at local levels		Department of Animal Husbandry and Dairying
3.Service Provisions				
<i>Development of Pashusakhis</i>		NRLM/ SRLM		NDBD NABARD



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