



GOATS: BREEDING, KIDDING, MILKING, HEALTH

Breeding goats

In combination with good feeding and disease and parasite control, a well organized breeding programme can improve milk or meat production of goats effectively. For a lasting breeding progress it is essential to prevent inbreeding and to include as many animals as possible. This is best achieved on a community or regional level and by good recording, coordination and dedication of all farmers involved.

Improved management

Upgrading any breed must always be accompanied by three measures: improved feeding management (see TOF-leaflets No 11, 12, 13), good disease and parasite control, and measures to prevent inbreeding. Otherwise, genetically upgraded animals will not be able to perform better than local animals – they may even perform worse, as they may be less adapted to the local conditions.

Breeding schemes for small-scale farmers

Grading up

Grading up may be the most practical approach to improving tropical local breeds. Local does and their female offspring are repeatedly mated with bucks of a more productive breed. If an exotic breed is used for upgrading, this process should be stopped in the second or third generation to maintain the positive traits of the local breed which is better adapted to the climate and more resistant to diseases. 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.

Criss-cross mating

In criss-cross mating, two breeds are mated alternately. A local doe is first mated with a buck of an improver breed. The female offspring is mated with a local buck. The next generation is mated with a different improver breed buck, etc. If this is done continuously, the offspring will always have two thirds of the blood from its father's breed and one third of the blood from the other breed. For this system, bucks of two pure breeds must be available all the time.

Inbreeding is downgrading!

Mating of closely related animals can destroy the progress that upgrading should bring. Inbred animals may have physical deformities, are likely to perform worse than local animals, and their survival rate is lower. If you are serious about upgrading your goats, take the following measures:

- A buck must never be allowed to mate with his sisters (does that have the same father and mother), with his daughters, and with his granddaughters.
- A buck should never be in service in one flock longer than one year. He should then be exchanged or wear an apron to prevent mating with his own daughters.
- Buck keepers should coordinate with each other and rotate bucks regularly among users and groups of farmers.
- Keep records and use some system which allows you to identify all your animals! You must know at least the mother and father, grandmother and grandfather of each of your goats.
- Compare the parents and grandparents of any doe you want to mate with the parents of any buck you are going to use.



Above:
Improver breeds for more milk
Toggenburg goat
Alpine goat
Anglo-Nubian goat

Below:
Improver breeds for more meat
Left: Galla (Somali / Boran) goat
Right: Boer goat



Mating and pregnancy

Age at first mating

When a doe can be mated the first time depends highly on breed and nutrition. The most important point is that she should have at least two thirds of the final weight.

If she becomes pregnant too early, she may stop growing, never reach a normal size, and have a reduced life span. There is a high risk of abortion, low milk production and death of the kid.

- Do not mate a young doe in her first heat, which may arrive as early as at 5 months of age!
- Only where does are very well fed, well developed and sufficiently large can they be mated before they are 10 – 12 months old.

Mating during lactation

A doe which is milked should not be mated before three months after kidding. She should then be dried up within the first three months of her pregnancy.

Flushing before mating

Feeding particularly well a few weeks before mating increases the chance of successful mating and multiple births. Poorly fed goats are less likely to produce twins!

Heat signs

Does can only be mated when they are on heat, which lasts about 2 days. The period when a doe allows mounting is even shorter. A doe in heat should be mated within 24 hours after the onset of heat signs:

- The goat is bleating more frequently than usual
- She is restless and is constantly looking around
- She is nervously wagging her tail
- She is less interested in feeding
- She mounts other goats or is mounted by them
- She urinates frequently

If mating does not happen or if conception fails, does will return on heat about every three weeks.

Pregnancy

Goats are sensitive mothers. Stress, poor feeding, and rough handling during pregnancy can cause does to abort.

- Make sure the goat is in good health and condition for kidding.
- Offer shade, shelter, and sufficient feeds of good quality, especially during the last two months of pregnancy.
- Feed up to 500 g concentrates per day during the last two months of pregnancy. Start with small quantities only.
- Pregnant does need constant access to mineral salt blocks and plenty of clean drinking water.
- Avoid transports during pregnancy.
- Do not isolate a pregnant doe from the flock she is used to.

Kidding

Kid number

The litter size of goats depends on the breed and on nutrition, but is usually between 1.5 (twins every second pregnancy) and 2 (twins each time). With good feeding, especially tropical breeds can be very prolific. Litter size tends to increase with the doe's age. Triplets are not unusual, and even quadruplets occur.

Signs of approaching birth

- On the day of kidding, the doe is restless. She may bleat, paw the bedding, lie down and get up again.
- She now needs access to a separate pen or a quiet, sheltered place where she can give birth apart from the other goats.

Giving birth

The kid(s) will be born 5 months after a successful mating. Keep in the background and observe the doe well. Only help if you are sure it is necessary. Goats do not like to be disturbed during kidding and problems are rare. If you do have to help, do it in a gentle and calm way. Disinfect your hands before you touch the animals; a doe may die from an infection if you don't.

