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partageons les connaissances au profit des communautés rurales
sharing knowledge, improving rural livelihoods

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CTA Practical Guide Series, No. 1

Rearing Dairy Goats



CTA

Rearing Dairy Goats

Throughout Eastern Africa pressure on land is increasing. Average farm size is decreasing as plots are sub-divided and farmers struggle to find space on their farms to grow subsistence and cash crops as well as keep livestock. Many farmers would like to keep dairy cows but do not have the money to buy animals and build zero-grazing units or sufficient land to grow enough feed. But have you ever considered keeping dairy goats as a more affordable and appropriate option?

Why dairy goats?

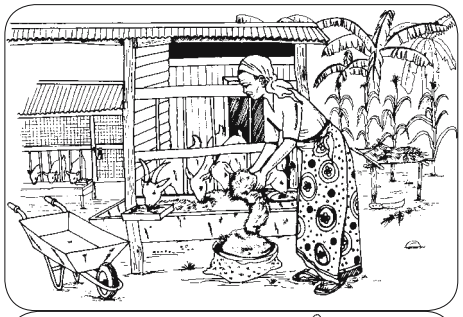
- Dairy goats are improved breeds bred for milk production. They are very different from local breeds and produce more milk - up to 12 times more!
- Goats multiply fast. They can kid twice a year and often produce twins or triplets.
- Most dairy goats are owned by women thus supplementing their incomes.
- Goat's milk can sell at more than three-times the price of cow's milk and contains twice as much vitamin A – essential for growth in children and prevention of eye problems.
- The fat and protein content in goat's milk is more easily digested than that in cow's milk.
- Goat's milk can be beneficial for people with stomach ulcers and is an excellent alternative for people who are allergic to cow's milk.
- Goat's milk can generate value-added products, such as cheese and yoghurt.
- Older female goats and surplus males can be slaughtered or sold for meat.
- Goats can consume shrubs that are not eaten by other livestock.
- Goat's manure contains a high level of nitrogen. It can be used to enrich soils and increase crop yields or to fertilize fish ponds.
- Goat's manure can also be used to produce biogas for cooking and lighting.
- Male dairy goats may be used to serve neighbours' goats and thus help bring in income.
- There is a ready market for goat's milk.

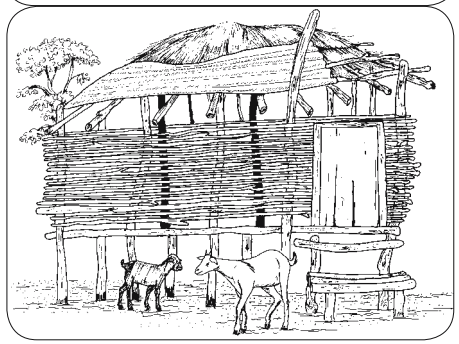
Dairy goats or cows?

Dairy goats require less land than the same number of dairy cows. Half a hectare of Napier grass can support five dairy goats but only one dairy cow. See table below on profits, based on average prices in Kenya for 2006.

	Milk yield per day (litres)	Selling price (US$ per litre)	Daily income (US$)
One dairy cow	20	0.36	7.20
5 dairy goats	5 x 2.5 = 12.5	1.00	12.50

What you need to start





- Tip! Before buying and moving your goats, consult with the nearest veterinary office for vaccinations, permits and any other relevant information.
- Housing with raised slatted floor (1.5 to 2 square metres per animal). Good ventilation is essential but house should protect animals from wind and rain. Local materials such as off-cuts, poles and sticks can be used. Equip the house with feed and water troughs so you can feed your goats indoors.
- Fodder (Napier and other grasses) which make up the bulk of goat feed. Establish a source of fodder by planting or buying fodder locally.
- Feed supplements (*Calliandra, Leucaena, Desmodium*, grains and milling by-products, minerals, molasses) which provide essential nutrients, such as protein, energy and minerals, to support milk production. Fodder shrubs can be grown around the edges of the plot.
- One or more female dairy goats. Breeds include Toggenburg, German Alpine, Saanen and crosses with the Galla.
- A male dairy goat (own or access to a communally owned one). One male is needed for every 25 females. A male exchange programme prevents inbreeding: male goats should not be mated with closely related females.
- Labour (family labour may be adequate)
- Market for the surplus milk, added-value products and goats
- Indigenous female goats for crossing if one intends to upgrade using a male goat of a dairy breed

Getting started

Step 1: Establish sources of fodder

- Identify sources of fodder to last a whole year. One option is to plant a plot of Napier grass to provide the bulk feed and some high-protein fodder shrubs, such as *Calliandra*. Other feeds include maize stover, sweet potato vines, banana peels and weeds.

Step 2: Construct the goat house

- Construct a raised goat house with a slatted floor, including an outdoor exercise area for the goats.

Step 3: Acquire dairy goats

- Identify local veterinary services.
- Find a local dairy goat breeder who can sell you some animals.
- Get a livestock movement permit (if goat is being acquired from outside your district).
- Move the dairy goats to the goat house.

