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ग्रामीण विकास मंत्रालय/Ministry of Rural Development
ग्रामीण विकास विभाग/Department of Rural Development
ग्रामीण आजीविका विभाग/ Rural Livelihoods Division
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दिनांक/ Dated: 1st May, 2024

To,

The State Mission Director / Chief Executive Officer of
State Rural Livelihoods Mission,
All States/UTs.

Subject: Technical Bulletin on goat farming -reg.

Madam/Sir,

I am directed to enclose herewith the Technical Bulletin on Goat Farming for information and sharing it with the concerned staff, CRP's and stake holders in the state for enhancing their extension.

Encl.: As above.

Yours faithfully,


रमन वाधवा/(Raman Wadhwa)

उप-निदेशक (प्रशासन)/Deputy Director (Admin)

Copy to:

1. PPS to Additional Secretary (RL), MoRD, Govt. of India, New Delhi.
2. PPS to Joint Secretary, RL-II, MoRD, Govt. of India, New Delhi.



सत्यमेव जयते

Ministry of Rural Development



Technical bulletin: Goat Farming A Sustainable Livelihood for SHG Women Part 3: Feed Management of Goat

A. Introduction

The Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) is a flagship program of Govt. of India, dedicated to eradicating poverty and promoting sustainable livelihoods in rural areas. DAY-NRLM focuses on empowering rural women through the formation of Self-Help Groups (SHGs) and community institutions. DAY-NRLM is making concerted efforts to augment the livelihoods of SHG women through multiple activities which include farm, farm-allied, and non-farm activities. Livestock is one of the crucial components of these activities. It offers SHG women an opportunity to generate income, achieve self-sufficiency, and strengthen their economic prospects.

In India, amidst various livestock farming sectors, goat rearing has emerged as a lucrative and sustainable venture, catering to the growing demand for quality meat, milk, fiber, etc. With its adaptability to diverse environments and relatively low maintenance requirements, goat farming presents an attractive opportunity for SHG women. This bulletin aims to equip farmers with the knowledge necessary for efficient and profitable goat rearing.

The Technical Bulletin has been structured into **four parts** to serve as a comprehensive resource for individuals and organizations seeking to enhance their knowledge and skills in goat farming. Each part offers specific insights and guidance, covering various aspects of goat rearing, from its significance to the selection of breeds, shed construction, **feeding, health & disease management, and general management practices**. By dividing the information into these distinct sections, the Technical Bulletin aims to provide a systematic and accessible resource that equips readers with the knowledge and skills necessary for successful and sustainable goat rearing. These four parts collectively offer a valuable reference for achieving success in the field.

This section introduces Goat farming, its relevance, available goat breeds in India, things to keep in mind while selecting the goat, breeding management, care during pregnancy, care during care of kids, care of bucks, castration, etc. With the potential to generate sustainable livelihood, goats offer an accessible and economically viable opportunity for women to secure their financial independence

B. Goat Rearing A Sustainable Livelihood for Women

The goat, often referred to as the "poor man's cow," is a versatile animal extensively raised for its meat, known as chevon. Beyond their meat, goats serve additional purposes such as milk and fiber production. The practice of goat farming holds vast potential to bolster the livelihoods of resource-poor households, particularly in remote, tribal, and ecologically vulnerable areas. Farmers keep goats as a source of additional income and as insurance against income shocks of crop failure. In addition, the rural poor who cannot afford to maintain a cow or a buffalo, find goat as the best alternative source of supplementary income and milk. It is a good source of livelihood mostly in dry areas and best for marginal and landless farmers.

Implementing enhanced management practices concerning **fodder, feed, shelter, and disease and parasite control** can significantly increase income for households engaged in goat farming. By optimizing these aspects, goat farming emerges as a sustainable and economically viable venture, contributing not only to the nutritional needs of communities but also fostering economic stability in diverse and challenging environments.

C. Benefits of Goat Rearing

1. Low Investment and Minimal Feed Needs:

- Requires lower investment.
- Meagre needs for fodder and fewer feed requirements compared to other livestock.

2. Multi-purpose Animal: Goats produce meat, milk, hide, fiber, and manure, making them a versatile livestock option.

3. Tolerance to Hot Climate:

- Goats are more tolerant of hot climates compared to other animals.

4. Space-Efficient and Minimal Housing Requirements:

- Requires less space.
- Has less demand for modern housing and other management because of small size and docile nature.

5. Early Maturation and Prolificacy: Goats achieve sexual maturity early, have a short gestation period, and often give birth to twins, making them prolific.

6. Ideal for Mixed Species Grazing: Goats can thrive on a variety of vegetation including thorny bushes and agricultural by-products.

7. Manure Utilization:

- Goat dung can be used as effective manure.

8. Meet Cash Demands through Meat Sales:

- Heavy demand for meat makes it profitable.
- Selling a goat can easily meet cash demands for households.

D. Feeding Management of Goat

A. Introduction:

- Goats have larger bellies compared to other cattle and can eat smaller grasses which other cattle cannot.
- Goats can also eat bitter grasses.
- Goats can produce more meat, and milk by taking substandard grass than other cattle.
- Giving balanced feed during pregnancy and the kidding period plays an important role in weight gain of kids.
- Feeding must include water, carbohydrates, protein, minerals, fats, fibres and vitamins in proper proportion.
- Ensure cultivated crops like Maize, Jowar, Napier, Tephrosia, Barley, Cowpea, etc for grazing.
- Azolla farming is best source of protein for goats
- Although goats always continue searching for food. Usually, they can go far from their area for searching food.



- Naturally, goats are very hardy and can tolerate weather change highly.
- They can survive for a long time without water in a heavy drought.
- During natural disasters and food crises, they can even consume low-quality food. This type of survival with low-quality food is not possible for other animals.
- Although goats can eat all types of food, they do not like to eat the same food always. So, they should have diversity in their regular feeding habit. Goats usually do not eat leftovers of another goat. They can understand the taste of food, but they are not picky.



b. Benefits of Feeding management in goat

- i. Reduction in the mortality rate of kids
- ii. Proper growth of goat
- iii. Timely reproduction
- iv. Better productivity
- v. Face fewer health issues

B. Major Components of Goat feed

Rice bran, broken rice, maize, soya beans, cassava, vegetables, and distillers' residues are often used in goat feed. Distillery waste is much appreciated in traditional goat husbandry. To make the proper and balanced feed, the following ingredients should be as per the nutritional formula of the required feeds.

- **Protein:** Growth and body weight. Eg: soya bean meal, Mustard Oil cake, ground nut cake, meat meal, fish meal, bone meal, Rapeseed, etc.
- **Carbohydrates:** Provides energy and heat. Eg: -Maize, Corn, wheat, Barley, Sorghum, Jowar, Bajra, etc.
- **Minerals:** Use in tiny portions. Eg: Macro-micromineral mixtures, mineral mixtures, etc.
- **Fats:** Soyabean oil, corn oil, sunflower oil, etc.
- **Water:** Need adequate water consumption for body growth.
- **Vitamins:** Requires all vitamins for normal growth, reproduction, good eye, bone development, etc.

Protein and Energy are the main nutrients of goat feed.



C. Feeding to Goats

The feeding of goats has several components which include feeding method, feeding of kids till 90 days, creep feeding, etc.

C.1 Feeding method

- For easy feeding to goats, forage and fodder are always given in stall-fed
- Twice a day- morning and evening, goats should be fed.
- Unnecessarily, feed should not be given to the goat. Overfeeding may cause bloat in our stomachs and sometimes goats can die.

C.2 Feeding to kids till 90 days

Age of kids	Colostrum(ml) and No. of feedings/day	Creep feed (gm)*	Forage, green fodder (gm)
1-3 days	300 ml and 3 feeding	-	-
4-14 days	350 ml and 3 feeding	-	-
15-30 days	350 ml and 3 feeding	A little	A little
31-60 days	400 ml and 2 feeding	100-150	Free choice
61-90 days	200 ml and 2 feeding	200-250	Free choice

* Creep feed description in C.3

C.3 Creep Feeding

C.3.1 Introduction

Young kids and lambs benefit from getting extra, good-quality feed which in terms leads to improved survival and growth rate of young ones. Farmers can use 'creep feeding' to provide this extra feed only to kids and lambs, but not to adult animals that do not need it. Creep feeding is in addition to regular feed (milk, grazing, fodder, or other feeds).

C.3.2 Advantages of creep feeding:

- Creep feeding has been shown to dramatically improve the survival of young goats and sheep and can increase resilience to disease.
- Creep feeding is cost-effective: using a 'creep barrier' prevents feed consumption by older animal
- Creep feeding helps prepare lambs and kids for successful grazing after weaning.
- Lambs and kids can be marketed at an earlier age, and have been reported to fetch higher prices

C.3.3 When to Start Creep Feeding?

