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Care, Management and General Husbandry of Goats

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Goat farming is an important livestock enterprise in India, particularly for landless, small and marginal farmers, as it requires relatively low initial investment and provides milk, meat, skin, fibre and employment opportunities. Goats are adaptable to diverse agro-climatic conditions and can efficiently utilize shrubs, tree leaves, crop residues and other locally available feed resources. Successful goat production, however, depends on the adoption of scientific practices related to housing, nutrition, breeding, reproduction, health care and general husbandry. This article discusses the major systems of goat rearing, including tethering, extensive, intensive and semi-intensive systems, along with their management requirements. Proper site selection and housing management are essential to provide adequate ventilation, protection from adverse weather, sufficient space and hygienic conditions. The selection of healthy breeding stock, appropriate buck-to-doe ratio, planned breeding schedules and suitable reproductive management practices can improve reproductive performance and productivity. Special attention should be given to pregnant goats and newborn kids through adequate nutrition, hygienic kidding management, umbilical cord care and timely colostrum feeding. Health management is another critical component of profitable goat farming. Early identification of clinical signs, isolation of sick animals, appropriate vaccination, deworming and timely veterinary intervention help reduce disease incidence and production losses. Balanced feeding, based on the animal's age, body weight, physiological status and production purpose, is necessary to support growth, reproduction, milk production and meat yield. The integration of scientific management practices can improve resource utilization, animal welfare and farm profitability. Overall, goat farming has considerable potential to support rural livelihoods, generate employment and strengthen the economic security of resource-poor households. Dissemination and adoption of appropriate scientific goat-rearing technologies can contribute to sustainable livestock production and rural entrepreneurship in India.

Keywords: Goat farming; Housing management; Feeding and nutrition; Breeding management; Health management; Sustainable livestock production.

Introduction

In India, goats are primarily reared by landless, small and marginal farmers. Goats are raised mainly for milk and meat and are considered multipurpose animals. Goat farming is a profitable enterprise that requires minimal investment and is particularly suitable for rural areas. Goats are often referred to as the "poor man's cow" in India. Goats are particularly important in rainfed farming systems. They are highly suitable for areas where other livestock species, such as cattle and buffaloes, are less productive or difficult to maintain. Goats can survive on land with low fertility and can efficiently utilize shrubs and trees available in harsh environments. India possesses considerable genetic diversity in goats. Different breeds are adapted to various geographical and climatic conditions and differ in their production potential. The estimated goat population in India can be determined from livestock census data, which also document the distribution of different breeds. According to the 20th

Livestock Census, India had approximately 14.89 crore goats and 45 registered goat breeds. There is considerable potential for goat farming in rural India. To utilize this potential fully, goat rearing needs to be promoted among rural communities through awareness programmes and various forms of support.

Benefits of Goat Farming

- Low initial investment: The initial investment required for goat farming is generally low.
- Easy housing and management: Because of their small body size and calm temperament, goats require less housing space, and their management is comparatively easy.
- Early sexual maturity and reproduction: Goats are prolific breeders and generally attain sexual maturity at 10–12 months of age. Their gestation period is short, and they can begin producing milk at approximately 16–17 months of age.
- Low risk in drought-prone areas: Compared with other livestock species, goat farming involves relatively low risk in drought-prone regions.
- Efficient utilization of vegetation: Goats are ideal for browsing mixed vegetation. They can efficiently consume shrubs, thorny bushes, weeds, crop residues and agricultural by-products that may otherwise be unsuitable for human consumption.
- Easy digestion of milk: Goat milk is generally considered easier to digest than cow's milk because its fat globules are smaller and naturally well dispersed.
- Goat milk is considered beneficial for improving hunger and digestive capacity. Compared with cow's milk, goat milk is less likely to cause allergic reactions in some individuals and possesses antifungal and antibacterial properties. Goat milk has also been found useful in combating dengue fever
- Goat meat contains relatively low cholesterol and is suitable for people who prefer low-energy diets, particularly during summer. Because of its taste and texture, goat meat is preferred over mutton by many consumers.
- Goat farming generates employment for rural poor people and provides an effective means of utilizing family labour. There is considerable scope for establishing cottage industries based on goat meat and milk products, as well as for adding value to goat skin and fibre.

