



SHEEP HUSBANDRY

Total sheep numbers in Kenya almost equal the numbers of goats kept in the country. Like goats, sheep can easily be integrated in small-scale farms with cropland. Improving their productivity is in the first place a question of good husbandry: good feeding, housing and parasite management. Upgrading with more productive exotic breeds is only successful in combination with improved animal husbandry.

Sheep are different from goats

Although sheep and goats have many similarities, it is good to know their differences! Sheep have some properties which make them easier to handle than goats.

	 Sheep	Goats 
Main diet	Sheep feed on a mixture of herbs and grasses.	Goats feed on a mixture of herbs, grasses, and leaves of shrubs and trees. This makes them more drought resistant than sheep.
Feeding behaviour	Sheep graze a pasture uniformly, finishing it off completely – they may even ruin it.	Goats are selective feeders leaving parts of a pasture or of offered feeds unused.
	Sheep prefer feeding close to the ground.	Goats prefer browsing at a height of about two feet above the ground and higher.
Feeding efficiency and growth	Sheep tend to grow faster even when given the same diet as goats.	Goats usually show slower growth rates.
Productivity	Sheep have fewer lambs, but they produce more meat in a shorter period.	Goats tend to have higher numbers of kids, but they grow more slowly.
Behaviour	Sheep can easily be confined on pastures and in sheds.	Goats are climbers and like to escape from any confinement.
	Sheep have a very strong flock instinct and panic when they are isolated from the flock.	Goats are very active and curious individuals, but they also need a flock to feel at ease.
	In case of danger, the flock will flee together and in close formation.	In case of danger, all goats will flee in different directions.
Diseases	Sheep and goats usually suffer from the same or similar diseases and parasites. However, sheep are more tolerant of intestinal parasites.	

Sheep housing

Sheep have similar requirements as goats. Sheds and shelters must be spacious and well ventilated, and protect the animals from rain, sun and wind. Elevated floors are very good, but also open-front sheds on well-drained, slightly sloping ground are ideal. Droppings must be removed every day to keep the floor clean and dry. This will help to prevent the most common diseases like pneumonia and foot rot and reduces parasite infestation.

- For sheep that are grazed during the day, a simple thatched shelter will be sufficient for the night. Allow at least 1.5 square meters for each animal to prevent diseases from overcrowding.
- For a cut-and-carry systems, you need to provide
 - a dry, well ventilated shelter with a roof (2 sq. meters / ewe)
 - good feeding troughs to keep the fodder clean and to reduce wastage. Sheep will refuse soiled feeds and water.
 - a spacious confined outside run. Allow an outside area of at least 3 square meters for each ewe. Their lambs need a lot of space for running and playing.



- Clean water and mineral licks need to be available at all times.
- You will need temporary panels or separate pens for bucks, for lambing, for lambs, and for sick animals.
- Sheds and fences for sheep may be simpler than for goats as sheep do not climb.

Nutrition of sheep

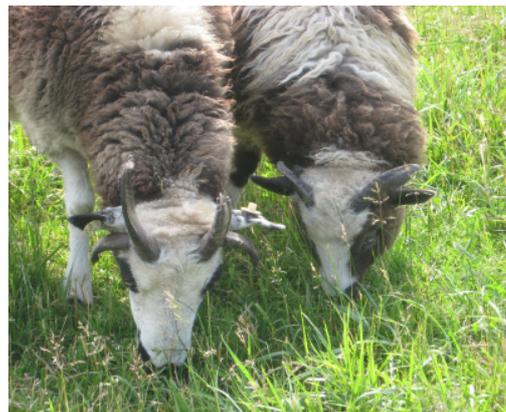
Sheep are typical grazers that spend most time of the day feeding and ruminating. They prefer herbs and grasses and feeds they are used to. Lambs learn from their mothers what they should eat. If you introduce new feeds, offer them in small quantities and in the troughs the animals are used to eat from.

Be aware that poorly fed animals are less resistant against diseases and parasites! Underfed ewes do not come on heat, their milk production is poor and their lambs are weak and grow slowly. In this leaflet, only sheep for meat production are considered. You may keep dairy sheep like dairy goats (see TOF-leaflets No 13 and 14).

Grazing

Like cattle, sheep graze close to the ground, but they utilize different resources on a pasture. Sheep and cattle are therefore very good grazing companions. Because they suffer from different parasites, they do not infect each other. Sheep are less sensitive against rain than goats, but standing in wet soil and mud promotes foot diseases and foot rot.