Offer creep feed to animals up to about 6 months old. They will typically start to eat some creep feed once they are about 3 weeks old. If lambs and kids don't readily eat the feed at first, you may need to open the creep pen to the dams as well for a few days so that they can train their young to eat the feed. How to Set Up Creep Barrier

- Creep feeding aims to create an area where young animals can access the creep feed but adults cannot. A typical creep pen is a fenced area with 3 to 4 gaps in fence each 4 inches (10cm) wide. These gaps should be small enough for young animals only to fit through. Make gaps smaller if adults fit through.
- The creep pen can be made out of cheap materials like wood or bamboo.
- Kids/lambs should be able to freely access the creep area for at least part of the day so that they can consume the creep feed.

C.3.4 What to feed and how much?

- The creep feed is made up of ONE THIRDS good-quality feed and TWO THIRDS poorer-quality feed.

Examples of good- and poorer-quality feeds:

Good-quality feeds (ONE THIRD of total feed) 33 %	Poorer-quality feeds (TWO-THIRDS of total feed) 67%
Burseem/clover	Chickpea straw
Chickpea grain	Peanut straw
Cotton trash*	Groundnut straw
Cottonseed cake*	Local grass (fresh or hay)
Cowpea forage [†]	Millet hay
Groundnut cake	Napier grass (fresh or hay)
Jantar/Sesbania	Oat forage [†] (fresh or hay)
Jawar/sorghum grain	Rice straw
Lucerne/alfalfa	Sorghum forage [†] (fresh or dry)
Millet forage [†] (fresh)	Wheat forage [†] (fresh)
Millet grain	Wheat straw or hay
Oat grain	
Wheat bran	
Wheat grain*	

* Suddenly consuming these feeds can cause digestive upsets: introduce them slowly by only offering one handful of feed per head every second day for one week. After that, increase the feed to the full daily amount.

† 'Forage' means the stem and leaf parts of the plant

- Make up the creep feed by mixing a ratio of ONE THIRDS good-quality feed and TWO THIRDS poorer quality feed. Choose the cheapest feeds on the list that are available to you.
- Offer about half a pound (200 grams) of the mixed feed per animal per day, placing it in a feed container inside the creep area where the adult animals cannot get it.
- Half a pound is about one big adult handful of feed, but it is preferable to check how much you are feeding by weighing it
- Provide water inside the creep area too

Amount of feed to offer according to the number of young animals in the household.

Number of young animals receiving the creep	The total amount of creep feed to offer PER DAY (handfuls)
2	3
4	5
6	8
8	11
10	13

C.4 Feeding of breeding Does

- Feed good quality pasture.
- In poor grazing conditions and very little pasture, give concentrate mixture @150-350g of concentrate daily

C.5 Feeding during the last trimester period of pregnancy

- Animals should be allowed in very good quality pastures for 4-5 hours per day.
- In addition to grazing, animals should be fed with a concentrated mixture @ 250-350 g/animal/day.
- Their ration should be supplemented with available green fodder at the rate of 7 kg per head per day.

C.6 Feeding during kidding time

- During kidding time, reduce grain but good quality dry roughage is fed free choice.
- Increase doe ration gradually and give in 5-6 times.
- Bulky and laxative feedstuffs may be included in the ration during the first few days.
- A mixture of wheat bran and barely or oats or maize at 1: 1 proportion is excellent.

C.7 Feeding during lactating time

The following rations may be recommended

- 6-8 hours grazing + 10 kg cultivated green fodder/day
- 6-8 hours grazing + 400 g of concentrate mixture/day
- 6-8 hours grazing + 800 g of good quality legume hay/day

C.8 Feeding bucks for breeding

- Give the same food as does.
- The common practice is allowing the bucks to graze with does.
- Where there are facilities for separate feeding of the buck, it may be given half a kilogram of a concentrated mixture consisting of three parts oats or barley, one part maize, and one part wheat per day one day before the date of service.

C.9 Prepare Low-cost feed for goat

Sl no	Ingredients	Kids ration	Growing ration	Lactating ration	Pregnant goat ration
1	Maize	37	15	52	35
2	Pulses	15	37	0	
3	Oil cakes	25	10	8	20
4	Wheat	20	13	37	42
5	Salt	0.5	1	1	1
6	Min Mixture	2.5	2	2	2
	Total	100 kg	100 kg	100 kg	100 kg



C.10 Azolla food

- Best protein source food.
- Increase feed efficiency and body weight.
- Make a pit of (10X5X1) ft and give 800g Azola to the rear.
- Within 15 days 8-10 times increase of Azola.
- After 15 days can take 1.5 to 2kg azola daily from the pit for goats' food.
- Add 150g Azola with feed or alone per day to adults.

C.11 Fodder production for goat

- Legume fodders: Cowpea, Lucerne (queen of fodder), etc.
- Cereals fodders: Maize, Jowar, Sorghum, etc
- Grass fodders: Napier, Guinea grass etc
- Tree fodders: Subabul, Glyciridia, etc.
- Help in proper growth and development of the body.
- Money saver-cheapest one.
- Provide many nutrients naturally.
- Low-cost investment in cropping.



Maize



Cowpea



Lucerne



Napier

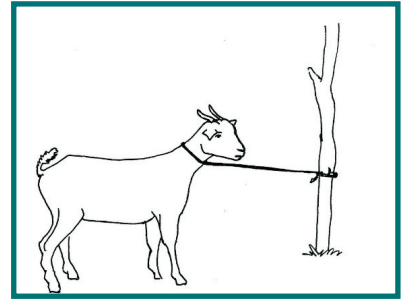


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D. The production system of goats

The production systems of goats can be broadly classified into four categories:

1. **Tethering:** A system in which goats are kept in a shed during night time, whereas during daytime they are tethered in the vicinity of the house, along the roadside, or on public grounds. Tethering of goats is practical only for very small herds. Only adults are tethered, while young kids are often let loose.



Two methods are common

- **Tied to a peg:** Goats, sometimes 1 to 3 together, are tied to a peg by a rope of 3-5 meters in length. By shifting the peg or choosing a different tree or post, the goats are offered a fresh grazing/browsing area.
- **Tied to a ring on a wire between 2 pegs:** A rope of about 2-3m long is tied to a ring that slides on a wire about 3-5 meters long.

Care has to be taken so that the goats do not get entangled or even strangled and that the goats will not be attacked by dogs/predators. It is advised to provide a small area with fresh grazing and/or browsing each time. To prevent trampling of the grass the pegs should be shifted 2 to 3 times per day to offer fresh grazing. The tethering area must offer some shade, especially when the tethering period is prolonged and includes the hottest part of the day.

2. Extensive production system

It involves larger numbers of animals. The goats graze and browse large areas of land that are usually marginal and/or unsuitable for other agricultural use. The system is more common in arid and semi-arid climates. Extensive systems are common for meat and hair but are rarely used for milk. Little management is practiced except to let them graze in the daytime and to lock them up for the night in night pens or yards. Breeding is uncontrolled. The goats are watered during the day at streams, lakes, and ponds or water is provided from wells. After the harvest of crops, the animals can feed on the residues and weeds left in the field. Sometimes mixed herds of sheep and goats graze together. The droppings in the night yards can be collected as manure.



3. Semi-intensive system

In the semi-intensive system, the confinement of goats is restricted to nighttime and part of the day. Animals are let out for grazing during a restricted part of the day, usually 3-5 hours supervised by a herdsman. The advantage of this system is that it allows the goats to supplement their diet and do some selective feeding to overcome dietary deficiencies.



During confinement, stall feeding is practiced. Very often young kids are left behind in the shed, corral, or yard. Separation of the sexes is rarely practiced; uncontrolled mating is common. An option within this system is grazing the goats in fenced paddocks.

4. Intensive system or zero grazing

The goats are fed in confinement with limited access to land. It involves high labor and cash inputs. Cultivated grasses and agro-industrial by-products are fed in situ. This system also has the advantage of allowing control over the animals. In an intensive management system, the sheds are usually separated into a single pen for the buck and possibly single pens or group pens for the Does. Kids are kept in group pens, which are usually separated by sex. In this system, controlled mating is practiced. Roughage (grass/fodder crops) can be cultivated and/or collected from roadsides and fodder- and other trees. Fodder banks of tree legumes can be established and properly handled crop residues can be utilized.



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Ministry of Rural Development



Technical bulletin: Goat Farming A Sustainable Livelihood for SHG Women Part 4: General Management Practices

A. Introduction

The Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) is a flagship program of Govt. of India, dedicated to eradicating poverty and promoting sustainable livelihoods in rural areas. DAY-NRLM focuses on empowering rural women through the formation of Self-Help Groups (SHGs) and community institutions and is making concerted efforts to augment the livelihoods of SHG women through multiple activities which include farm, farm-allied, and non-farm activities. Livestock is one of the crucial components of these activities. It offers SHG women an opportunity to generate income, achieve self-sufficiency, and strengthen their economic prospects.