Major Systems of Goat Rearing

1. Tethering

When a farmer has only one or two goats and proper grazing arrangements are not available, the animals can be tied to a fixed post using a rope approximately 30–40 metres long and allowed to graze within the accessible area.

2. Extensive System

This system is widely practised in India. It is an economical method of goat rearing because it requires fewer resources and comparatively low investment. The cost of goat rearing is also low in this system. Goats are kept in open enclosures and allowed to move from one place to another in search of available grazing resources. In this system, the availability of pasture varies according to the season, and sometimes the quality of available fodder is poor. Consequently, nutritional deficiencies and other management problems may arise.

3. Intensive System

In this system, a separate shed or enclosure is constructed for the goats, and each goat is provided with a designated space. There is no provision for grazing, and the goats are fed and maintained within the housing facility.

4. Semi-Intensive System

In this system, goats receive part of their nutritional requirements through stall feeding, while the remaining requirements are met through partial grazing. Fencing or an enclosure is provided to keep the animals in a designated area. This system is considered economical and profitable because approximately 60% of the expenditure is incurred on feeding. If goats are managed properly, this system can be profitable. If a farmer intends to rear a particular breed,

its economic characteristics and other relevant information should be known to ensure that goat farming becomes a profitable enterprise.

Selection of a Suitable Location for Constructing a Goat Shed

Selecting an appropriate location for constructing a goat shed is very important. The site should be slightly elevated, well ventilated, clean and adequately illuminated. It should also have sufficient grazing or fodder resources available for the goats. Such a location can be selected in a village or rural area away from the city. A land area of approximately one to two acres is sufficient to start this enterprise.

Housing Management

For small-scale goat production, housing is generally not a major problem. Providing goats with a dry, comfortable and safe shelter is sufficient for their basic housing requirements. Goats should be provided with shelter that protects them from insects, excessive heat and adverse weather conditions. In Indian villages, where the climate is generally dry, goats are often kept under the shade of trees. During the rainy season, they should be protected from predators such as dogs, wolves and leopards. Young kids should be kept in large, inverted baskets until they are strong enough to walk adequately alongside their mothers. Adult males and females are generally housed together. In hot and humid regions, raised platforms with slatted floors are essential because goats are highly sensitive to dampness and cold. If goats are kept in urban areas or organized housing facilities, suitable accommodation must be provided. The goat shed should be constructed on dry, elevated ground. Construction in waterlogged or marshy areas should be avoided. In low-lying areas with heavy rainfall, the floor should preferably be raised. In hilly regions, wooden flooring may be used. The shed should be approximately 10 feet high and adequately ventilated. Goats should be kept in separate pens, while female goats may be housed in groups of approximately 60 animals per pen. During summer, adequate shade and cool drinking water should be provided. Goat dung and urine should be disposed of properly. The shed should provide sufficient space for animals to prevent overcrowding and excessive stocking density.

The following environmental conditions are important for goat housing:

- Internal temperature: 28–30°C
- Relative humidity: 60–70%
- Air velocity: 5–8 km/hour

Space Requirements According to the Age of Goats

Age/class of goat	Covered area (m ²)	Open area (m ²)	Number of animals	Feeding space (cm)
Up to 3 months	0.20–0.25	0.4–0.5	25	30–35
3–6 months	0.5–0.75	1.0–1.5	25	30–35
6–12 months	0.75–1.0	1.5–2.0	25	30–35
Adult female goat	1.0	2.0	60	40–45
Adult male goat	1.5	3.0	1	40–45
Lactating and pregnant goats	1.5–2.0	3.0–4.0	8–10*	40–45