- The doe will lick and dry each kid and remove mucus from its nostrils. This will help the kid breathing.
- Ensure kids suckle colostrum within 20-30 minutes after birth. The sooner, the better – it should never be later than after 3 hours! For very weak or rejected kids, milk the mother's colostrum and to feed it immediately using a bottle.
- Disinfect the navel using a disinfectant e.g. Dettol or iodine tincture.
- Does must have access to clean water after having given birth. They need to balance the loss of water during kidding to have enough milk to feed to the kids.

Kid pen



During the first week, the kid will lie down in the protected place where it was born, while the doe joins the herd. She will regularly go and call her kid for suckling. A kid needs a lot of rest and will follow its mother only when it is strong enough. Kids start to form kids' groups for playing and resting when they are about two weeks old. It is therefore good to have a clean, dry pen or other place which is accessible only for the kids.

Kid management

The best results are achieved if kids are left with their mother to suckle freely during the first month. Although this means that less milk is available to the family or for sale in that first month, it will ensure healthy and well grown young goats. A poor start will affect the future health and productivity of both does and bucks.

We recommend the following management for kids:

- It is essential that the kid receives the doe's colostrum (first milk) during the first days to protect it against common diseases.
- First month: let the goat suckle the kid as often as she offers it.
- Kids should be provided with small quantities of good clean feed from the second week onwards. Very beneficial are sweet potato vines, young tree legume leaves and other tree leaves, young grass and good hay, but also small amounts of concentrates.
- Offer fodder and water to kids all the time to allow their digestion to develop. Good quality feeds will help to wean kids earlier!
- Second month: the kid can be separated from its mother at night and be allowed to join her during the day. Alternatively, the kid can be separated for some hours before every milking.
- Third month: the kid is allowed to suckle its mother after every milking for a restricted time.
- Fourth month: the kid can be weaned if it is well developed, or it may be allowed to suckle after every milking for another month.

Feeding weak kids and orphans

Bottle feeding is labour-intensive and always a health risk for the kid. But sometimes orphans or very small kids (e.g. in the case of triplets) may have to be bottle fed. If fed properly and allowed to exercise freely, even very small kids will catch up with their siblings by the age of three months.

- Goat milk is best, but also fresh or boiled cow milk may be used.
- Make sure to provide colostrum after birth!
- The bottles MUST be sterilized between feeds to avoid gastrointestinal infections.
- The milk must be at body temperature.
- Increase or decrease milk amounts only gradually to avoid indigestion.
- A feeding schedule is shown below.

Possible feeding schedule for dairy goat kids

Age of the kid	Meals per day	Amount (dl) per meal	Milk amount / day
Week 1	1 – 3 days	8 (every 2 hours)	0.5 – 1 dl (1/4 to 1/2 cup)
	4 – 7 days	6 (every 3 hours)	1 – 2 dl (1/2 to 1 cup)
Week 2	8 – 14 days	5 (every 4 hours)	2 – 3 dl (1 to 2 cups)
Week 3	15 – 21 days	4 (every 5 hours)	4 – 5 dl (2 to 3 cups)
Weeks 4 to 6	29 – 42 days	3 (every 6 hours)	5 – 7 dl (3 to 4 cups)
From week 7	You may start to reduce milk amounts if the kid is developing well and is eating solid feeds.		

Milking

Like all dairy animals, dairy goats produce abundant milk only if they are well fed (see TOF-leaflet No 13 "Goats: Housing and feeding"). Letting the kid suckle its mother should not just be considered as a milk reduction for your family! Does which are suckled by their kids in addition to being milked produce more milk compared to does which are only milked. Suckling helps to prevent mastitis, gives the kid a safe start, and extends the lactation period where milking is not done in an absolutely perfect way.

The lactation

During the first two months, a good goat may produce up to 3.5 kg milk per day. This is about the amount that is necessary to satisfy two to three kids. After two months, milk yields drop steadily, but slowly if the goat is fed well and milked correctly. The period a doe can be milked may be anything between 3 and 10 or more months. It depends on her breed, on handling and feeding, and on when the goat is successfully mated again.



Milking requires special expertise! These are the most important points:

- Goats get used to milking better if it is done regularly and always by the same person. Milk 1 to 3 times a day and always at the same time. Irregular milking leads to low yields and increased chance of mastitis.
- Always be calm and gentle to the doe.
- Most important: keep your hands and buckets clean. Use an unscented soap and hot water.
- Carefully wash the doe's udder using a clean cloth.
- Stick to the milking position that suits you and the doe best, either from the back or from the side.
- The first squeeze of milk from each teat should be thrown away as it has a very high bacterial count.
- Observe the goat. If she starts kicking when you touch the udder, she may be in pain. Check for mastitis and milk more gently.
- Good milking is done by the squeeze method:
 - Take hold and squeeze the base of the teat with the thumb and forefinger to trap the milk inside the teat.
 - Close the other three fingers, one after the other, squeezing the milk downwards.
 - Release the teat and repeat all in a steady rhythm.
- Pulling the teats hurts the udder and promotes mastitis.
- You should be finished within about 7 minutes.
- Allow the kid to join its mother after milking for proper emptying of udder and teats. This prevents mastitis.
- Wash the milk equipment with hot water. Rinse and dry everything on a rack immediately after milking.
- Offer some feeds during milking, but avoid giving feeds with strong smells (silage, pineapple waste etc.) even some time before milking as they may taint the milk.