In India, amidst various livestock farming sectors, goat rearing has emerged as a lucrative and sustainable venture, catering to the growing demand for quality meat, milk, fiber, etc. With its adaptability to diverse environments and relatively low maintenance requirements, goat farming presents an attractive opportunity for SHG women. This bulletin aims to equip farmers with the knowledge necessary for efficient and profitable goat rearing.

The Technical Bulletin has been structured into four parts to serve as a comprehensive resource for individuals and organizations seeking to enhance their knowledge and skills in goat farming. Each part offers specific insights and guidance, covering various aspects of goat rearing, from its significance to the selection of breeds, shed construction, feeding, health & disease management, and general management practices. By dividing the information into these distinct sections, the Technical Bulletin aims to provide a systematic and accessible resource that equips readers with the knowledge and skills necessary for successful and sustainable goat rearing. These four parts collectively offer a valuable reference for achieving success in the field.

This section introduces Goat farming, its relevance, health management, disease prevention, common diseases of goats, etc. With the potential to generate sustainable livelihood, goats offer an accessible and economically viable opportunity for women to secure their financial independence.

Goat Rearing: A sustainable livelihood for women

The goat, often referred to as the "poor man's cow," is a versatile animal extensively raised for its meat, known as chevon. Beyond their meat, goats serve additional purposes such as milk and fiber production. The practice of goat farming holds vast potential to bolster the livelihoods of resource-poor households, particularly in remote, tribal, and ecologically vulnerable areas. Farmers keep goats as a source of additional income and as insurance against income shocks of crop failure. In addition, the rural poor who cannot afford to maintain a cow or a buffalo, find goat as the best alternative source of supplementary income and milk. It is a good source of livelihood mostly in dry areas and best for marginal and landless farmers.

Implementing enhanced management practices concerning fodder, feed, shelter, and disease and parasite control can significantly increase income for households engaged in goat farming. By optimizing these aspects, goat farming emerges as a sustainable and economically viable venture, contributing not only to the nutritional needs of communities but also fostering economic stability in diverse and challenging environments.

Benefits of Goat Rearing

- (a) Low Investment and Minimal Feed Needs:
 - (i) Requires lower investment.
 - (ii) Meagre needs for fodder and fewer feed requirements compared to other livestock.
- (b) Multi-purpose Animal: Goats produce meat, milk, hide, fiber, and manure, making them a versatile livestock option.
- (c) Tolerance to Hot Climate:
- (d) Goats are more tolerant of hot climates compared to other animals.
- (e) Space-Efficient and Minimal Housing Requirements:
 - (i) Requires less space.
 - (ii) Has less demand for modern housing and other management because of small size and docile nature.
- (f) Early Maturation and Prolificacy: Goats achieve sexual maturity early, have a short gestation period, and often give birth to twins, making them prolific.
- (g) Ideal for Mixed Species Grazing: Goats can thrive on a variety of vegetation including thorny bushes and agricultural by-products.
- (h) Manure Utilization:
 - (i) Goat dung can be used as effective manure.
- (i) Meet Cash Demands through Meat Sales:
 - (i) Heavy demand for meat makes it profitable.
 - (ii) Selling a goat can easily meet cash demands for households

This section introduces Goat farming, its relevance in the context of the housing of goats, etc. With the potential to generate sustainable livelihood, goats offer an accessible and economically viable opportunity for women to secure their financial independence. This section of the bulletin covers aspects of constructing a goat shed, the site selection process, shed space requirements, cost of construction, etc.

B. Housing of Goat



B1. Importance of shed for goats

The shed is necessary to protect goats from the Sun, water, and cold. It also provides them with safety from predators. Sheds built above the ground are good for appropriate management of dung of goats which will help to control infections and non-infectious diseases.

B.2 Selection of site:

- Near the home, to keep an eye on the goats for better management.
- Slightly elevated land with no water logging.
- Lesser plants near sheds, so that proper ventilation and lighting happens.
- Land for growing fodder trees nearby.

B.3 Positioning the shed

- **Climate Considerations:** Depending on the climate of the region, carefully decide on the shed's positioning.
- **East-West orientation in sunny and hot climate:** If the climate is sunny and hot, position the shed in an east-west direction. This orientation helps prevent excessive heating of the stall by minimizing direct exposure to the intense sun.
- **North-South Axis for sunlight exposure:** Build the shed along the North-South axis. This orientation allows the sun rays to fall directly on the floor. This exposure is beneficial for drying the floor and can aid in controlling parasites. Note that this advice is particularly relevant for ground-level sheds, not for stilted sheds with slatted floors.
- **Wide roof to control sun exposure:** Install a wide roof to prevent an excessive amount of sunlight from directly shining on the floor. This is especially important in hotter climates where too much sun can lead to discomfort for the animals.
- **Consideration for cooler climates:** In cooler climates, having sunlight may be desirable to warm up the stall. In such cases, it is beneficial to have a large surface area of the roof facing south or north. This design allows the roof, when warmed by the sun, to contribute to heating up the shed.

B.4 Ventilation

The goat shed heats up due to sunshine. Inadequate ventilation reduces feed intake, thereby affecting productivity. Also, ventilation prevents respiratory diseases in susceptible goats.

B.5 Warm Climates

- Ensure the shed is sufficiently high with openings in the roof or walls.
- In open stalls, use a low wall (about 1.20 meters) on the windward side.
- Allows air circulation without exposing goats to excessive wind.

B.6 Wet Climates

- Ensure the roof is waterproof with a large overhang to prevent rain from entering the shed.
- Local house construction methods offer clues for suitable roofing.

B.7 Floor considerations for goat shed

- The floor of the shed should remain dry and clean and provide secure footing. Wooden planks with a gap of not more than 2 cm can be used on the floor. It will provide safe footing and help clean the droppings and urine.
- An elevated ground-level floor sloping to the sides will prevent rainwater from entering the floor and allow urine to drain to the outside.
- In the wet tropics, an elevated slatted floor using bamboo or wooden slats is advised.
- On a solid ground-level floor, litter material can be spread, to provide good insulation in a cold climate or season. Any type of dry organic material can be used as bedding; it can be straw, weeds, dry grass or leaves, sawdust, etc

B.8 Floor space requirements for goats of different ages:

Goat Type	Space requirement (Sq. Mt)	Space requirement (Sq. ft)
Kid (0-3 months)	0.25	3
Kid (3-6 months)	0.5	5
Kid (6-9 months)	0.75	8
Kid (9-12 months)	1.0	10
Adult and lactating female goat	1.5-2.0	15-20
Adult male goat	2.0	20

B.9 Considerations for the goat shed:

- Goat shed should be constructed in a well-drained elevated plain area.
- The width of the house should not be more than 20 feet (6 meters) and there is no restriction on the length of the shed.
- Partition may be made preferably at every 30 ft (9 mts) or as per requirement of the flock.
- The height of the shed should be at least 12 feet at the center and 8-9 feet at the sides for a double-sloped (gable) roof.
- An overhang of 3 ft should be given on both sides.
- Side walls along the length of the shed should be 4 ft with the remaining height kept open for fixing iron mesh for ventilation.
- The walls across the width of the house on both sides need to be closed up to the roof height.
- The roof of the goat shed may be made of thatch, tiles, corrugated cemented sheets, or thermal insulated GI sheets depending upon the availability as well as durability required.
- Separate provisions of water and feeders to be provided in each paddock.
- Partitions separating one stall from the other may be of either simple wooden planks or galvanized steel sheets. The partition should be at least 150 mm above the floor level.

- Foot-bath-A foot-bath made of galvanized steel sheets, or brick in cement mortar shall be provided at the entrance to the shed to protect the animals from foot-rot disease. These baths may be embedded in the soil suitably.
- Provision for lighting should be made. A 7 W LED for each 10 m² floor space or 15 W bulb for 25 m² space or equivalent fluorescent tube light may be provided.

B.10 Types of goat shed

(a) Shed with mud floor:

- In this method, once in a year 1-2 inches of mud surface should be removed.
- Application of lime powder once in a month will reduce the disease occurrence in the shed.
- The shed should be constructed in elevated area to prevent water stagnation.



(b) Deep litter shed:

- In this method the litter materials (dry organic material) are spread on the floor for a depth of ½ feet.
- The mixture of bedding, urine, and droppings can be composted, offering a valuable resource for home gardens or fields.
- The litter materials should be removed once in six months.
- In heavy rain seasons, the litter materials should not be overwet.



(c) Elevated floor shed

- This type of shed is made over a pole.
- The floor of the shed heights about 1 to 1.5 meters (3.5 to 5 ft) from the ground.
- This type of shed keeps the goat free from dampening conditions, flood water, etc.
- The poles and floor in this shed are usually made with bamboo wood or iron pillars.



(d) Concrete shed

- This type of goat shed is fully made with concrete and is expensive.
- It is very easy to clean the shed and keep the goats safe from all types of predators.



