

The FARM-Africa dairy goat improvement project in Kenya: A case study

[| Print |](#)

J.M.K. Ojango, C.Ahuya, A.M. Okeyo and J.E.O. Rege (2010)

International Livestock Research Institute, box 30709, Nairobi, Kenya

Background

As a poverty alleviation intervention in Sub-Saharan Africa (SSA) focusing on reducing child malnutrition and supporting families negatively affected by diseases such as HIV / AIDS, FARM-Africa - an international NGO based in London, specializing in rural and agricultural development in Africa (www.farmafrica.org.uk) implemented a number of community based dairy goat improvement projects¹. The most successful of these projects has been the one based in Meru District in Kenya, having benefited from the experiences gained from other similar projects².

Objectives of the project

The project sought to address the poor milk production and growth rate of the East African indigenous goat as a means of improving productivity and increasing nutrition, income and overall livelihoods of the majority of the rural poor with limited livestock asset base. The specific objectives were to:

- improve livelihoods of small-holder farmers through livestock development
- improve family nutrition and income of poor farmers
- create employment within target communities
- increase milk production of the indigenous goat
- enhance market access by the poor

Approach

FARM-Africa imported a popular exotic dairy goat breed to use for crossing to the indigenous goat reared in the project area. To ensure that the project had impact on the poor, participatory techniques involving community leaders, extension staff, development workers, and FARM-Africa were used to identify resource poor farmers who were to benefit from the project. Potential project farmers were then facilitated to form community goat farmers' groups, each comprising of 25 members. Conscious effort was given to women participation. Participation was only open to those belong to farmer groups. From each group, 2 individuals were trained on basic animal husbandry, housing, fodder development, conservation and utilization, and dynamics in group work, prior to receiving the goats. Other individuals, nominated by their respective members, were trained on basic animal health techniques in order to be able to provide animal health services to the community within easy reach and at an affordable cost. A detailed description of the area and project design is in Ahuya³.

Farmers trained to be breeders received, on credit, four pure bred [Toggenburg does](#) and one [buck](#); these formed a breeding unit. Buck units were also established to avail bucks to the community for mating in a crossbreeding programme with the indigenous goats. Bucks from the farmer breeding units were

selected using **mass selection** to supply bucks to Buck Stations. A **dispersed nucleus breeding** unit was thus established and operated. The project emphasized the need to retain beneficial characteristics of indigenous genotypes within the cross developed; consequently the upper limit on exotic (Toggenburg (T)) genes was set at 75% for animals released to farmers (Figure 1). Each community was the custodian of the Buck Station, females belonged to individuals, but the bucks and breeder units were collectively owned and managed by individuals from within the group on a contractual arrangement with the respective group. The set-up of the breed improvement is illustrated in Figure 2.

