

GOAT FARMING

**A COMPREHENSIVE GUIDE TO GOAT FARMING AND
MANAGEMENT**

by

<http://www.livestocking.com>

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CHAPTER ONE

Introduction to Goat Farming

Goats are of high importance because of the many functions they provide. The rearing of goats provides a small but nevertheless significant supply of animal protein in the form of meat and milk. This is particularly important for families of low-income farmers and the landless that do not have the resources to keep a cow and cannot afford to purchase meat and milk. Access to land for smallholders is becoming increasingly precarious due to fragmentation, poor implementation of land policies, and irregular sales and allocations.

**1.1 Advantages of Keeping Goats**

- Goats serve as an inflation proof bank account which can be used when cash is required, and the kids are the interest of that account, thus spreading of risks.
- They know wide climatic adaptation, by browsing not competing for roughage with other ruminants and making efficient use of fibrous feeds.
- They can function as the “poor man’s cow” for smallholder families.

- Goats have a small size: relatively cheap to purchase, and suitable for home slaughter, sacrifice and gifts.
- There are fewer cultural restrictions on ownership and handling of goats by women and youth than for cattle or other large livestock.
- There is a fast reproductive rate: early maturing, short kidding interval, twins common, quick returns on investments, quick building up of flock.
- There are no religious taboos.

1.2 Disadvantages of Keeping Goats

- Goats are inquisitive, need proper fencing and/or stabling or active herding to prevent crop damage.
- Formal goat market chains are less developed or less accessible than other livestock value chains.
- Small value makes formal credit systems uneconomical or impossible.
- Goats are susceptible to respiratory diseases and internal parasites.

1.3 Management Systems in Goat Farming

Depending on the ecological zone and the production purpose, different farming- and management systems can be distinguished: *intensive, tethering, semi-intensive and extensive system*.

1.3.1 Intensive system or zero grazing

This system is more suitable for improved (dairy) goats in the humid and sub-humid eco-zones. In the intensive system the goats are confined to a shed and the roughage is provided by a “cut and carry” system. In an intensive management system the sheds are usually separated in a single pen for the buck and possible 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.

1.3.2 Advantages of intensive system are:

- It keeps goats from damaging crops and prevents traffic accidents.
- Goats can make efficient use of crop residues, kitchen waste/peelings and agricultural by-products.
- It is well suited to productive animals, exotic breeds and their crosses which are more susceptible to diseases.
- It reduces burden of internal and external parasites.
- It allows for close observation (heat detection, health, feed/water availability).

1.3.3 Tethering

Tethering describes a system in which goats are kept in a shed during nighttime, 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. Often the sexes are not separated in the shed, so mating is uncontrolled. Feed and water should be provided in the shed.

Two methods are common:**i. Tied to a peg**

Goats, sometimes 1 to 3 together, are tied to a peg by a rope of 3-5 meters length. By shifting the peg or choosing a different tree or post, the goats are offered a fresh grazing/browsing area (see figure 1).



Figure 1

ii. Tied to a ring on a wire between 2 pegs

A rope of about 2-3m long is tied to a ring which slides on a wire about 3-5 meters long (see figure 2).



Figure 2

Care has to be taken 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 (between 11 am and 4 pm).

1.3.4 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 gives the goats the opportunity to supplement their diet and do some selective feeding to overcome dietary deficiencies.

During the 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.

1.3.5 Extensive production system

Extensive goat husbandry systems usually involve larger numbers of animals. The goats graze and browse large areas of land that are usually marginal in nature and/or are unsuitable for other agricultural use. The system is more common in the arid and semi-arid climates. Extensive systems are common for meat and hair goats, but are rarely used for dairy goats, although some goats may be milked temporarily for family supply. A very low level of unpaid family labour represents the main input, although for large herds paid labour may be employed. Little management is practiced except to let them graze in day time 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.

CHAPTER 2

2 Housing in Goat Farming

Goats are kept in varying climates. Within each climatic zone many more, smaller zones can be distinguished which can differ greatly. Some are dry others are wet. Sometimes this is combined with heat, or in other places with cold. The conditions can be stable but are often also extremely variable. In short, each region has its own requirements for the housing of animals.