- To avoid overgrazing and building up of parasites, do not leave your sheep in the same paddock for longer than 2 subsequent weeks.
- Each paddock needs to be left ungrazed by sheep or goats for 6 weeks. You need at least four paddocks to rotate your sheep.
- One acre of good pasture should produce enough fodder for about 4 sheep and their lambs. Divide the area you need for your sheep into four or more paddocks and rotate the flock on them.
- On poor pastures, you may have to give your flock a larger area or to provide some additional feeds.
- Use excess wet season fodder to provide hay for the dry season (TOF-leaflet No 12). It is recommended to cut and dry the grass and herbage on about half of the area of each paddock one or two weeks before it is grazed.



Cut-and-carry feeds

Herbage and grasses: Most grasses are suitable. Chop bulky fodder like Napier grass, and allow wet fodder to dry to prevent bloat and reduce worm burden.

Leaves of trees and shrubs: Sheep will also like to feed some leaves (up to 20% of the ration).

Legume fodder: The protein and mineral rich leaves of legume crops and legume trees improve the diet, especially if low-value feeds like dry crop residues are offered. Legumes should never make more than one third of the total ration as they contain substances that can disturb the digestion and cause bloat.

Minerals

Ensure that all sheep, in particular pregnant and lactating ewes, have access to mineral salts. Ask for special mixtures for sheep.

Water

- Ensure permanent access to clean water.
- Nursing ewes have high water requirements (up to 10 liters / day).
- Sheep need about the same amount of water as goats, but they will cope less well with periods of droughts.

Basic feeding practices

- In a cut-and-carry system, feed your animals at least 3 times a day (early morning, noon and evening).
- Feed only clean, fresh and dry fodder and offer them in clean and elevated feeding troughs.
- Non-lactating sheep will need between 4 and 7 kg of fresh green fodder, depending on the stage of pregnancy. This is the equivalent of 1 to 2 kg of good hay.
- Nursing ewes with lambs will need between 6 and 10 kg of fresh, good quality fodder (or 1.5 to 3 kg good hay), depending on their milk production.
- Crop residues have to be supplemented with leguminous fodder, concentrates and minerals.

Concentrates

Sheep are ruminants, and high quantities of concentrates in the diet (above 1.5 kg / day) may cause serious health disorders. Concentrate amounts must always be increased gradually! You may use the same concentrates as for cattle.

- Concentrates must be given in small quantities of not more than 250g / meal, and preferably after the roughage.
- Ewes may be flushed to increase the lambing rate by good feeding and giving some grain for several weeks before and during the mating season. Rams can also be fed some concentrates during this period (0.5 kg / day).
- Do not feed concentrates during the first 3 months of pregnancy
- During the last two months of pregnancy, up to 500g concentrates can be given per day. Start with small quantities only.
- Ewes also need concentrates during the first month of lactation, especially when they have to nurse twins. In this case, you may feed up to 1.5 kg concentrate feeds per ewe.
- After five weeks, start to decrease this quantity gradually.
- Lambs can be supplemented with grain to fatten them. You may use maize or maize silage if available.

Flock management

Sheep are usually kept in flocks. Larger herds are often divided into sub-groups that have the same demands. Their management can be optimized in this way.

Adult sheep

Adult sheep groups consist of ewes and rams which have been selected for breeding. Poor or surplus males should be castrated and sold. Ewes not suitable for breeding should also be culled.

Pregnant ewes

Late gestation ewes are grouped together. Maternity pens must be very clean, dry and well ventilated. Provide sufficient good fodder, clean water, grain supplements and mineral salt.

Lambing

The ewe will be uneasy and look for a quiet separate place. Do not disturb a lambing ewe and keep in the background. Observe first lambing ewes well. If you have to help, make sure your hands are very clean. Allow the ewe to lick the lamb.

The lamb must get colostrum (first milk) within the first few hours.

If the lamb has not been able suckle the mother after two hours, the mother should be handmilked and the lamb bottle-fed (at 40°C):

100 g at first, another 150 g within the first 12 hours, at least 0.5 liters within the first 24 hours. The navel should be treated with iodine tincture.

Pre-weaned lambs

Newborn lambs will drink frequently. Keeping the ewe and her lamb together in a separate, clean pen during the first few days is beneficial. After this, a healthy lamb will follow its mother everywhere. Sheep lambs **MUST** be fed with sheep's milk or a special milk replacer; they will do poorly on other milk. During the first weeks, they should be left with their mother and be allowed to suckle as often as they need it. Until 2-3 months of age, young lambs may be kept together in a spacious shed and the mothers are brought back to them after grazing. They need a lot of space to play and run. Provide good feeds and remove droppings every day. Deworm them a first time at one month old, especially if they are allowed to graze with the herd.