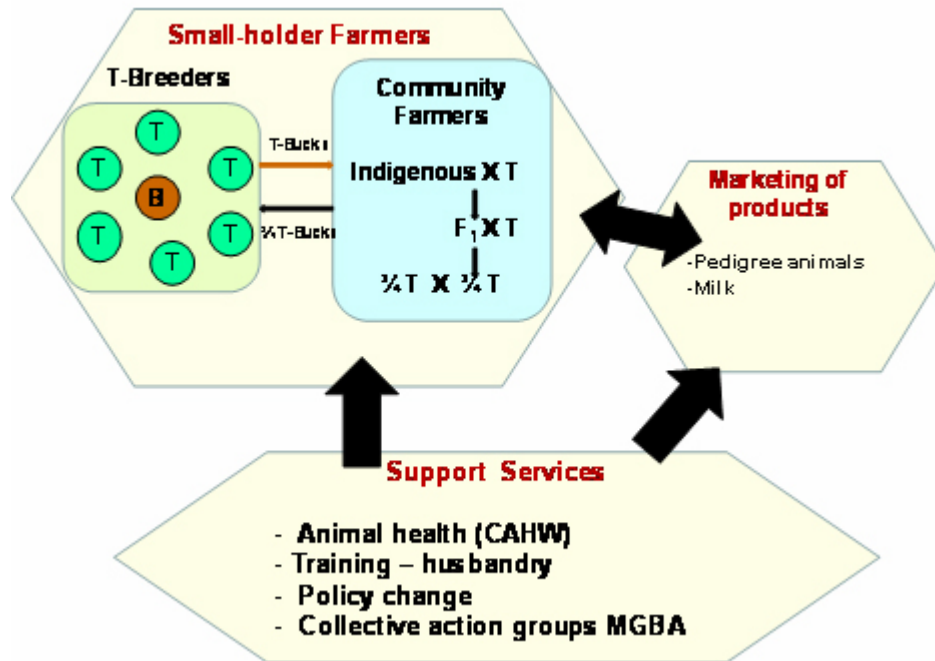


Figure 1. FARM-Africa Goat improvement Model

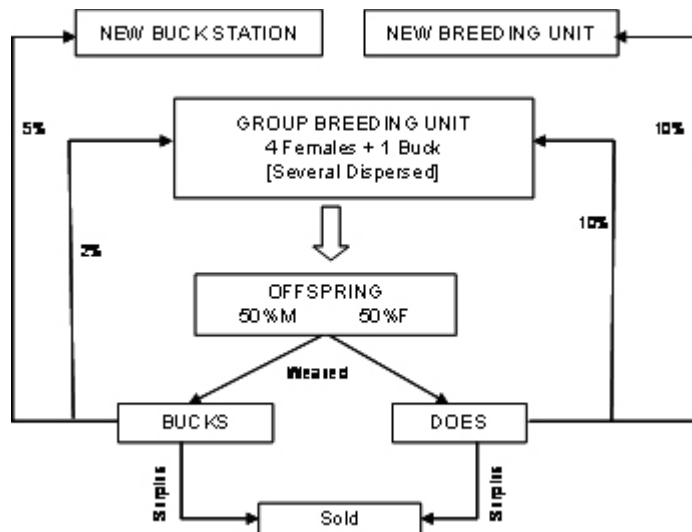


Figure 2. T-Breeders: Farmer based (nucleus) breeding set-up

Within the communities, non-group members could use the services of the buck stations, but at a higher fee than group members. FARM-Africa managed and facilitated the operations of the project from the inception (1997) until June 2004, then handed over key responsibilities to the communities through a

new umbrella organization (created as part of the project), the Meru Goat Breeders Association (MGBA). To ensure sustainability, FARM Africa maintained an advisory role to the MGBA.

Project Outcomes and Impacts

From the inception of the project in 1996 to 2007 farmer groups grew from an initial ten (250 farmers) to more than 160 (4000 farmers) within the study area, while another 56 were formed outside the project or study area. Farmer groups spread from the original five divisions to thirteen divisions, while the pure Toggenburg goats population grew from the initial 130 to more than 1,000 in a period of 10 years⁴. New groups were also formed in other areas of the country including Mwingi, Kitui and Western Kenya.

The immediate impacts of the project were both at individual and group level. Individual farmers were able to own the assets (dairy goats), obtain milk for home consumption which resulted in improved nutrition for the family. Income was earned through sales of both milk and animals, and manure was available for crop production enterprises. Milk production increased from about 250 ml by indigenous goats to 1 litre by F1s and 2 litres by 75% exotic goats. An improvement in farmers' income was evident, with an increase in the value of the stock owned. Prices of breeding goats within the community ranged from \$25 for an indigenous goat to US \$154 for a crossbred and US \$415 for a pure-bred Toggenburg⁵.

At the group level the communities were able to work together and collectively access better services for their farming enterprises, jobs were created through the breed associations, market access for the goats and goat products were improved, and the capacity of the community in livestock management was enhanced. The large quantity of manure collected from the intensive (zero-grazing) goat rearing units have been used in kitchen gardens, maize, bananas, macadamias, Napier grass and coffee, increasing significantly the yields of these crops. The crossbred male kids which grow faster and mature earlier also increased, through sales, cash earnings for these families. The project participants are members of groups where they share knowledge, resources, exchange visits and experiences. Even the poorest members can upgrade their animals. This has improved the socio-economic status of, and cohesion among, farmers.