B.11 Costing of low-cost Goat farm (10+1)

Sl no	Items	Unit	Rate (Rs)	New shed (Rs)	Renovation of existing shed (Rs)
1	Bamboos/wood pc	30 pc	60	1800	1800
2	Roofs (Khapra, straw, Asbestos etc)			15000	2000
3	Door	1 pc	3000	3000	3000
4	Transparent Asbestos sheet	1	1200	1200	700
5	Hook, washer, iron wire etc			1000	500
6	Pillars	4 Nos	500	2000	0
7	Transportation cost			1000	500
	Total			25000	8500

(Space requirement-300-350 square feet)

B.12 Providing feed and water inside goat shed

- Keep the water utensils (drinker) in such a way so that goat dung not enter it.
- Provide clean water. Give water according to the sessions.
- Better to keep lukewarm water in cold sessions.
- Keep fodder and feeding materials just above the floor to be safe from losses.
- Keep separate feeders and drinkers for diseased goats.



Low cost Goat sheds



C. Determination of Age

The age of the goat could be determined with the help of the status of the teeth. At every stage of life of a goat, there are certain characteristics observed in the teeth which are given below:

Deciduous incisors generally erupt one pair per week from birth, so you can reckon a goat kid's age as follows:

- 1st/2nd pair erupted: 0-2 weeks old;
- 3rd pair erupted: 2-3 weeks old;
- 4th pair erupted and growing: 3-4 weeks old;
- Starting to spread: 3-9 months old;
- Spread and wearing down: around 1 year old.

These are known as suckling teeth. They are small and sharp in kids. When the kid is 12 to 14 months old the central pair is shed and is replaced by two large permanent teeth; when 24 to 26 months old two more small teeth are shed and are replaced by two large teeth, one on each side of the first pair; when 36 to 38 months old there are six permanent teeth, and when 48 to 50 months old a complete set of four pairs of permanent teeth are present. Occasionally teeth develop much more quickly and the goat may have all its permanent teeth by the time it is three years old.

Once all the permanent teeth have developed the degree of wear and tear gives a rough indication of age. The teeth start wearing four to six weeks after eruption. Wearing of teeth depends upon the type of feed and care given to the animals. Some may mature early and others late. Age of eruption of teeth serves as a reasonable and dependable guide for judging maturity.

D. Exercise

The goats require exercise for maintaining themselves in a good condition. Stock on range receives sufficient exercise while grazing. Stall-fed goats should be let loose in a large paddock for at least three to four hours a day. The bigger the paddock, the better they enjoy. Goats should not be let loose in the paddock or sent out for grazing until the dew has dried up, i.e. not until one to two hours after sunrise. Grazing on wet grass with dew is likely to result in tympanites and intestinal inflammation.

E. Hoof Trimming

Hoof trimming is necessary for the well-being of goats. If neglected it can weaken legs, ruin feet, and lower milk production. The goats soon become used to trimming as a monthly routine. Sharp pen knives or curved hand-pruning shears can be used effectively.

F. Disbudding and Dehorning

This should be done when the male kid is two to five days old and the female kid is up to 12 days old. The hair should be clipped from around the horn-bud, and this area covered with petroleum jelly to protect it from caustic soda or potash, which should be thoroughly rubbed on the bud until the horn-bud is well blistered. Caustic soda should not come into contact with the eyes. An electric dehorner



can also be used safely. The kid should be muzzled gently so that it can breathe freely; otherwise, partial suffocation may occur. Mature goats can be dehorned by sawing off the horns close to the head with a meat saw. This should be done in winter when flies are not troublesome. The wound should be dressed to prevent infection.



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Ministry of Rural Development



Technical bulletin: Goat farming
Sustainable livelihood for SHG women
Part 2: Health Management of Goat

A. Introduction

The Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) is a flagship program of Govt. of India, dedicated to eradicating poverty and promoting sustainable livelihoods in rural areas. DAY-NRLM focuses on empowering rural women through the formation of Self-Help Groups (SHGs) and community institutions and is making concerted efforts to augment the livelihoods of SHG women through multiple activities which include farm, farm-allied, and non-farm activities. Livestock is one of the crucial components of these activities. It offers SHG women an opportunity to generate income, achieve self-sufficiency, and strengthen their economic prospects.

In India, amidst various livestock farming sectors, goat rearing has emerged as a lucrative and sustainable venture, catering to the growing demand for quality meat, milk, fiber, etc. With its adaptability to diverse environments and relatively low maintenance requirements, goat farming presents an attractive opportunity for SHG women. This bulletin aims to equip farmers with the knowledge necessary for efficient and profitable goat rearing.

The Technical Bulletin has been structured into **four parts** to serve as a comprehensive resource for individuals and organizations seeking to enhance their knowledge and skills in goat farming. Each part offers specific insights and guidance, covering various aspects of goat rearing, from its significance to the selection of breeds, shed construction, **feeding, health & disease management, and general management practices**. By dividing the information into these distinct sections, the Technical Bulletin aims to provide a systematic and accessible resource that equips readers with the knowledge and skills necessary for successful and sustainable goat rearing. These four parts collectively offer a valuable reference for achieving success in the field.

This section introduces Goat farming, its relevance, health management, disease prevention, common diseases of goats, etc. With the potential to generate sustainable livelihood, goats offer an accessible and economically viable opportunity for women to secure their financial independence.

B. Goat Rearing A Sustainable Livelihood for Women

The goat, often referred to as the "poor man's cow," is a versatile animal extensively raised for its meat, known as chevon. Beyond their meat, goats serve additional purposes such as milk and fiber production. The practice of goat farming holds vast potential to bolster the livelihoods of resource-poor households, particularly in remote, tribal, and ecologically vulnerable areas. Farmers keep goats as a source of additional income and as insurance against income shocks of crop failure. In addition, the rural poor who cannot afford to maintain a cow or a buffalo, find goat as the best alternative source of supplementary income and milk. It is a good source of livelihood mostly in dry areas and best for marginal and landless farmers.

Implementing enhanced management practices concerning **fodder, feed, shelter, and disease and parasite control** can significantly increase income for households engaged in goat farming. By optimizing these aspects, goat farming emerges as a sustainable and economically viable venture, contributing not only to the nutritional needs of communities but also fostering economic stability in diverse and challenging environments.

C. Benefits of Goat Rearing

1. Low Investment and Minimal Feed Needs:

- Requires lower investment.
- Meagre needs for fodder and fewer feed requirements compared to other livestock.

2. Multi-purpose Animal: Goats produce meat, milk, hide, fiber, and manure, making them a versatile livestock option.

3. Tolerance to Hot Climate:

- Goats are more tolerant of hot climates compared to other animals.

4. Space-Efficient and Minimal Housing Requirements:

- Requires less space.
- Has less demand for modern housing and other management because of small size and docile nature.

5. Early Maturation and Prolificacy: Goats achieve sexual maturity early, have a short gestation period, and often give birth to twins, making them prolific.

6. Ideal for Mixed Species Grazing: Goats can thrive on a variety of vegetation including thorny bushes and agricultural by-products.

7. Manure Utilization:

- Goat dung can be used as effective manure.

8. Meet Cash Demands through Meat Sales:

- Heavy demand for meat makes it profitable.
- Selling a goat can easily meet cash demands for households.

D. Health Management

One of the major factors contributing to returns from goat rearing. The economics of goat rearing depends upon the health status of the goat and hence health management of goat is very critical. A few systems have to be followed as good practices which are given below:

- Ensure grazing facility, and balance feeding along with cultivated leaves and azolla for proper growth.
- Daily inspection of goats before entry into sheds after grazing.
- Maintain proper space, machan systems, and weatherproof to protect from rain, heat, wind, etc
- Vaccination is timely as per schedule, especially for PPR, Goat pox, Enterotoxaemia, etc.
- Proper biosecurity needs to be maintained to protect goats from diseases. Do random disinfection in the shed.
- Deworm the goats every quarter and give daily clean water.
- Veterinary support and relationship of farmers with veterinarians.
- Keep the diseased goats separate from healthy ones.
- Keep pregnant females separate from males.
- Make a habit of removal of excreta daily.



D.1 Benefits of health management

- i. Prevention from contagious diseases
- ii. Enhance the quality of products obtained from herd
- iii. Reduction in health-related expenses
- iv. Better performance of the herd
- v. Reduction in mortality of kitten

D.2 How to prevent diseases

- Do all vaccines timely and ensure required medications.
- Regular cleaning and water supply.
- Quarterly deworming of goats.
- Give balanced feed and maintain biosecurity.
- Do cultivation-Azolla, Maize, Lucerne, Barley, Napiers etc.
- Keep the floor dry and remove excreta daily.
- Keep the pregnant one separate from the male.
- Don't go near the goats with self-diseases.
- Make a habit of ensuring colostrum timely just after delivery.
- Keep the disease goat separately.



D.3 What are biosecurity measures?

- Regular disinfection of goat and goat shed.
- Minimize visitors' entry near animals and vehicles also.
- Don't keep newly purchased goats with existing ones.
- Proper disposal of dead goats.
- Minimize contact with wild animals, rodents, etc.
- Touch the goats with clean and washed hands and legs.