2.1 Why Should You House Your Goat?

Climate Control

An important function of housing goats is to protect their health. Just like with many other (domestic) animals, goats cannot take damp conditions nor draughts well. With good housing, a waterproof roof and draught-proof walls to keep out damp and draughts, you will avoid goats becoming sick. Goats are well protected against the cold by their coat of hair. Extreme heat, on the other hand, bothers them. A goat will search for shade by itself if it gets too hot. If no natural shade is available you must provide a shelter. Roofing materials like thatch or coconut leaves are preferred as they absorb the heat from the sun and keep the inside of the shed cooler. Corrugated iron sheets can become very hot from the radiation of the sun, leading to a higher temperature in the shed.

Especially pregnant goats, nursing goats and their young are suffering under unfavorable climatic conditions, therefore provide them with protection. Always keep an eye on their breeding, health and feeding as these aspects will be affected when housing is not adequate.

Observation

Good housing makes it easier to keep an eye on your goats. You can detect and act more easily when the goats come into heat, during mating, pregnancy and kidding when the goats are kept in a pen than if they wander around freely outside.

Disease symptoms such as diarrhoea and coughing can be noticed earlier when the goats are kept housed or penned. It makes a difference whether you house the goats individually or as a group. Within a group an inactive goat, possibly due to a disease, will be noticed sooner. A good shed has a quarantine area where you can separate goats which are probably sick.

An advantage of housing is that you can give each animal individual attention and better feed. For example, you can control the feeding of pregnant or nursing animals or a weakened, sick goat. Furthermore, there are certain housing systems, which make the milking of goats easier.

Safety

Preventing of theft can be another reason for building a shed. It goes almost without saying that the shed must be solidly built and should stand close to the house or compound. An alert watchdog (and geese) can also help. Furthermore, protection against stray dogs, predators, snakes or vampires may be necessary in certain regions.

Especially in densely cultivated areas, a watchful eye must be kept on goats to prevent them from damaging crops. Sometimes this is only necessary for a certain part of the year, when the crops are in the field.

Collection of manure

By keeping goats inside, you can collect their droppings and use these as a fertilizer. Keep collected droppings protected from rain and sunshine when storing as to maintain the fertilizer value.

2.2 Aspects to Consider for Housing

There is no blueprint for housing, choose for yourself the form which best suits your situation. Build the shed in such a way that the goats can easily stay, eat and rest there. Make sure that you can work there with pleasure. Also look for good examples in the region.

Invest in quality

The investment in good housing may seem high at the time you calculate the cost of building, but it is low in comparison to the other costs. A good shed will last a long time and reduce the cost for feed, labour, dead or stolen animals and caring for sick animals. So do not save on the cost of the building of the shed and good equipment without careful thought.

Individual or group housing

In general, goats are housed as a group because this is less labour intensive for the goat keeper and the building costs of the stable are lower. The goat is a true herd animal and prefers group housing. In order to avoid unrest the size of the herd must not be too large. If the goats do not graze, a surface area of one and a half to two square meters of floor space is needed per adult goat. If they do graze one square meter per goat is sufficient.

Temporary and permanent housing

A distinction must be made between temporary and permanent housing of goats. In temporary housing, the goats are kept penned only at night or during part of the day, the rest of the time they are grazing. If you keep them permanently penned or housed, you must take complete care of the supply of water and feed.

Temporary housing has the advantages that the shed can be smaller and that you do not have to provide all the feed and water yourself. This is only possible if there is enough pasture and/or browsing in the area. In densely populated areas with a lot of crop production, pasture is often limited and you are usually forced to keep your goats permanently housed.

In both temporary and permanent housing, the goats are kept within an enclosure. Enclosures can be made of stone piles, stakes, thorns or wire fencing. Planting a hedge of quick-growing shrubs or trees, such as *Leucaena*, *Calliandra* or *Glyricidia*, creates a possibility for fencing. Since goats eagerly eat such bushes, you will initially have to protect the young plants until they are large enough to resist being browsed. Local thorn bushes or cactuses are also suitable for making living hedges. You can put a triangle around the neck of a goat that regularly breaks through the fences (see figure 3).

2.3 How To Build a Goat Shed

A first decision is where to locate the shed. It must be near the home so that you can easily keep an eye on the goats.

Positioning the shed

Depending on the climate, the positioning of the shed can be important. By placing the length of the shed east - west, you can prevent the sun from heating up the stall too much. If, on the other hand, you want the sun to shine on the floor so that the floor dries up and parasites die, it is better to build the shed along a north - south axis. This is only relevant for ground level sheds, not for stilted sheds with slatted floors.