Weaned lambs

Weaning of young lambs is usually done at 3 months of age. Weaned lambs can be kept together and allowed to graze. Lambs may be fattened on grass and with additional grain supplements. Deworming is done monthly or every 2 to 3 months depending on infestation levels.

Castration

After 3 months, you may select the fastest growing male lambs for breeding. Castrate the others using a rubber ring or the burdizzo.



Tethering

Tethering has a most destructive effect on health, milk production, and fertility of all animals. The reasons for this are listed below. Where land is scarce, a cut-and-carry system is always preferable.

- Tethered animals are usually undernourished.
- Parasite control is practically impossible.
- Neither water nor protection from sun or rain is available to tethered animals.
- Small ruminants tend to panic easily and may suffocate or break their necks or legs while trying to run away.

Health management

A large percentage of common diseases and premature deaths can be prevented with simple practices such as good feeding and keeping the sheds clean. It is advisable to follow a good flock health programme.

- Internal and external parasites: Deworming is especially important for lambs because they are affected most by internal parasites. Later, sheep should be treated for internal and external parasites (ticks and others) at least once a year.
- Regular hoof trimming prevents lameness and foot rot. Lame animals suffer, do not eat enough, and are less fertile.
- Vaccinations prevent diseases that may affect the whole flock and cannot be controlled otherwise. Vaccinate your flock according to the recommendation of the local veterinary.
- Tail docking is mainly done in wool sheep breeds to prevent fly struck. Usually rubber rings are used when the lambs are 7 to 10 days old. The vulva and anus of the lamb should still be covered by the tail stump.



Breeding sheep

Sheep respond very well to good care and management. The first step to improve profitability of sheep is therefore to provide good feeding and to control diseases and parasites. Meat production of sheep can then be improved further by a good breeding programme. Select heavy animals for breeding, as they produce faster growing offspring. For a lasting effect it is essential to prevent inbreeding and to include as many animals as possible. The best way to do this is by involving the whole community or region.

Selection within local breeds

Local breeds have the advantage that they are hardy and adapted to their environment and climate. Red Maasai sheep (picture), for example, can cope much better with worm infestations or droughts than exotic breeds. It therefore makes sense to give priority to improvement of local breeds.

Only the best ewes and rams in a herd and/or the community should be chosen for reproduction. The selection criteria could be fast growth (in rams), fertility and litter size (twins may be undesirable as they are usually weaker than single lambs), good health etc. Local sheep breeds may improve considerably within short time if herds are managed in this way.

Grading up

Local ewes (e.g. Maasai ewes) and their female offspring are mated with rams of a more productive breed, e.g. the Dorper sheep (picture: white Dorper ram). The animals are then mated with non-related males and females with the same level of cross-breeding, e.g. with 50% or 25% local blood.

Positive traits of the local breed (e.g. diseases resistance) can be maintained in this way.

Criss-cross mating

If purebred rams of two different breeds are available all the time, the two breeds can be mated alternately.

A local ewe is first mated with a ram of an improver breed. The female offspring is mated with a local ram. The next generation is mated with a different ram of the improver breed, etc. Positive traits of both breeds are maintained.



Breeding records

It is absolutely essential that all farmers keep a breeding documentation for each animal. This is the only measure to prevent inbreeding. Inbreeding degrades the health and performance of all animals and ruins the effect of upgrading.

- A ram must never be allowed to mate with his sisters, daughters, and granddaughters. Compare the parents and grandparents of any ewe you want to mate with the parents of any buck you are going to use.
- Keep records and use some system which allows you to identify each of your animals! You must know at least the mother and father, grandmother and grandfather of each animal.
- A ram should never serve one flock longer than one year. He must then be exchanged.
- Ram keepers should rotate rams regularly among users and groups of farmers.

Mating

Sheep mature when they are between 6 and 12 months of age depending on feeding and breed.

Sheep fed on quality forages and grain and mineral supplementation mature much faster.

Ewes should have reached at least two thirds of their adult weight before they are mated for the first time.

Their oestrus cycle averages 17 days.

Compared to goats, sheep show few visible signs of heat. Rams are kept together with the flock to ensure high pregnancy rates.

One ram will be sufficient for 20 to 50 ewes.

Gestation averages about 148 days.

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