D.4 The most common Goat diseases in India

Health care measure to be followed in goat farming is one of the most important factors. The goats can be infected with several internal parasites, skin infections, and other bacterial and viral diseases, which in turn will result in poor growth and even death of goats.

- **Bacterial Diseases:** Enterotoxaemia, Brucellosis, Pneumonia, Mastitis, Septicaemia, diarrhea, etc
- **Viral Diseases:** Peste Des Petitis Ruminant (PPR), Goat pox, Foot and Mouth (FMD), etc
- **Endo-parasitic diseases:** Fluke infection, Tapeworm, roundworm, Coccidiosis
- **Ecto-parasitic diseases:** Tick, lice, etc

D.4.1 Viral disease

(I) **PPR (Peste Des Petits):** Commonly known as "Goat Plague" is a very acute and contagious viral disease that causes high mortality in Goats.

Symptoms

- Suddenly depression, high fever, cough, and dyspnea.
- Discharge from eyes and nose.
- Foul smelling diarrhoea
- Unable to eat and death

Treatment

Prior vaccination is the remedy. Wash the wound with Potash and use antibiotics. Use antidiarrheal, and antipyretic for diarrhea and fever.

Control

- Give vaccination annually. (Except the pregnant one)
- Keep the infected animals separate from the flock.
- Don't take it out for grazing.



(ii) Goat Pox (Chechak)

This is a viral disease of the skins that occurs in goats and sheep

Symptoms

- Fever, red spots that become blisters on the muzzle, eyelids, ears, udder, or in severe cases all over the body.
- Breathing difficulties, lethargy and depression
- Reluctance to feed, eye and nose discharge, or swollen eyelids
- Death (20-90% in endemic areas)

Treatment

- Prior vaccination is the remedy. Wash the infected area with a lightly diluted potash and apply antibiotic ointment.
- Use antipyretic and antidiarrheal accordingly for symptoms.

Control

- Give vaccination annually. (Except the pregnant one)
- Keep the infected animals separate from the flock.
- Don't take out from grazing.



(iii) Foot and mouth disease (FMD)

FMD is an economically important disease of mouth and foot mainly in cattle, Goats, Sheep, Buffaloes, and Pigs

Symptoms

- Early signs include fever, drooling, and reluctance to move.
- Blisters in mouth, tongue, lips, in between hooves of foot.



Treatment

- Prior vaccination is the remedy.
- Clean the wounds with the help of Dettol. Use an oil Turpin if a maggot is there
- Keep the animals in quarantine. Use antibiotics to prevent secondary bacterial infestation.

Control

100% vaccination at least once in a year.



(iv) Enterotoxaemia (ET)

This is known as overheating or pulpy kidney disease of goat. Most animals die within 2-3 hours of severe diarrhea.

Symptoms

- Excessive consumption of feed and milk
- Loss of appetite, abdominal discomfort
- Profuse watery diarrhea

Treatment

- Antibiotics especially penicillin
- Pain remedy and anti-bloat therapy

Control

- The only way is the vaccination.
- Separation of diseased animals from flocks



D.4.2 Bacterial Disease:

(I) Brucellosis (Abortion)

A bacterial disease in animals spreads to even humans. This happens mostly in productive animals.

Symptoms

- Abortion, retained placenta, and swelling of testicles.
- In a goat, abortion happens in 4th month of pregnancy.

Transmission

Transmit to humans via milk. Humans generally acquire the disease through direct contact with infected animals, by eating or drinking contaminated animal products, or by inhaling airborne agents.

Treatment

Only symptomatic treatment with antibiotics by a veterinarian.

Control

Vaccination after 120 days and to be given annually

(ii) Mastitis

Mastitis is an important disease decreasing quantity of the milk. It is caused by bacteria where inflammation of the udder happens.



Symptoms

- An elevated fever above 105° F and accelerated pulse.
- Inflammation of the udder, reddish and hard
- Watery and yellowish milk, reduce feed intake.

Treatment

- Only a veterinarian can recommend antibiotics and supportive measures by looking at the condition of the animals.

D.4.3 Other Common Diseases in Goats

1. **Tympanitis/Bloat:** Accumulation of gas in the stomach, goat unable to stand and start to kick on pain. Give half a cup of ginger juice along with anti-bloat medicines quickly. Baking soda is also effective.
2. **Fever:** Fever is not a disease; a symptom of many diseases mainly caused by bacteria. The temperature comes high in fever. Administer antipyretic medicine for this.
3. **Diarrhea:** Diarrhoea is not an illness, can be a symptom of many diseases that may be severe and also caused by bacteria, viruses, parasites (worms and cocci), and managemental practices. Antidiarrheal drugs especially those containing Sulphur works better.

E. VACCINATION OF GOAT

Sl. No	Name of disease	Primary vaccination	Regular vaccination
1	PPR (Peste Des Petits Ruminant)	At age of 90 days and above	Once in 2-3 years
2	ET (Enterotoxaemia)	At age of 3-4 months and above	Before monsoon (May)
3	Goat Pox	At age of 90 days and above	Once annually (December)
4	FMD (Foot and mouth disease)	At age of 90 days and above	Before monsoon
5	HS & BQ (Haemorrhagic Septicaemia and Black quarter)	At age of 5-6 months and above	Before monsoon

E.1 Rules of giving vaccinations

- Vaccinate the healthy animals only.
- Vaccinate at least 2 months before of disease spreading probable time.
- Vaccinate in the early morning or late evening only.
- Deworming the animals 15 days before vaccinations.
- Keep 14 days during two vaccinations.
- Keep the vaccines cold only.
- Deworm the animals two weeks before vaccination



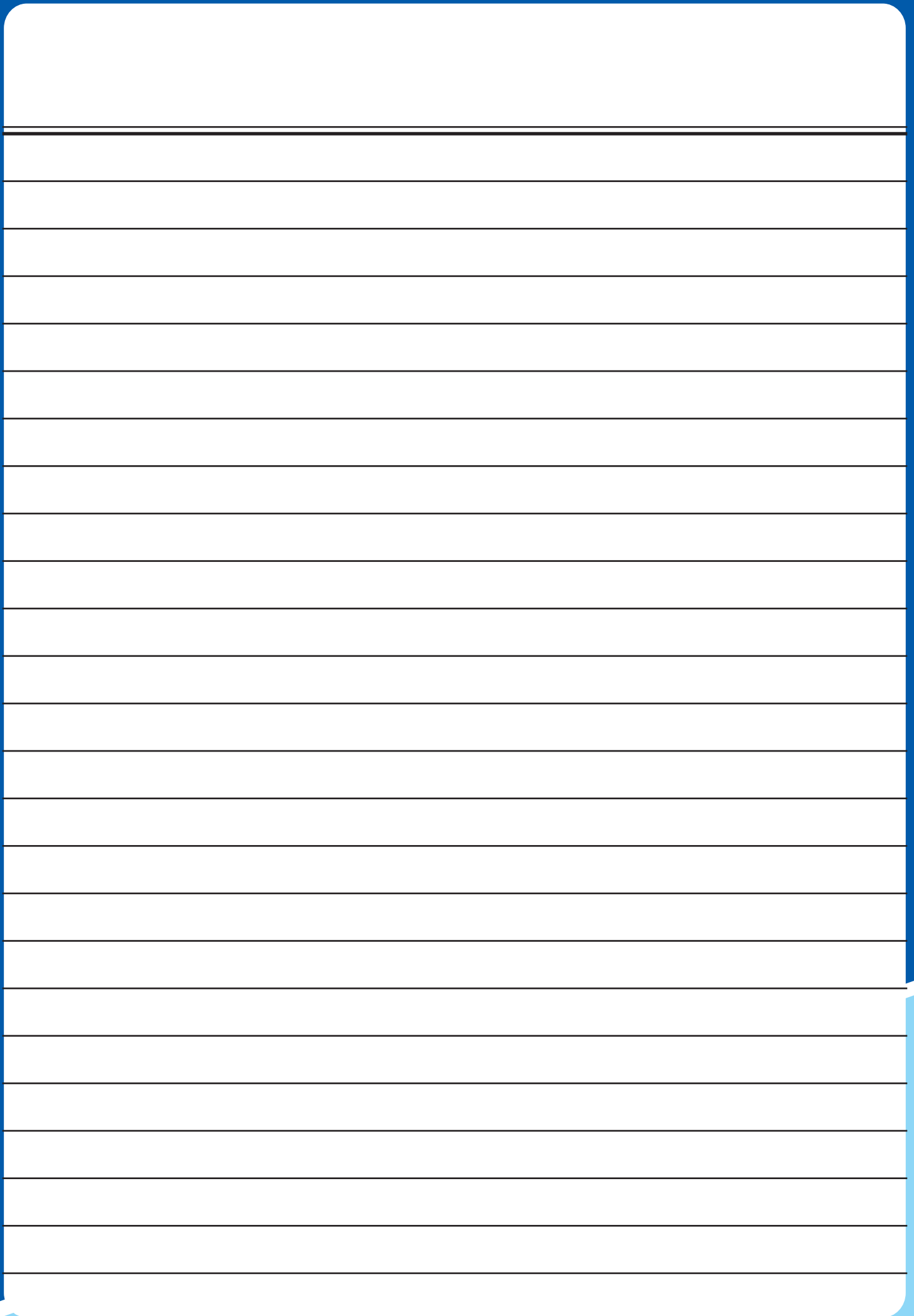
E.2 How to control and reduce the infection as soon as an outbreak occurs


- Segregate sick animals.
- Stop all animals, animal products, vehicles, and persons coming into and out of the farm.
- Call a veterinarian for advice, and adopt containment vaccination.
- Avoid grazing in a common place.
- Ban all visitors to the farm.
- Provide foot dips containing disinfectants at the entry of the farm and gear up sanitation and hygiene.



