



## GOATS: HOUSING AND FEEDING

For many small-scale farmers with little land, goats are an asset and have a very good potential of improving the livelihood of their families. To realize it, efforts are necessary in two areas: on one hand, animal management has to be considered, especially feeding, housing and parasite management. On the other hand, performance of local goats can be improved by upgrading them with more productive breeds. It is easy to keep goats healthy and in good production, no matter whether they are kept for milk or for meat - provided you know the basic characteristics and needs of these animals.

### Goats have some special traits!

#### Goats are browsers of dry climates

Goats are ideal in marginal areas where feed supply for cattle is scarce. Since they are small, they need smaller feed amounts. Goats like to eat many different feeds and prefer browsing on trees and shrubs to grazing on the ground, which helps them to cope with feed scarcity during dry spells.

Indigenous goat breeds can stay without water for several days – but note that lactating goats always need plenty of water for milk production.



#### Goats need space and air

Goats are very active animals of semi deserts and mountains – they need enough space to move and clean air to stay healthy. They will suffer if they are confined permanently in tiny dark housing, and their performance will be poorer than if they are allowed to move about and have access to an outside area.

#### Goats need company

Goats are highly social and intelligent animals which naturally live in small groups of a few does with their youngest offspring. Adult males form their own groups and meet with the females only during the mating season. Outside their heat, does are not interested in bucks at all.



A goat should never be kept alone and also never be kept isolated in a room that allows no interaction with other goats. There will be no serious fighting if enough space is provided for each of your goats.

#### Goats need shelter

Goats have a thin skin and will easily get coughs and chills when they are exposed to rain. They will also stop grazing, as they do not like to eat wet feeds, and they may get bloat from wet fodder.

Goats also need shelter from hot sun and strong wind.

Wherever you place your goats, you have to provide an opportunity for them to find shelter somewhere, at least in the form of some tree or dense shrubs.



#### Goats are climbers

These mountain animals are most artistic climbers, and they usually like to find a high place to lie down and rest. All fences and confinements need to be 1.5 m high and must be kept in good condition as goats will notice every opportunity to escape immediately.

Inside a stable or a night confinement, raised boards or benches should be provided along the walls where each goat has a place to lie down.



## Goat housings

Elevated goat houses with slatted floors are advantageous. They are easy to clean and maintain, and manure and urine fall through the floor, which therefore stays relatively clean and dry, and disease and parasite infestation is reduced. The floor needs to be cleaned daily. Wastes can easily be collected; they make an excellent fertilizer.

At least one side of the house should be open, for example made with wire-mesh, allowing light and air to enter.

A good goat unit has three main areas: resting, walking and feeding area.

### Resting area

This is a protected dry area where goats can sleep, rest and chew chud. Each goat needs about 1 square meter. The best method is to provide clean, dry and elevated boards where all goats have a place to lie down comfortably (see picture). This is even more essential if the floor of the house is not elevated.

### Walking area and outside run

Besides the resting area, goats need an area where they can walk around. Be generous! If your goats are not allowed to graze, you need to provide a shed with an outside run. Allow at least 3 square meters per goat. Provide tree trunks, heaps of firewood, large stones, old tires etc. to the kids for climbing, jumping, running and playing.

### Feeding area

Good feeding troughs are important to keep the fodder clean and to reduce wastage. Every goat needs her own feeding place. In case the stronger goats disturb the weaker ones, all animals should be tied up during feeding.

Water and mineral licks need to be available at all times.

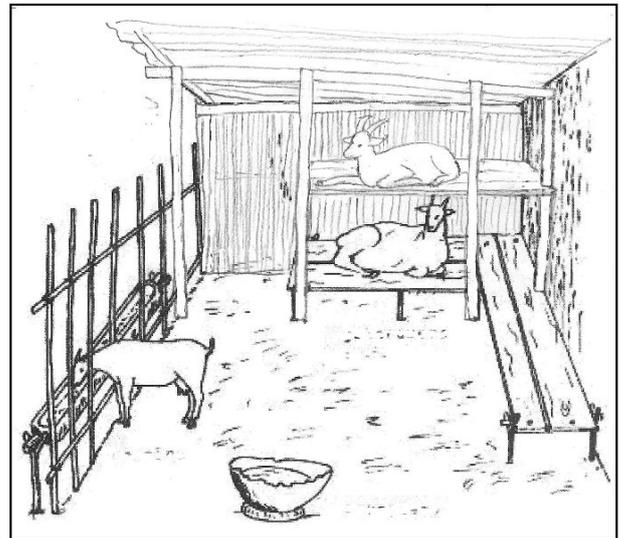
### Kidding pen

Pregnant goats need a separate pen for kidding. This area must contain a thick, dry and clean litter layer. It is natural for the doe to leave the kid in a safe place a few hours after giving birth. She will go to call and suckle her kid near this place every two hours. The kid should be left there for a few days. It will follow its mother only after a few days.