New farmer groups are still being formed within the region under the auspices of the MGBA. The popularity of the crossbred has spread within the East Africa region, with several buyers from the different countries coming to purchase crossbred goats from the project farmers. Prices of upto US\$450 are offered for registered crossbred animals under one year of age. This lucrative price has resulted in a shortage of young breeding animals within the project. In a bid to expand and introduce new Toggenburg blood into the population, the farmers requested FARM-Africa to facilitate fresh importation of breeding stock. However, due to government restrictions on imports of livestock and livestock products, and uncontrolled outbreaks of diseases, these efforts have failed. Opportunities for using alternative breeding methods such as Artificial Insemination in order to expand the exotic gene-pool are thus being explored.

Following the change in milk marketing rules by the government, a pilot farmer-owned goat milk processing plant, supported by FARM-Africa was set -up to help market the milk produced. A Kenya Goat Development Network (KEGODEN) was also founded by FARM-Africa to promote goat development within the East Africa region. This organization meets every two years to present results of efforts made, and plans for future development of goats within the region.

Lessons learnt

1. Planning the intervention with key stakeholders and partners ensured that the target group was reached, and all necessary resources required for goat improvement were availed on time.
2. Goats introduced to the farmers were provided on credit, to be paid over time in cash or kind. The farmers thus valued the goats and ensured they adhered to the project guidelines to get outputs of value from the animals reared.
3. Working with small farmer groups at a time ensured accountability and good practice was recognised and rewarded from within the communities.
4. Capacity building within the community in animal management and the provision of animal health services for a cost ensured continuity at the end of the project as income earned sustained livelihoods of those involved.
5. Raising goats in confinement is environmentally friendly. It needs little heavy work, so can be done by women and men, young and old and people who are suffering from HIV/AIDS.
6. National policies to accommodate community based livestock improvement initiatives are inadequate
7. Popularity of the crossbred from the project led to a high demand for breeding animals, pushing up the price of goats fivefold. This has had a negative impact on the population over time as the faster growing animals tend to be sold. With the loss of the faster growing animals, the farmers are unknowingly practicing negative selection for growth rate.
8. Maintaining and conserving the pure-bred indigenous breeds by the smallholder farmers where crossbreds are successful to ensure the retention of their desirable traits in the population is a challenge which, as the project expands, will require public sector investment.
9. The relatively small scale of the projects restricted their ability to address wider issues, such as constraints related to input supply, animal health and breeding delivery services, access to markets and technical information, availability of appropriate replacement animals, and forage resources.
10. Government restrictions on imports, lack of expertise, inadequate networking among primary stakeholders and development partners would also need to be addressed.
11. Until 2008, when through intense lobbying by FARM-Africa, there was a change in policy, the only officially marketable milk in Kenya was that from cattle. There was thus no way of exploring and expanding the marketing of goat milk. Marketing issues and demand for product can now be expanded.
12. Currently the MGBA and a GTZ supported project are the main organizations supporting the production of these crossbred goats on a small scale.

Outscaling opportunities

There is opportunity for significant expansion of this program or replicating it elsewhere in Kenya or other countries. There is a high demand for dairy crossbreds by smallholders as well market for crossbred, fast-growing, meat animals in urban areas of East Africa.

Implementation of the project model on a larger scale based on lessons learned to date is a worthwhile development investment

Introduction of basic recording systems to provide feedback on both productivity and pedigree information should be considered in the next phases of the project

Introduction of new bucks from outside the country is essential to broaden the genetic base of the exotic breed.

Given the difficulty of running sustainable crossbreeding program, developing a composite dairy goat breed based on lessons learned from this program is worthwhile to consider; this would allow systematic selection based on a formal breeding objective

Literature cited

1. FARM-Africa, 2003. Delivering affordable and quality animal health services to Kenya's rural poor. FARM-Africa's experiences. FARM-Africa Pb, ed.
2. Ayalew W, Rischkowsky B, King JM, Bruns E, 2003. Crossbreds did not generate more net benefits than indigenous goats in Ethiopian smallholdings. *Agricultural Systems* 76: 1137.
3. Ahuya CO, Okeyo AM, Kitalyi A, Mutia P, Murithi FM, 2003. Farm-Africa dairy goat and animal healthcare project: a successful case of agricultural research and sustainable development partnership. Global Forum on Agricultural Research (GFAR), May 22-24, 2003. Dakar Senegal.
4. Ahuya C, Ojango JMK, Mosi RO, Peacock C, Okeyo AM, in press. Performance of Toggenburg dairy goats in smallholder production systems of the eastern highlands of Kenya. *Small Ruminant Research*.
5. Peacock C, 2008. Dairy goat development in East Africa: A replicable model for smallholders? *Small Ruminant Research* 77: 225-238.