F. Deworming in goat

- The kids should be dewormed at the age of 3 months.
- In case of goats, the deworming should be done at an interval of 2 to 3 months.
- The deworming should be done with the advice of a veterinary doctor.
- The dewormers should be changed at a regular interval. Also, the dewormer should be given according to the weight of the animal. Excess or low dosage and the repeating of deworming drug may develop "Drug resistance". This may reduce the effect of our dewormer.
- Nowadays, combinations of dewormers are available for multiple worms. It is better to give combination of dewormer for multiple worms, than a specific worm.
- External parasites can be removed by allowing the animal for dipping.
- It will be better to avoid dipping in case of pregnant and sick animals.



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सत्यमेव जयते

Ministry of Rural Development



**Technical bulletin: Goat farming
Sustainable livelihood for SHG women
Part 1: Breeds of Goat in India**

A. Introduction

The Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) is a flagship program of Govt. of India, dedicated to eradicating poverty and promoting sustainable livelihoods in rural areas. DAY-NRLM focuses on empowering rural women through the formation of Self-Help Groups (SHGs) and community institutions and is making concerted efforts to augment the livelihoods of SHG women through multiple activities which include farm, farm-allied, and non-farm activities. Livestock is one of the crucial components of these activities. It offers SHG women an opportunity to generate income, achieve self-sufficiency, and strengthen their economic prospects.

In India, amidst various livestock farming sectors, goat rearing has emerged as a lucrative and sustainable venture, catering to the growing demand for quality meat, milk, fiber, etc. With its adaptability to diverse environments and relatively low maintenance requirements, goat farming presents an attractive opportunity for SHG women. This bulletin aims to equip farmers with the knowledge necessary for efficient and profitable goat rearing.

The Technical Bulletin has been structured into **four parts** to serve as a comprehensive resource for individuals and organizations seeking to enhance their knowledge and skills in goat farming. Each part offers specific insights and guidance, covering various aspects of goat rearing, from its significance to the selection of breeds, shed construction, **feeding, health & disease management, and general management practices**. By dividing the information into these distinct sections, the Technical Bulletin aims to provide a systematic and accessible resource that equips readers with the knowledge and skills necessary for successful and sustainable goat rearing. These four parts collectively offer a valuable reference for achieving success in the field.

This section introduces Goat farming, its relevance, available goat breeds in India, things to keep in mind while selecting the goat, breeding management, care during pregnancy, care during care of kids, care of bucks, castration of bucks, etc. With the potential to generate sustainable livelihood, goats offer an accessible and economically viable opportunity for women to secure their financial independence.

B. Goat Rearing A Sustainable Livelihood for Women

The goat, often referred to as the "poor man's cow," is a versatile animal extensively raised for its meat, known as chevon. Beyond their meat, goats serve additional purposes such as milk and fiber production. The practice of goat farming holds vast potential to bolster the livelihoods of resource-poor households, particularly in remote, tribal, and ecologically vulnerable areas. Farmers keep goats as a source of additional income and as insurance against income shocks of crop failure. In addition, the rural poor who cannot afford to maintain a cow or a buffalo, find goat as the best alternative source of supplementary income and milk. It is a good source of livelihood mostly in dry areas and best for marginal and landless farmers.

Implementing enhanced management practices concerning **fodder, feed, shelter, and disease and parasite control** can significantly increase income for households engaged in goat farming. By optimizing these aspects, goat farming emerges as a sustainable and economically viable venture, contributing not only to the nutritional needs of communities but also fostering economic stability in diverse and challenging environments.

C. Benefits of Goat Rearing

1. Low Investment and Minimal Feed Needs:

- Requires lower investment.
- Meagre needs for fodder and fewer feed requirements compared to other livestock.

2. Multi-purpose Animal: Goats produce meat, milk, hide, fiber, and manure, making them a versatile livestock option.

3. Tolerance to Hot Climate:

- Goats are more tolerant of hot climates compared to other animals.

4. Space-Efficient and Minimal Housing Requirements:

- Requires less space.
- Has less demand for modern housing and other management because of small size and docile nature.

5. Early Maturation and Prolificacy: Goats achieve sexual maturity early, have a short gestation period, and often give birth to twins, making them prolific.

6. Ideal for Mixed Species Grazing: Goats can thrive on a variety of vegetation including thorny bushes and agricultural by-products.

7. Manure Utilization:

- Goat dung can be used as effective manure.

8. Meet Cash Demands through Meat Sales:

- Heavy demand for meat makes it profitable.
- Selling a goat can easily meet cash demands for households.

D. Different Breeds of Goat in India

India boasts a rich diversity of goat breeds, each uniquely adapted to the country's diverse climatic conditions and agricultural practices. These breeds play a crucial role in providing livelihoods to millions of rural households through their contributions to milk, meat, and fiber production. Here's a brief overview of some prominent goat breeds in India.

NBAGR (National Bureau of Animal Genetic Resources) is the nodal agency for the registration of indigenous breeds in the country. It has identified 37 indigenous breeds of goat body characteristics and their production has been discussed below:

1. Breed: Attapady

Native tract: Kerala

Breed Characteristics: Body Characters: Eyes: bronze colored, black horns curved backward oriented tips. Ears: black and pendulous. Tail: curved and bunchy. Bowl-shaped udder with funnel-shaped teats.

Production: Poor milk producers, reared mainly for meat. The average weight of adult males and females is around 34.47 kg and 31.31 kg.



2. **Breed:** Barbari

Native tract: Uttar Pradesh and Rajasthan

Breed characteristics: Body characters: Brown and white with black spots, skin almost red colored, muzzle: brown and white colored, hoofs black colored, Head-small and broad and straight facial line, horn- medium length and directed upward backward. Ear-small and erect, compact body and bulging eyes.



Production: Dual-purpose breed, reared both for meat and for milk (107 liters per lactation 150 days). Low kid mortality. The average body weight of adult males is 38Kgs and females is 23 Kgs.

3. **Breed:** Beetal

Native tract: Punjab

Breed characteristics: Body characters: Long legs, long and pendulous ears, short and thin tails, and backward curved horns.



Production: Both for meat and dairy purposes. Milk production of 157-288 Kg per lactation. Adult buck 50-60 Kg and doe 30-35 Kg.

4. **Breed:** Black Bengal

Native tract: West Bengal

Breed characteristics: Body characters: Typically have black fur, although they can also be brown, white, or gray. Small in size but its body structure is tight. Horns are small and legs are short. High prolificacy, low demand for feed, tolerance to harsh weather conditions, and disease resistance.



Production: Remarkably good quality red meat and skin.

5. **Breed:** Changthangi

Native tract: Jammu and Kashmir

Breed characteristics: Body characters: Small goat. Both sexes are horned; the horns are large and twisted. The ears are small and upright.



Production: Apart from meat, the breed is highly prized for pashmina. The fine costly hair is harvested once a year, generally in June/July, either by shearing or by combing. The average production of pashmina is 215 g with a variation range of 70-500 g per goat. The average male weight is 20 Kg.

6. **Breed:** Chegu

Native tract: Himachal Pradesh

Breed characteristics: Body characters: Head is short with a concave forehead and tapering face and muzzle. The ears are medium-sized (10-12 cm) and horizontally carried. The beard is present in most animals of both sexes.



Production: Recognized for their multifarious utility as a provider of quality meat (chevon), "pashmina" the valuable textile fiber, coarse fiber, manure, hide and skin, and milk to a limited extent.

7. **Breed:** Gaddi

Native tract: Himachal Pradesh

Breed characteristics: Body characters: Medium-sized goat usually with white coat color, long horns, long drooping ears, and convex nose line. The tail is small and thin. The breed is considered medium-sized. Udder: Small and well set with conical teats.

Production: Valued for the hairs, used for making rugs, ropes, and other items of domestic utility. also used for meat production and as pack animals particularly males for transportation of mercantile in hilly terrain.