Goat Housing Management and Selection of Breeding Stock

1. Construction and Management of a Goat Shed

A medium-sized goat farm can be started with 100 female goats and 6 male goats. The shed should measure approximately 60 × 18 × 12 feet. Each goat should be provided with 1–1.5 m² of covered space and 2 m² of open space. The shed should have adequate space, proper lighting and regular cleaning arrangements. The roof should be constructed using asbestos sheets, with approximately one-third of the shed covered by the roof and the remaining two-thirds left open. Trees should be planted around the shed to provide shade and create a favourable environment. The floor of the shed should have a slight slope to allow urine and

other waste to drain easily. If the floor is made of bricks, a layer of soil should be spread over it, and lime may be used where appropriate. The floor must always be kept dry. The walls should be approximately 12 feet high and may be constructed using bricks and cement or bamboo fencing. The shed should have openings facing east and west. The side and rear walls should be at least 12 feet high and approximately 10 inches thick to help maintain suitable indoor temperatures during hot and cold weather. The front wall should be approximately 5 feet high, with wire mesh extending up to 7 feet above it. This arrangement promotes cross-ventilation and allows fresh air to enter the shed, which is essential for goat health. The goat house should be divided into three sections so that males, females and kids can be housed separately. The platforms for drinking water and feeding troughs should preferably be made of cement.

2. Selection and Management of Breeding Stock

Breeding stock should always be purchased from reliable breeders or nearby livestock markets with a good reputation. Animals should be purchased under the guidance of a veterinarian. Preference should be given to animals that are healthy and possess desirable physical characteristics. The animals selected should be ready for breeding and should be in an appropriate stage of production. Newly purchased animals should be identified using suitable identification marks and kept under observation for approximately 15 days before being introduced into the regular flock. Unproductive animals and animals aged six years or older should be removed from the breeding stock. Newly purchased animals should then be selected to replace them.

Goat Breeding Management, Care During Pregnancy and Care of Newborn Kids

1. Breeding Management

Animals should be replaced with new breeding stock when necessary. A breeding plan should be prepared to prevent kidding during periods of extreme heat and cold. For maximum productivity, goats should generally be bred at intervals of 8–9 months. Specific breeds should be selected according to the production objective, such as:

- Milk production: Goats selected for dairy purposes.
- Meat production: Goats selected for meat production.
- Fibre production: Goats selected for hair or fibre.
- Sale for specific occasions: Goats selected for sale during particular festivals or occasions.

Some well-known Indian goat breeds used for milk and meat production include Jamunapari, Surti, Barbari, Malabari, Sirohi, Beetal, Osmanabadi and Jakhrana. With proper management, farmers should aim to obtain three kids within two years. One buck should be provided for every 25 breeding females during a breeding season. For maximum conception, goats should be bred approximately 12 hours after the first signs of heat are observed. If infertility occurs, the animals should be thoroughly examined by a veterinarian to identify the underlying cause. If necessary, affected animals should be removed from the breeding programme. Animals diagnosed with sterility should be examined by a veterinarian and excluded from breeding when appropriate.

2. Care During Pregnancy

Pregnant goats should be kept in a separate enclosure.

- Provide adequate nutrition and palatable, soft fodder during pregnancy.
- Prevent goats from fighting with one another.
- Do not allow them to mix with recently purchased animals.
- Before kidding, trim the hair around the udder, hindquarters and tail to maintain cleanliness.
- If a goat continues to produce milk, dry it off approximately 6–8 weeks before the expected kidding date by stopping milking.

3. Care of Newborn Kids

Immediately after birth, clean the newborn kid and gently remove the sticky membrane and fluids from its body using clean, dry jute cloth or a soft towel. The kid should be held briefly

with its hind legs raised to help clear the respiratory passages and facilitate the initiation of breathing. The kid generally stands up and begins walking within approximately half an hour after birth. Dip the umbilical cord in povidone-iodine solution immediately after cutting or treating it, and repeat the treatment after 12 hours. The kid should receive its first feeding of colostrum within 30 minutes of birth. If the kid is unable to suckle properly, gently hold the udder and guide the teat into its mouth to help it obtain colostrum. Once kids begin consuming a small quantity of milk, they generally learn to suckle without much difficulty.