### Buck pen

For small farms with only a few goats it is not necessary to keep a buck, if there is a possibility to get good bucks for mating within walking distance. A buck should be housed in a large separate pen (3 square meters at least) but should be allowed to have the goats within eyesight. He should be run with the does and kids for grazing – provided he wears his apron to prevent mating (small picture).



## Feeding goats

Goats spend around six hours per day feeding, and another six hours they spend chewing chud. Unlike cattle, they do not prefer grasses and they are very selective in what they eat. They like to browse from trees and bushes. Goats need variety! New feeds must be introduced slowly, offering only small amounts initially, until the goats are used to them.



### What can you feed in a cut-and-carry system?

- **Herbage and grasses:** Always offer various feeds. Bulky grasses like Napier grass need to be chopped, and wet fodder must be allowed to dry to prevent bloat. Spreading it in the sun will also reduce the worm burden.
- **Leaves of trees and shrubs:** They are an important part of a goat's diet. Whole branches can be attached above ground to fences or posts (picture).
- **Legume fodder:** Legume leaves are high in protein and minerals and are necessary to improve the diet, especially if low-value feeds like dry crop residues are offered. Fodder from trees like Leucaena, Calliandra or Sesbania should never make more than one third of the total ration as they contain slightly poisonous substances. They can disturb the digestion and cause bloat. The same applies to fodder from legume crops like lucerne, lablab, cowpea, mucuna etc.
- **Kitchen wastes:** Goats love to sort out fruit and vegetable waste for anything that

appeals to them. Offer only fresh and clean kitchen waste!

### Feeding practices

- Feed your goats at least 3 times a day (early morning, noon and early evening) and at the same time every day.
- Hang up some feeds for browsing, e.g. tree branches, inside the house! Goats need to feed during the night.
- Feed only clean, fresh and dry fodder in clean and elevated feeding troughs.
- If necessary, tie the goats up for around two hours so they do not disturb each other and can eat in peace.

### Fodder quantity

- A dry, not pregnant goat needs about 8% of her body weight as fresh green fodder for body maintenance / day. Example: A goat of 50 kg live weight needs about 4.5 kg of fresh fodder (or about 1.2 kg of dry fodder) per day.
- A lactating doe needs about 1.5 kg of fresh, good quality fodder additionally for every litre of milk. Example: 4.5 kg fodder (for the goat herself) + 4.5 kg fodder for 3 kg milk = 9 kg fresh fodder.
- One kid suckles between 1 and 2 litres daily, so the doe needs 2 to 3 kg of fodder for each kid.
- In the last 2 months of pregnancy, feed about 7 to 8 kg.

### Fodder quality

All dairy animals need not only more fodder, but also fodder of high quality at any time. Poorly fed goats have low milk production, will not come on heat and will usually have only one kid. In addition, they will be less resistant against diseases and parasites.

Crop residues have to be supplemented with leguminous fodder, concentrates and minerals – otherwise, the goats will lose weight and stop producing milk.

### Zero grazing

This is certainly the system which is easiest to manage, as it is difficult to keep goats within fenced grazing areas. The need for good fencing is restricted to the goat unit, and goats are allowed to move freely within it. To keep your goats healthy, you should:

- Keep all females and their offspring in one herd.
- Provide a spacious shed with raised resting areas.
- Provide a spacious outside run for all goats.
- Provide sufficient good quality fodder for all goats.
- Clean the house and the outside run every day.

**Table: Rough estimations for the fodder requirements of different goat breeds**

Goat breed	Live weight Females (kg)	Milk production per lactation (kg)	Forage intake per day (kg fresh matter)	Total forage intake per year (kg dry matter)	Area needed to produce forage for one goat (acres)
Pure Toggenburg	50 - 60	600 - 800	5 – 12 *	750	0.25 **
Crossbreed (dairy)	35 - 50	200 - 600	4 – 10 *	400 - 700	0.15 - 0.25 **
East African goat	25 - 30	?	3 – 4 *	350	0.1 **
Boer (meat)	70	?	7 – 9 *	750	0.25 **

\* Forage intake is high when milk production is high and when fodder quality is good!

\*\* Forage yields depend on climate, soils, and management. Dry season fodder (hay) must also be produced from this area.

### Grazing

If you are lucky to have enough land to graze your goats and have the resources to establish goat-proof fencing around grazing paddocks (which is a challenge), you may be sure to have the happiest and healthiest goats.

Goats need a totally different type of pasture than cattle. The ideal feeding area for goats is wild bush land with rocks, shrubs and different kinds of grasses and herbage.

- Land size: One acre should produce enough fodder for 3 good dairy goats and their kids. Divide this acre into at least five paddocks in order to be able to rotate the goats on them.
- To avoid overgrazing and to reduce building up of parasites, goats should not be left in one paddock longer than 10 subsequent days. Goats are very susceptible against parasites that can be taken up from the ground.
- Each paddock needs to be left untouched by goats for at least 40 days before it is grazed again. You need at least five paddocks to rotate your goats.
- Depending on soil productivity, you may have to give the goats a larger area or to provide some additional feeds.
- Use excess wet season fodder to provide hay for the dry season (leaflet No 12). During the rainy season, fodder growth is high, and it is recommended to cut and dry the



grass and herbage on about half of the area of each paddock a few days before the goats are grazed there.