8. **Breed:** Ganjam

Native tract: Orissa

Breed characteristics: Body characters: Medium-sized body. ideal for meat production purposes. Tall, coat color varies but black predominates over white, brown, or spotted. Hairs are short and lustrous. Both sexes have long and straight horns directed upward and slightly backward.

Production: Weight of adult male 44 Kgs and female 32 Kgs. 35.5-65 Kg milk per lactation.



9. **Breed:** Gohilwadi

Native tract: Gujarat

Breed characteristics: Body characters: Medium to large-sized animals. Mainly in black color. The body is covered with coarse long hairs. The nose line is slightly convex, with tubular and drooping ears. Both Bucks and does are generally horned. Horns are slightly twisted and turned backward.

Production: Multipurpose breed yielding meat, milk, and fiber.



10. **Breed:** Jakhrana

Native tract: Rajasthan

Breed characteristics: Body characters: Large size goat with a compact body. The coat color is black with white speckles on the ears. The hair on the coat is short and lustrous. The face is straight with a raised forehead.

Production: High milk production and excellent meat quality, make it a profitable option for farmers. These goats can adapt well to different environmental conditions, making them suitable for semi-arid areas.



11. **Breed:** Jamunapari

Native tract: Uttar Pradesh

Breed characteristics: Body characters: Large-sized, tall, leggy with large folded pendulous ears and prominent Roman nose. There is a great variation in coat color, but the typical coat is white with small tan patches on the head and neck. carry long and thick hair on their hindquarters and have a glossy coat.

Production: The most productive goats of India, the production of milk and meat is very high as compared to other breeds.



12. **Breed:** Kanni Adu

Native tract: Tamilnadu

Breed characteristics: Body characters: Tall animals, predominantly black with white or brown stripes on either side of the face and white or brown under the belly and inner sides of the legs. The ears are medium long, males are horned and females are polled. The tail is medium-sized and thin; the udder is small and round, with small teats placed laterally. The special features of Kanniadu goats are early sexual maturity, high prolificacy



Production: Usually grown for meat purposes and not milk.

13. **Breed:** Kutchi

Native tract: Gujarat

Breed characteristics: Body characters: The coat is predominantly black, but a few white spotted animals are also found. Ears are medium in size, floppy, and drooping with typical white markings. The coat is shaggy and dull in appearance with medium to long coarse hair. Medium-sized animals.



Production: Average milk yield is around 2 kg/day under stall-fed conditions and 0.5 to 1 kg on grazing resources. The annual yield of hair is about 200 gms when shorn twice a year.

14. **Breed:** Malabari

Native tract: Kerala

Breed characteristics: Body characters: Small to medium-sized, predominantly white. The majority have protuberance (wattles) from the neck. The presence of wattles in this breed is considered to be a trait of the Malabari breed. Beards have been observed in some animals of both sexes.



Production: The average yield was about 500 - 700 ml of milk a day and could be milked for four to five months. The average body weight of males is 38.5 Kg and females is 30.5 Kg.

15. **Breed:** Marwari

Native tract: Rajasthan

Breed characteristics: Body characters: Desert goat breed. tolerance to hot and cold climates. Disease resistant, thrives in harsh nutritional conditions medium-sized animal with predominantly black color. But goats with brown and white markings are also found. Their coat contains long hairs, and the coat is shaggy and dull in appearance. usually bearded. Their tail is small and thin. The Udder of the does is small and round with small teats placed laterally.



Production: They are pretty good milk producers and on average produce about 0.5 to 1 kg of milk daily when raised on a grazing system. They can produce about 2 to 3 kg of milk if raised in stall fed system. The product includes meat, skin, and fibers.

16. **Breed:** Mehsana

Native tract: Gujarat

Breed characteristics: Body characters: Medium-large in size with a convex face profile. The coat color is greyish-black with long and coarse hairs. Ears are white with black markings, leafy and drooping. Both sexes are horned which have one or two twists and curved upward and backward with pointed tips.

Production: Milk production is 1.3kg per day. The average weight of adult males is 36-39 Kg and an adult female is 33Kgs.



17. **Breed:** Osmanabadi

Native tract: Maharashtra

Breed characteristics: Body characters: Both males and females are medium-sized with long bodies and legs. Mostly black with small straight/curved horns (about 13 cm) turned backward, upward, and downwards. Drooping ears which are about 20 cm in size may be either black or with white spots.

Production: Good meat production, higher kidding percentage of twins and triplets, and early puberty.



18. **Breed:** Sangamneri

Native tract: Maharashtra

Breed characteristics: Body characters: A dished or straight facial line and a wedge-shaped body. Medium-sized animals. They have no uniform color, it varies from white, black, or brown, with spots of other colors. Ears are drooping. Both sexes have horns directed backward and upward.

Production: Does weigh at least 64 kg. Average daily milk yield varies between 0.5 to 1.0 kg with an average lactation length of about 165 days.

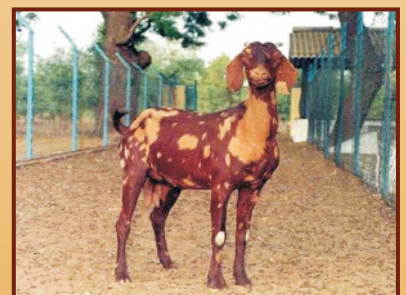


19. **Breed:** Sirohi

Native tract: Rajasthan and Gujarat

Breed characteristics: Body characters: The head is proportionate to the body size. The face is long and slightly convex, the nose is Roman-type, and the muzzle is brown. Ears are flat and leaf-like, medium-sized and drooping, horns are medium in size, grey in color, and curved upwards and backward.

Production: Good milk yield of 2-3 liters per day, average weight of male is 35-40 Kgs and female is 25-30 Kgs.



20. **Breed:** Surti

Native tract: Gujarat

Breed characteristics: Body characters: It is a small to medium-sized goat with a compact body. The coat colour is predominantly white having short and lustrous hairs. Ears are medium-sized and kept drooping. Their facial profile is slightly raised, and the forehead is prominent.



Production: The average adult body weight of Surti males and females ranges from 25-30 kg and 22-25 kg respectively. The average daily milk yield varies from 1.2-2.0 kg/day under village conditions

21. **Breed:** Zalawadi

Native tract: Gujarat

Breed characteristics: Body characters: It is a medium to large-sized breed of dual utility with long legs. The coat is predominantly black with lustrous, long shining hairs. Both males and females have twisted corkscrew-type horns directed upward and backward with pointed tips. Ears are long, leafy, and drooping and are invariably white-speckled. Udder is large and well developed with long conical teats



Production: The average body weight of adult males and females are 38 and 32 kg respectively. The average daily milk yield is 1.75 kg ranging from 1.5-2.0 kg/day. The prolificacy is high with 55% twinning and 2% triplets.

22. **Breed:** Konkan Kanyal

Native tract: Maharashtra

Breed characteristics: Body characters: Bilateral white strips from nostrils to ears; a flat and broad forehead; flat, long drooping ears; backward, straight, pointed, cylindrical horns; white muzzle and long legs, laterally black, medially white from knee to the fetlock joint.



Production: Reared mainly for meat purposes with milk production of 0.5 to 1 liter per day. The body weight of adult bucks and does averages 35 and 30 kg respectively. Regular breeders breed around the year, with a twinning percentage of about 66%.

23. **Breed:** Berari

Native tract: Maharashtra

Breed characteristics: Body characters: The coat color is light to dark tan. Thigh hair, eyebrows, and nostrils are tan to black. The horns and ears are flat, leafy, and drooping. The head is convex-shaped with a slightly Roman nose and light or dark stripes on the lateral sides extending from the base of the horn to the nostril.



Production: Average body weight in males is 38-40 Kgs and in females is 30 Kgs. Milk production of 23 Kgs in 123 days

24. **Breed:** Pantja

Native tract: Uttarakhand and Uttar Pradesh

Breed characteristics: Body characters: The color of the goats is brown/ fawn with a white streak on either side of the face. The Head Is Slightly Convex. Ears Are pendulous. Small-sized horns (about 10 cm), which are triangular, twisted, pointed at the tip and oriented slightly upwards and backward.



Production: Reared for meat and milk.

25. Breed: Teressa

Native tract: Andaman & Nicobar

Breed characteristics: Body characters: Tall, sturdy, brownish or dark tan or black or white with white and black patches. Black hairs on the dorsal midline up to the tail. Black-colored muzzle, eyelids, and hoofs. Peculiar white patch/line starting from the inner canthus of both eyes or eyebrows and extending up to nostrils or mouth. The tail is medium to long. Large horn with a flat base. Erected ears directing downwards.



Production: The weight of the Adult body varies from 15 to 79kg. **Body weight:** Adult male: 50-70 kg, Adult female: 50-65 kg **Remarks:** These goats are semi-feral. They can survive in hot and humid climates. These goats are generally reared in free-range system. These goats are resistant to common diseases.