Identification of Sick Goats and Health Management

Identification of Sick Goats and Health Management

Many diseases can be prevented and treated, but some may cause severe losses and even death. These diseases can seriously affect the entire livestock enterprise. Health management is therefore an essential component of successful goat farming. A sick animal may be unable to maintain its normal physical condition or production level. The cost of treatment must also be borne by the farmer, resulting in financial losses rather than profits. Farmers sometimes take too long to recognize that an animal is sick or to seek veterinary advice. Consequently, the disease may become severe, and saving the animal may become difficult or impossible. Goat farmers should remain vigilant and initiate basic care immediately when they observe the following symptoms. Veterinary assistance should be sought promptly.

Signs and Symptoms of Sick Goats

- Lethargy: The animal appears dull, inactive and remains in one place.
- Isolation: The animal separates itself from the flock and stays away from other goats.
- Watery or red eyes: Discharge from the eyes and mouth, sometimes accompanied by redness.
- Dry nose and rough skin: The nose becomes dry, and the skin may become rough and hard.
- External parasites: Parasites are visible on the animal's body.
- Loss of appetite: The animal refuses feed, fodder or water.
- Abnormal defecation: Frequent defecation, blood in the faeces or mucus discharge.
- Abnormal urine: Urine becomes foul-smelling, dark or reddish.
- Abnormal vaginal discharge: Foul-smelling or otherwise abnormal discharge from the reproductive tract.

Isolation and Treatment

Animals showing these symptoms should be separated from healthy goats immediately. This helps prevent the spread of infection and facilitates treatment.

Vaccination and Deworming

By adopting appropriate vaccination and deworming practices, farmers can protect their animals against diseases and parasitic infections at relatively low cost. These measures help prevent reduced production, nutritional deficiencies, impaired physical growth and other health problems. They also help maintain animal health and productivity while reducing the risk of financial losses. Important: A goat displaying these symptoms should be examined by a veterinarian. The signs listed above are not specific to one disease, so diagnosis and treatment should be based on clinical examination.

Importance of Proper Nutrition

Proper nutrition has a significant influence on animal health and productivity. Livestock can remain healthy only when they receive all the nutrients required through their feed according to their production level and physical condition. It is often observed that livestock farmers depend on whatever feed resources are seasonally available. Consequently, their animals may not receive a balanced diet, which can adversely affect their health and productivity. Adequate nutrition is essential for all bodily functions, including tissue formation, growth, production and maintenance of body temperature.

Feeding According to the Normal Behaviour of Goats

Goats have a mobile upper lip, and their teeth are adapted for browsing. They have long, narrow, flexible tongues. While grazing, goats comfortably raise their heads to eat leaves from trees. They can consume feed with a bitter taste but generally avoid feed contaminated with the leftovers of other animals or feed that has fallen onto the ground. Goats have a greater ability than many other livestock species to convert the fodder they consume into milk and meat. Their ability to digest fibre allows them to utilize coarse fodder relatively efficiently. Goats have a habit of eating frequently throughout the day. Therefore, providing a balanced diet in 3–4 small portions daily is beneficial. Providing mineral supplements or salt licks can also be beneficial. Hanging feed or mineral supplements in an appropriate feeder may help reduce contamination and maintain hygiene. The dry matter requirement of goats reared for meat production is approximately 3–4% of their body weight, whereas goats reared for milk production require approximately 4–6% of their body weight as dry matter. For higher production, a mixture of high-quality concentrate feed should be provided along with dry and green fodder as part of a balanced diet.

Conclusion

If goat farmers pay attention to nutrition, housing, breeding, health management and general husbandry practices, and implement scientific management methods, goat farming can become a source of sustainable livelihood, income and prosperity.

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