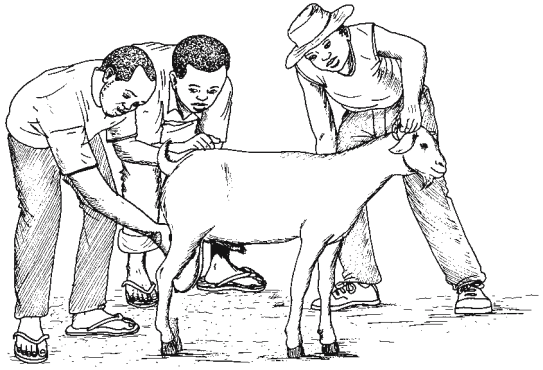
Step 4: Routine management practices

Feeding

- Provide roughages (like Napier grass) and supplements. Napier grass should be chopped into approximately 3-cm-long pieces. Energy supplements include molasses, cereals or milling by-products (bran, pollard). Protein supplements include cotton seed cake, *Calliandra* leaves, *Leucaena* leaves, sweet potato vines, *Desmodium*, fishmeal and dairy meal.
- A simple feed supplement can be made at home. For every 6 scoops of whole cereal grains, add half a scoop of fishmeal or any of the following: cotton seed cake, *Calliandra* leaves, *Leucaena* leaves, sweet potato vines or *Desmodium*. Finally add a tablespoonful of mineral mixture. Mix well before feeding.
- Increase supplement by ½ kg per day during the last month of pregnancy. When in milk, allow ½ kg of supplement for every 3 litres of milk produced.

Breeding

- Identify a good breeding male goat which has no deformities, with two well-developed testicles, strong feet and legs, good body condition and high libido. Libido is observed by the ability of the male to vigorously detect and mate with females on heat. These qualities will ensure successful mating.
- Breeding females should have good body condition and a soft udder, two functional teats and strong teeth and legs. Age at first mating should be about 16 months. Breeding too early can result in weak kids and stunted females.



- Replace breeding animals at 9 years of age or earlier if they fail to become pregnant.
- Male goats serving goats owned by community members should be tested for brucellosis. This is a disease affecting animals and humans. Ask your vet for more information.
- Introduce a male and leave with the female goats for 2 to 3 weeks. Mating all your female goats at the same time will ensure kids are born at the same time and eases management, but means you will have no milk for part of the year.

- Mate females two months after kidding.
- On average birth occurs 150 days after mating.
- One week before kidding, watch your goat closely in case of any problems.

Reducing kid mortality

- Ensure the newborn kid suckles immediately after birth. The goat's first milk helps protect the kid from diseases, gets its digestive system working and is especially nutritious.
- Disinfect umbilical cord immediately after birth with iodine solution or diluted disinfectant to avoid infection.
- House both mother and kid in a dry, well-ventilated and secure house.

Feeding kids

Allow half to one litre of milk per day for the kid, depending on size. Wean at 3 months. Introduce kids to roughage (chopped Napier grass, maize stover) by the second week and supplements (0.25 kg per day) by the fourth week.

Controlling worms

Failure to treat goats, especially those that graze, can result in blood loss, thin animals and death. For advice on dewormers, consult your local veterinary officer.

Deworm

- all adults before mating;
- all females 2 weeks before kidding;
- kids at weaning (3 months of age);
- all animals before the start of the rainy season.

Vaccination

- If your goats graze with other goats they should be vaccinated against the highly contagious disease goat pneumonia (CCPP).
- Vaccinate pregnant females against pulpy kidney and tetanus 2 to 3 weeks before kidding and vaccinate kids at 6 months of age.
- Vaccinate against orf (scabby mouth disease) at 2 months of age. Orf can also affect farmers – so wear protective clothing, such as overalls, when handling your goats and wash your hands well with soap and water afterwards.
- Ask your local veterinary officer for advice on vaccines.

Milking

Your dairy goat will give milk for around 6 months. To milk:

- Clean udder with warm water and dry with a clean piece of cloth.
- Apply milking jelly on the teats.
  Milk into a clean container by squeezing (not pulling) the teats with clean hands.
  Pass the milk through clean cloth and store in clean containers in a cool place.

Marketing

- Local markets are readily available for goat's milk. Try your local hospitals, children's homes and individual households. Tell your customers about the benefits of goat's milk.
- More distant markets are best accessed by joining or forming a local dairy goat-keepers' association.

What can go wrong and what is the remedy?

Problem	Possible cause	Remedy
Thin goats Slow-growing kids	Worms	Deworm goats as recommended. Ask local veterinary officer which dewormers to use and follow manufacturer's instructions carefully.
Inflamed udder (mastitis)	Unhygienic and incorrect milking practices	Follow recommended milking practices
External parasites	Fleas, ticks, mites and lice	Use recommended sprays, pour-ons and powders
Lack of feeds	Prolonged drought	Preserve feeds when in surplus (hay, dried fodder legumes, leaves, maize stover)
Lack of market for milk	Lack of market information and overproduction	Obtain market information on demand for goat's milk. Create demand by telling people about benefits of goat's milk. Make added-value products such as cheese Time breeding to supply milk when demand is greatest (dry season) – provided you can feed your animals

Lameness	Foot rot, injuries, overgrown hooves, scabby mouth disease	Trim hooves, provide copper sulphate or formalin foot bath, vaccinate against scabby mouth disease – seek expert advice
Low milk production	Inadequate feed	Ensure you are feeding sufficient forage and supplements for level of production

Case Study

Mrs. Eunice Oketch – a mother of seven from Kajulu village in Winam Division, Nyanza Province, Kenya, was among the first members of her community to take up dairy goat-keeping. That was in 2003: at that time her neighbouring farmers did not believe dairy goat-keeping was possible and none consumed goat's milk. Mrs Oketch was given two dairy goats by Africa Now, an NGO. The goats were given on a 'payback system': three years later she was able to pay back three kids, which have been passed on to other local farmers.

Each day, Mrs Okech gets around 4 litres of milk from her goats. She keeps 1 litre for her family and sells the rest. After deducting her costs, she makes a monthly profit of around US$15. From the proceeds of her milk sales she is able to pay school fees for one of her sons who attends the local secondary school.

In addition to milking goats, Mrs Okech also has three young goats and is keen to expand her flock further. She needs a bigger flock – she is currently unable to meet the rapidly growing local demand as more and more people get to know about the benefits of consuming goat's milk.