The roof is also very important for good temperature regulation. A wide overhang/eave prevents too much sun shining on the floor. In cooler climates, sunlight may actually be desirable to warm up the stall. In that case, a large surface area of the roof facing south (in the northern hemisphere) or facing north (southern hemisphere) is useful so that the roof which is warmed also warms up the shed (see figure 4).

Ventilation

In warm climates the shed will heat up due to sunshine. Also goats emit heat when digesting their feed. If the animals cannot get rid of that heat because the surrounding temperature is too high, they eat less and therefore produce less. Ventilation is also essential to prevent respiratory diseases to which goats are very susceptible. Make the shed sufficiently high and be sure to there are openings for ventilation in the roof or walls.

In warmer climates, where the stalls are fairly open, a low wall (of about 1.20meter) on the side the wind comes from is sufficient. A hedge can also fulfil this function.

In wet climates, it is important that the roof is waterproof and has a large enough overhang to prevent rain from blowing in. Clues for a suitable way of achieving this can be found in the way the roofs of local houses are constructed.

The floor

The floor of the stall must be easy to keep clean and should remain dry. A damp and dirty floor stimulates the development of all kinds of germs and worms. The goats also get wet and dirty, cool down too much, are susceptible to diseases and produce poorly.

- If the foundation consists of sand, urine is absorbed well. Daily collection of the droppings will keep the floor clean and allows the urine to drain into the sand.
- A hard clay or loam floor has the advantage that it is easily cleaned.
- An elevated ground level floor sloping to the sides will prevent rain water from entering the floor and allows 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 you can put bedding or litter materials in order to keep the animals clean and 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. Bedding soaks up urine and droppings, it is advisable to add enough new bedding regularly so that all urine is soaked up and the bedding stays clean and dry. Be careful that you do not bring in ticks with the bedding materials. The mixture of bedding, urine and droppings piles up and has to be removed after some time, e.g. when it is 50 cm high. This mixture makes very good compost which can be used on the home garden or field. On the bedding the hooves of the animals may grow very rapidly. These must therefore be cut back regularly.

2.4 Requirements in the shed

In all housing systems the required roofed space per adult is about 1-1.5m², depending on the breed. Some separate pens of about 2x2 m are advised for kidding and sick animals. In order to prevent spreading diseases in case of bacterial or viral infection to other animals, a separate pen can be considered outside the shed. In larger herds it is advised to keep the kids for 1-3 months in the shed when the herd is grazing. In controlled breeding systems a separate pen is required for the buck.

To facilitate easier milking, goats are placed on a platform with a feeding rack in front so you can constrain the animal and make the animal feel comfortable and at ease. Supply of feed and water in the house is important. Also for systems that rely (partly) on grazing it is advised to supply water, feed and salt/minerals in the shed during the night. Providing the feed in a rack/manger or in a net hanging from the wall or roof prevents the feed from being trampled upon and becoming dirty and contaminated with droppings and urine.

Water troughs have to be placed in the shade and be elevated to prevent contamination with droppings and urine.

2.5 Housing systems

Basically there are two housing systems, the elevated ground level shed recommended in the more extensive systems and the stilted goat shed which is most common in the intensive and semi intensive system; however, ("closed") ground level sheds are also practiced.

2.5.1 The elevated ground level shed

In this system there is a thatch roof for shade in a fenced night yard provided for the goats. This system is more suitable for arid and semi-arid areas climates where goats graze in the day time and is advised for extensive systems with meat production as the main purpose. It is simple to build and not costly. However, it requires a protective enclosure. The shed floor is raised with earth about 30 cm above the ground level and slightly sloped (see figure 3). In this way water and urine can run off at the same time preventing rainwater to enter the shaded floor, so the floor stays dry. As goats like to play, some rocks or tree trunks can be placed in the yard.