Other references

1. Ahuya CO, Okeyo AM, Hendy C, 2001. Community-based livestock improvement: a case study of farm-Africa's goat improvement project in Meru, Kenya. *Proceedings of the Tanzanian Society of Animal Production (TSAP)*.
2. Ahuya CO, Okeyo AM, Mosi RO, 2003. Growth survival and milk production performance of Toggenburgs and their crosses to East African and Galla goat breeds in the Eastern slopes of Mount Kenya. *Proceedings of LPP International Workshop on Small Ruminants Research and Dissemination*. Embu, Kenya, 3-7th March, 2003.
3. Ahuya CO, Okeyo AM, Murithi FM, 2004. Productivity of cross-bred goats under smallholder production systems in the Eastern highlands of Kenya. *Proceedings of workshop on enhancing the contribution of small livestock to the livelihoods of resource poor communities*. Masaka, Uganda, 15-19th November, 2004, 54-61.
4. Ahuya CO, Okeyo AM, Njuru MD, and Peacock C, 2005. Developmental challenges and opportunities in the goat industry: the Kenyan experience. *Small Ruminant Research* 60: 197-206.

5. Kahi AK, Rewe TO, Kosgey IS, 2005. Establishment of Sustainable community-based organizations for the genetic improvement of livestock (CBOGIL) in developing countries. *Outlook on Agriculture* 34: 261-270.
6. Kosgey IS, 2004. Breeding objectives and breeding strategies for small ruminants in the tropics: Wageningen University, The Netherlands.
7. Kosgey IS, Baker RL, Udo HML, Van Arendonk JAM, 2006. Successes and failures of small ruminants breeding programs in the tropics: a review. *Small Ruminant Research* 61: 13-28.
8. Peacock C, 2005a. Goats-A pathway out of poverty. *Small Ruminant Research* 60: 179-186.
9. Peacock C, 2005b. Goats: Unlocking their potential for Africa's farmers. FARM Africa Working Paper series. Seventh Conference of Ministers Responsible for Animal Resources. Kigali, Rwanda, 31st October-4th November, 2005, 23.
10. Ruvuna F, Cartwright TC, Blackburn H, Okeyo M, 1988. Gestation length, birth weight and growth rates of purebred indigenous goats and their crosses in Kenya. *Journal of Agricultural Science*: 363-368.
11. Ruvuna F, Cartwright TC, Blackburn H, Okeyo M, Chema S, 1988b. Lactation performance of goats and growth rates of kid under different milking and rearing methods in Kenya. *Animal Production* 46: 237-242.
12. Okeyo AM, 1997. Challenges in goat improvement in developing rural economies of Eastern Africa with special reference to Kenya. Houton AaV, ed. *Proceedings of Goat Development in Eastern Africa, Workshop, 8th-11th December, 1997. Izaak Walton Inn, Embu, Kenya*, 55-66.
13. Okeyo AM, Ahuya CO, Wanyoike MM, 1999. Carcass Tissue distribution and Characteristics of Small East African and Galla goats, and their F1 crosses to Toggenburg and Anglo-Nubian. *Indian Journal of Animal Sciences* 71: 868-871.
14. Okeyo AM, Ruvuna F, Cartwright TC, Lumiti GI, 1985. Fertility levels, postpartum Intervals and other Reproductive Performance Traits in Small East African, Galla goats and their crosses at Ol' Magogo. *Proceedings of the 4th Small Ruminant CRSP Kenya Workshop. Kabete, Nairobi, Kenya, 1985*, 69-74.
15. Okeyo AM, Thendiu JN, Ahuya CO, 2001. The place and role of the goat in livelihood improvement and poverty reduction in Kenya: Potential and some indicative achievements. Annual Project Planning Workshop, Livestock Productivity Project, Farm Africa-Dairy goat and animal Healthcare Project, Meru, Kenya, 7th-9th September 2001. Meru Central Hotel, Meru, Kenya.