Health management

Independent of its breed, a healthy animal will have more and healthier kids, produce more milk, and live longer. How is this achieved where good veterinary services are not easily available and financial resources are limited? The first thing to do is to exploit all strategies of prevention. A large percentage of common diseases and premature deaths can be prevented with relatively simple practices.

Picture: Regular foot trimming prevents foot rot



How to keep your goats healthy

Animals that are given the chance to build up and maintain a good immune system can cope much better with attacks from diseases and parasites. Wild animals are often healthier than animals in human care! This illustrates that livestock owners benefit from knowing and supporting the natural behaviour of their animals.

- Choose goat breeds which are adapted to the climate and to diseases in your region. They need less health care.
- Goats must be fed properly and according to their needs. The quality and quantity of fodder is crucial for the health of all animals. The diet should be as close as possible to the natural diet of the species (TOF-leaflet No 13, Goats: Housing and feeding).
- All goats need constant access to clean water.
- Farmers should take care to reduce the quantity of germs by keeping the goat units clean. Make sure that feed troughs, beddings and housings are always clean and dry.
- Goat units must provide shelter, light, good ventilation, and sufficient space to move. Social stress caused by overcrowding must be avoided.
- Goats need enough space to move freely and naturally. Exercise (e.g. grazing) is important.
- Kid care: Kids are most susceptible to diseases and parasites. Colostrum (the milk of the first days) protects new born animals during their first weeks. Goat kids need shelter, a very clean environment, sufficient milk and good feeding to build up their self-defense while they grow up.
- Regular foot trimming and foot care is essential for all ruminants. Trim the hooves at least before and after the rainy season.
- Parasite management includes good grazing practices (rotation, avoidance of swampy areas), regular deworming and tick control. Communal grazing can be detrimental unless a community works closely together to improve a difficult situation.
- Vaccinations protect animals very effectively from fatal diseases which usually cannot be cured. Vaccinate your goats according to the recommendations given in your region to prevent unnecessary losses!

Observe your goats!

Goats suffer to a large part from the same diseases and parasites as cattle and sheep. Some of them are described in the TOF-leaflets No 18 / 19 (Cattle: Diseases / Parasites).

Goats are even more susceptible to parasites which are taken up from the ground while grazing. They are also more susceptible to pneumonia and coughs and should therefore never be left in the rain or be kept in a house without sufficient space, air, and ventilation.

Signs of sickness

The goat is dull and unresponsive instead of alert and attentive
Head, ears, and tail are drooping instead of being held up
The goat stays apart from other animals and is not taking part in their activities
Feeding and drinking are reduced
Droppings are soft, or diarrhoea can be noticed
The goat is coughing, shivering, or breathing faster than usual
There is a discharge from eyes or nose
The goat is lying or standing in an unusual position
The coat is rough or ruffled
Swellings, stiffness or lameness are observed

Signs of pain

Bleating, restlessness, teeth-grinding, grunting, frequent licking, kicking

Treatment of sick goats

Sick animals should be treated instantly. Goats often fall into depression when they are sick and need support. Seek veterinary assistance if you are in doubt about the correct diagnosis and treatment. Let a sick goat rest in a cool, quiet and clean place and assure access to clean water and green feed. Recovery is more likely if the animal is not stressed.

Publication of **The Organic Farmer**. The magazine for sustainable agriculture in Kenya. www.organicfarmermagazine.org

P.O. Box 14352, 00800 Nairobi. Tel: 020 44 50 398. Email: info@organickenya.org

Author Theresa Szekely

References TOF 40 2008: Val Corr: With enough milk, young goats grow fast.

Infonet Biovision: www.infonet-biovision.org

G. Rahmann 2007: Oekologische Schaf- und Ziegenhaltung.

100 Fragen und Antworten für die Praxis. <http://orgprints.org/>

Tierärztliche Vereinigung für Tierschutz e.V. 2003: Artgerechte Ziegenhaltung.

Merkblatt Nr. 93. <http://www.tierschutz-tvt.de/merkblaetter.html#c5>

C. Peacock 1996: Improving goat production in the tropics. FARM-Africa and Oxfam (UK and Ireland)

B.K. Kaberia et al. undated: Farmers dairy goat production handbook. DFID, FARM-Africa, Nairobi Kenya.

Sponsored by

LED LICHTENSTEIN
DEVELOPMENT
SERVICE