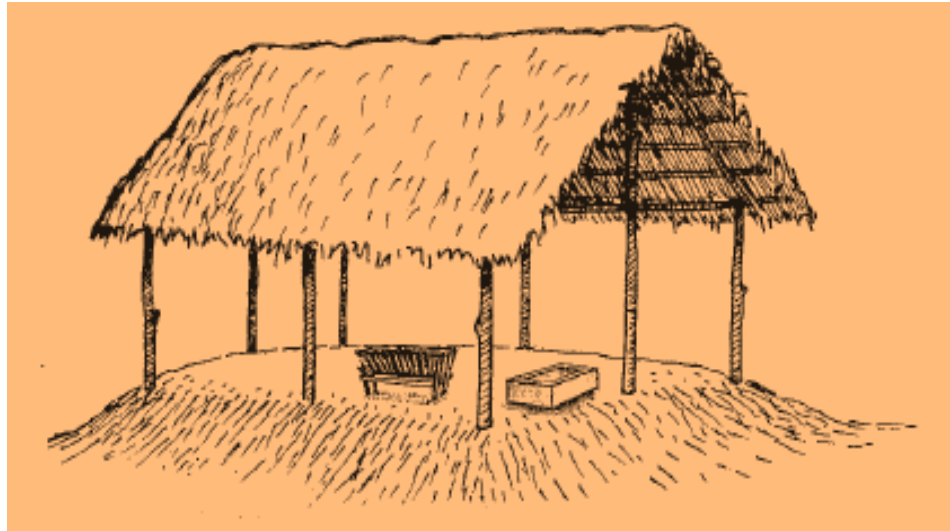


Figure 3

2.5.2 The stilted goat shed

As the stilted goats shed requires quite some investment, the system is more applicable for intensive milk- and meat production systems and certainly advised for the humid and semi-humid climates. The slatted floor, with about 1.5 cm space between the slats, is elevated about 70-90 cm above the ground. Goats reach the shed by climbing a wooden ramp.

The slatted floor is preferably constructed from wood as bamboo may cause wounds to the feet. The shed protects the goats from rain, strong winds and excessive sunshine. Infection stress and problems with internal and external parasites are strongly reduced and the goats are protected from dogs and wild animals. The shed is easy to clean and manure can be efficiently collected. The walls should be built with slats with a width of about 5 cm all around. At the lower part of the wall the slats should be about 5 to 7.5cm apart, at the higher part of the wall (1m and above) between 20 and 30 cm apart.

The walls can be constructed from wood or bamboo. This allows for efficient and sufficient ventilation, essential to prevent respiratory diseases. The eaves of the thatched roof should be long enough to prevent rain from coming in the shed during strong and windy rain showers. Division of compartments in the shed is made for the milking goats, the kids and

the buck. If possible there should be a separate pen for sick animals away from the main shed.

A similar shed can be built on ground level, but the hygiene of the floor has to be considered. Daily cleaning or a system of piling up the bedding is necessary.



Figure 4

2.6 Housing Requirements

- When building sheds it is well to heed the saying: Look before you leap. Go and look at sheds of other goat keepers in the surroundings and try to understand why things were built the way they are and using those specific materials. Ask for advice when choosing local materials. Realise that most knowledge you need is available in your area.
- The kidding of goats can best take place in a separate pen, so that the young kids are born in clean, dry, draught free and safe surroundings.
- When raising young animals, it may sometimes be necessary to keep them apart during the first three months of their life. In larger herds, there is a danger that small animals will be trampled by the larger ones or that they will lose their mothers. When grazing on difficult or dangerous terrain, kids can get hurt or lost. Make a clean, dry and draught-free pen in the stall.

- Both the sick-bay as well as the pens for kidding and raising must be kept extra clean.

Feeding and drinking facilities

In each housing system, the supply of water and feed is of great importance. Spreading feed on the floor causes it to be trampled, get dirty and reduces the quality of the feed.

There is great usefulness for a manger. The goats eat their fodder from the manger with raised heads, without the feed touching the floor. Materials which can be used include wooden poles or planks, metal rods, harmonica netting (mesh width 5 x 5 cm). Make sure that green fodder has been partially dried, wet feed is poorly digested. It is also possible to hang roughages like twigs and branches on a rope, or grass/hay in a net.

When giving high quality roughages or concentrates some animals can miss out on it. Especially since you usually hand it out in small quantities and the strongest goats take everything for themselves. You can avoid this with a feeding rack. With such a rack each animal has its own feeding spot.

When the goats have placed their heads through the rack, you lower the plank so that the goats are fastened. The plank is secured with a chock. In an alternative construction you use a plank which you slide into place over the heads of the goats.

A feeding trough which lies above the level of the stall floor makes cleaning easier. A raised placement also prevents goats from standing in it or their droppings and/or urine getting in it. This is also true for the placement of watering troughs. Provide clean drinking water as needed for the animals.

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