### A plea for horns

Most goats are born with horns. They are important for defence against predators (wild animals or dogs), for grooming, and for communication within the herd. Dairy goats do not attack people.

Dehorning kids is a risky procedure, as goat skulls are smaller and much thinner than cattle skulls. It is frequent that the brain is damaged in the process and that kids do not survive the complications.

A good goat management ensures that there will be no difficulties with horns. If you adhere to the following simple rules, fights between goats and accidents with people are most unlikely:

- Provide enough space in the goat unit, and give each goat an elevated resting place.

- Avoid keeping goats with horns together with hornless goats in the same flock because hornless goats will

always be inferior.

- Tie the goats up during feeding and milking.

## Concentrates

Does in the last months of pregnancy and lactating goats should be given concentrates. Like cows, goats are ruminants, and high quantities of concentrates in the diet (above 1.5 kg / day) may cause serious health disorders. The amounts must always be increased gradually!

- Concentrates must be given in small quantities of not more than 250g / meal, together with or after the roughage.
- During the last two months of pregnancy, up to 500g can be given per day.
- Thin goats should be fed some concentrates already earlier in their pregnancy.
- After kidding, you may increase concentrate amounts gradually up to 1 kg per day during the second month of lactation (1.5 kg only for 5 liters of milk). In the 3<sup>rd</sup> month, start to decrease the quantity depending on milk yield.
- Towards the end of lactation and during the first dry month, no concentrates should be fed.
- During the mating season, hard working bucks may be given 500 g of a concentrate per day.

## Minerals

Mineral salts are essential for goats and mineral blocks should be provided in a dry place inside the goat's pen.

## Water

Dairy goats need several litres of clean water daily (they will refuse to drink dirty water from dirty buckets) and need to have access to it day and night. Fasten big buckets to walls or posts and refill them frequently. Usually, goats will drink after feeding. In hot weather, with high milk production and when dry fodder is fed, a dairy goat may require up to 12 litres a day.

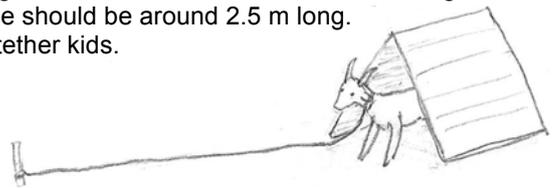
## Tethering

Tethering, although common in some regions, is a management which can have a most destructive effect on health, milk production, and fertility of goats.

- Tethered goats usually do not get enough feed as the rope is short and gets entangled in obstacles quickly when the animals move around. In addition, goats will not feed where they placed their excrements.
- Goats tend to panic easily and will want to run away if anything unusual happens. They may suffocate or break their necks or legs.
- Parasite control is almost impossible.
- Usually, neither water nor protection from sun or rain is available where goats are tethered.

If tethering must be practised, you have to consider the following points:

- Never tie a goat to the same place for more than two days.
- Check your goats several times a day whether they still have enough herbage for grazing and are not entangled.
- Provide a shelter which they can reach if rain is expected or if it is very hot. A good solution is a wooden mobile roof placed at a distance where the goat can reach it but not wind the rope around it (picture).
- If no shelter is available, do not leave the goat in the plain sun for long, and go to detach it and get it back home as soon as it starts to rain.
- Provide water, minerals and additional fodder such as tree branches or hay after bringing your goat back home.
- Tie the goat around its neck and never on its leg.
- The rope should be around 2.5 m long.
- Do not tether kids.



## The body condition of goats

In order to keep your goats in good breeding and milking condition you should know what to watch out for. Make adjustments in your feeding regime if a goat is getting too thin or too fat, but always change an animal's diet only gradually, as sudden changes will affect the rumen organisms and a healthy digestion.

A goat is much too thin if she appears very angular and the spine and the hip bones are prominent. If you run your fingers down the goat's spine from the shoulders to the tail head, sharp and distinct points can be felt. All ribs are visible. A doe should never be in this state!

A goat is in a good condition if the spine feels smooth and rounded and the flesh can be felt. The ribs are smooth and are not clearly visible. This is the best state for mating and during pregnancy. After kidding, the goat will probably lose some weight, but you should really try to prevent this!

If the spine and the ribs can only be felt with firm pressure and are not visible anymore, the doe is too fat. She may not get pregnant at all or may have difficulties kidding.



The dairy goat on the left picture is too thin. But the Anglo-Nubian dairy goat is in an excellent condition – with triplets!

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P.O. Box 14352, 00800 Nairobi. Tel: 020 44 50 398. Email: [info@organickenya.org](mailto:info@organickenya.org)

Compiled by Theresa Szekely

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