26. Breed: Kodi Adu

Native tract: Tamil Nadu

Breed characteristics: Body characters: Tall, long, lean, and leggy animals with compact bodies. Based on body color, they are classified into two color varieties viz. Chem-Porai and Karum-Porai.



Production: Reared mainly for meat. The weight of an Adult body varies from 15 to 59kg.

27. Breed: Salem Black

Native tract: Tamil Nadu

Breed characteristics: Body characters: Tall animals, completely black. The head is medium in length with a medium to broad forehead. The profile of the head is straight. The ears are medium-long, leaf-like, and semi-pendulous.



Production: The body weight of Salem Black goats at full mouth age was 38.5 ± 1.0 kg in males and 29.5 ± 0.6 kg in females.

28. Breed: Sumi-Ne

Native tract: Nagaland

Breed characteristics: Body characters: Head is straight. Ears are horizontal. Horns are pointed. Beard is present. The presence of long hair in adult animals is the most important Phenotypic character. The length of the fiber. However, is more in the case of males as compared to that of females.

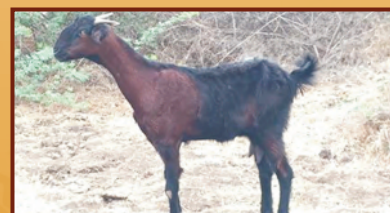


Production: Primarily used for fiber. Only old-aged animal unfit for breeding is slaughtered for meat purposes.

29. Breed: Kahmi

Native tract: Gujarat

Breed characteristics: Body characters: Coat color is unique - neck and face are reddish brown while rear abdominal part is black, Ears are long, tubular & coiled. Wattles are present in the majority of goats. The forehead is convex. Horns are directed upwards and backward.



Production: Both for meat & milk. The average daily milk yield is about 1.7kg. Adult body weight is 56kg in males and 48kg in females. The average liter size is 1.4.

30. **Breed:** Rohilkhandi

Native tract: Uttar Pradesh

Breed characteristics: Body characters: The coat color is predominantly black with a star or patch on the neck and face in some animals. The majority of animals are horned which are curved and directed laterally and outwardly. Beards and wattles are absent in both sexes. The forehead is slightly convex. A tuft of hair (black or brown) is present in the thigh region. The tail is bunchy.

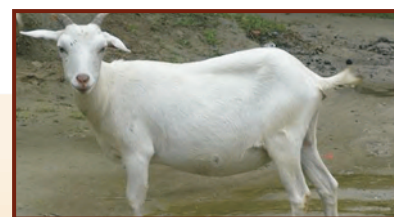


Production: Reared for meat and milk. Adult body weight ranges from 25 to 36kg in males and from 21 to 31kg in females. Twinning is common and triplets are frequently observed. The average litter size is 1.57. Daily milk yield ranges from 450 to 740g.

31. **Breed:** Assam Hill

Native tract: Assam and Meghalaya

Breed characteristics: Body characters: Mostly white with occasional black patches on the backline and legs. Short-legged with a small body size. Both buck and does are bearded and have short cylindrical horns that are directed upwards and outwards. Ears are medium in size, horizontally placed with pointed tips.



Production: Meat-type animal with high prolificacy. These goats are reared mainly for meat. Adult body weight ranges from 15 to 26kg. Age at first kidding ranges from 337 to 447 days. The average litter size is 1.6.

32. **Breed:** Bidri

Native tract: North East Karnataka

Breed characteristics: Body characters: Black-colored goats. The muzzle, eyelids, and hooves are black. Horns are present and are directed backward, outward, and downward. Ears are pendulous.



Production: Reared for meat only. Twinning is common but first kidding is single. The average litter size is 1.7. Adult weight varies from 23 to 52kg in males and 19 to 45kg in females.

33. **Breed:** Nandidurga

Native tract: Karnataka

Breed characteristics: Body characters: These are white-colored goats found in the southern part of Karnataka. The muzzle, eyelids, and hooves are black. Ears are leafy and pendulous. Horns are directed backward, downward, and inward touching the neck in a few animals. These are reared for meat only. Twinning is common.



Production: Adult weight varies from 26 to 56kg in males and 24 to 41kg in females.

34. **Breed:** Bhakarwali

Native tract: Jammu and Kashmir

Breed characteristics: Body characters: Face or hindquarters are black in some animals. Pure black goats are also found. The whole body is covered with long hair. These are large-sized goats having a convex head. Ears are cut and pendulous. Horns are screw-type and are carried upwards and backward. These are reared for meat and milk. The udder is pendulous.



Production: Average adult body weight varies from 35 to 60kg in males and 30 to 50kg in females. The average daily milk yield is about 900g.

35. Breed: Lahuri

Native tract: Rajasthan

Breed characteristics: Body characters: Highly homogenous goat, medium type and both sexes are horned. Ear length is exceptionally long, reaching up to 28 cm in many cases. Horns are highly coiled.

Production: The goat is reared for meat purposes only.



36. Breed: Karauli

Native tract: Rajasthan

Breed characteristics: Body characters: Medium to large. The coat color pattern is black with brown strips on the face, ears, abdomen, legs, and near-pin bones. Ears in Karauli goats are long, and pendulous with folded and brown lines on the border of the ears. roman nose. The horns are medium-sized corkscrews in shape which are pointed upwards bucks have prominent hanging dewlap.

Production: Adult weight is about 52.0 kg in males and 45.0 kg in females. Average daily milk yield, lactation milk yield, and lactation length are 1530.43 ± 19.61 gm, 270.04 ± 2.24 kg, and 251.70 ± 6.53 days, respectively



37. Breed: Gujari

Native tract: Rajasthan

Breed characteristics: Body characters: Large-sized dual-purpose breed, brown and white mixed coat color, while white colored face, Ears are long, pendulous, and folded, and horns are small, backward, and twisted. Males have beards while it is completely absent in adult females. The dewlap is present in the majority of animals.

Production: Average adult weight is about 69.0 kg in males and 58.0 kg in females. Average daily milk yield, lactation milk yield, and lactation length are 1616.47 ± 11.45 gm, 347.54 ± 2.24 kg, and 250.46 ± 0.95 days, respectively.



38. Breed: Sojat

Native tract: Rajasthan

Breed characteristics: Body characters: The coat is white with brown spots on the head, neck, ear, and legs, however, pure white animals are also available in the field. Ears are long, pendulous, and folded, and horns are small, backward, and twisted. Males have beards while it is completely absent in adult females. The dewlap is present in the majority of animals. The horns are curved and downward oriented, twisted in females while males are completely polled.

Production: Large-sized dual-purpose goat; reared for both meat and milk purposes. The average adult weight is about 60.0 kg in males. The average milk yield in females is about 1 kg per day.



E. Selection of Goats

- Should be healthy and lively.
- Select soft, Thin skin and shiny goats.
- A goat should have a strong, level top and a long rump with a slight slope from hooks to pins. The broad back and rib cages indicate that the goat has better feed intake capacity.
- Younger goats around eight weeks old are cheaper and friendlier to procure than older goats

Male: Female Ratio

Goats are of three types:

1. Females or Does
2. Uncastrated males or bucks
3. Castrated males or weathers.

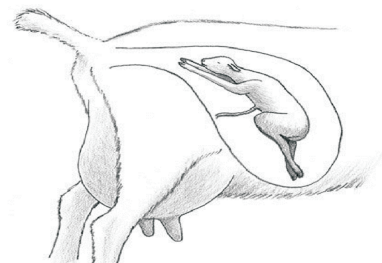
F. Breeding Management

- Keep one high-yielding male (Buck) for every 20 female goats (does) to maintain maximum fertility.
- Breed the animals when it is in peak heat period (12 to 36 hours of heat).
- Mating only when female goats show symptoms of estrous (heat) ie. restlessness, enlargement of the vulva, loss of appetite, increased vocalization, frequent urination, red swollen vulva, riding other females, the elevation of the tail, arched back, etc.
- Inbreeding should be avoided.
- If they have no kidding for a complete one year they should be removed from the flock.



G. Care during pregnancy period

- Give balanced nutrition in this phase.
- Provide Azola and other cultivated leaves also.
- Need enough mineral mixture along with protein for better babies.
- Don't take pregnant goats to long distances.
- Provide clean water only.
- No deworming and vaccination during pregnancy.
- Keep the pregnant goats separate from male goats.



H. Care during delivery

- Keep the goats in the proper place, and keep straw or jute bags on the floor.
- Clean the kid/kids with a clean towel just after delivery.
- Examine the eye, nose, and ear of kids just after delivery.
- Put a tincture of iodine at the naval cord.
- Keep the kids in a place with good lighting.

I. Castration

Castration is the destruction or removal of the testicles of the male. It is carried out on animals that are not wanted for breeding.

Castrations are to be done within 2-3 months of age and to be done in the morning on an empty stomach.

Do castration with a castrator machine only for proper hygiene. Castration helps:

- To render the animal docile
- To induce faster gain in body weight and to improve the quality of meat.
- To control indiscriminate breeding.





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