



THE CONSERVATION OF INDIGENOUS LIVESTOCK BREEDS

A case study in Kenya looking at ways to prevent the loss of genetic diversity

Introduction

Kenya is located on the east coast of the African continent. The land stretches from sea level in the Indian Ocean in the east to 5,199 meters at peak of the snow capped Mount Kenya. The Great Rift Valley bisects the country's highlands into an Eastern and western section. Ethiopia and Sudan border Kenya, Somalia to the northeast, Uganda to the west, and Tanzania to the south.

The population of Kenya is estimated to be 28 million and consists of 42 different tribes. 70% of Kenya is arid or semi arid land which supports 20% of the human population and more than 50% of the livestock. Grazing livestock is the only viable form of food production for most of these area and forms a critical part of the food security strategy in regions where marginal farming. These areas provide 80% of Kenya's meat supplies.

Importance of livestock to local communities

Livestock is very important to pastoralists and marginal farmers. It is the main source of their livelihoods, which centre around the number of livestock they own and the need to ensure their survival.

The species patoralists rely on include cattle, camels, sheep, goats and donkeys from which they obtain meat, blood and milk, which form their staple diet.

In marginal farming areas, poultry and rabbits are kept for meat and eggs. Among the Samburu for example, livestock also plays an important socio-cultural role such as serving as payment for dowry. Livestock is the main source of wealth, and income is derived from the sale of livestock and its products.

At the national level the livestock sector in Kenya contributes about 10% of the gross domestic product and over 30% of the agricultural Gross Domestic Product (GDP).

Importance of local breeds

In addition to providing food security for the respective local communities, indigenous breeds have further significance for sustaining and increasing food production in Kenya. By allowing use of marginal environments, they maximize production. They are also valuable reservoirs of genes for adaptive and economic traits, providing diversified genetic pool, which can help meeting future challenges resulting from changes in production sources and market requirements. For these reasons, the country needs to keep options open by maintaining wide genetic diversity.

Local livestock breeds

Because local communities have bred livestock for different purposes, different breeds are linked to different communities.

Table1: Overview of Kenya's indigenous breeds.

Species	Breed	English equivalent	Breeders
Cattle	Boran	East African Short-horned Zebu	
	Ethiopian Boran	-	Avai, Somali, Borana, Boran, Tanaland, Galla, Borena
	Giriama	-	-
	Kamasia	East African Short-horned Zebu	Tugen
	Kamba	East African Zebu	Akamba Ukamba Wakamba
	Kavirondo	East African Zebu	Luo, Luhya
	Kenyan Boran	Improved Boran	
	Kikuyu	East African Zebu	Kikuyu
	Maasai	East African Zebu	Maasai
	Nandi	East African Zebu	Nandi
	Sahiwal	-	Lambi bar, Lola, Montgomery, Multani, Teli
	Samburu	East African Zebu	Samburu
	Suk	-	Sereneli, Serengi
Tuni	-		
Dromedaries	Rendille/Gabra		Rendille, Gabra
	Somali		Somali
	Turkana		Turkana
Goats		Angora	
	Boran		Galla, Somali
	Somali	Small East African goat	Galla, Modugh, Mudugh, Deghier, dighi yer, Degeun.
Sheep		Black head Persian	
		Kenyan Samburu	
		Kipsigis	Lumbwa
		Luo	
	Maasai	Red Maasai, Tanganyika red Maasai	
	Nandi		
	Somali	Berbera Blach Head, Blach Head Somali	

Source: DAD-IS database

Cattle

The East African Zebu is the most common local cattle breed. It shows substantial variety in colour and shape, depending on the different communities (tribes) that rear them

Goats

The main local breeds of goats are the small east African goat and the Galla, which is kept mostly by Somali and Borana communities.

Sheep

The red Maasai and the Somali Sheep (otherwise called fat tailed black head) are the main sheep breeds.

Chicken

Chickens are the most varied of all among local livestock. They are kept mostly for dual purpose. Of interest are the featherless – necked chicken found among the Luhyas of Western Kenya.

Camels

Turkana, Somali, Rendille and Samburu communities keep camels in Kenya. Camel breeds in Kenya are therefore classified according to these communities. The Somali community however, recognizes three different types of camels namely; *Horr*, *Sifdarh* and *Gelab*. These different types of camels have different characteristics and are used for different purposes.

Breeding practices by local communities in Kenya

a) Natural selection

Pastoralists usually operate under comparatively harsh environmental conditions, which are beyond their managerial control. Hence their livestock population depends on the process of natural selection to a larger extent than is the case for other animal production systems in more favourable environments. Natural selection means that those animals unable to cope with environmental conditions (stress, disease challenge, drought etc) will contract disease or die and hence not produce. If the process of natural selection leaves more animals behind than are necessary to satisfy the household's need, pastoralists can start applying their own – artificial – selection in order to actively influence the occurrence or frequency of certain desired animal features or traits in their herds.

b) Artificial Selection criteria

The criteria for artificial selection i.e. breeding-stock selection include:

1. Body Configuration. Some cattle owners select cattle based on the type and shape of their horns and their conformation.
2. Goat Colour- The Somali prefer bright colour animals because they are prestigious, easy to market and are beautiful. The Maasai prefer spotted animals for dowry and a uniformly coloured animal for sacrifices. Among the Borana and Somali Communities, a brown coloured head in a Galla goat is thought to indicate good milking characteristics. This has become evident after years of breeding.
3. Production – animals which produce milk for a longer period even during drought conditions, have fast growth rate, optimum size, and a high fecundity (especially twinning rate in goats) are preferred.
4. Adaptability – The nomadic lifestyles indicate that animals have to be very adaptable to their environments. The water intake should be fairly low to allow survival during drought conditions. The animal should not be overweight because of long walking distances. Nutritional adaptation is also a prerequisite for survival because of the type of forage available. Animals that put on weight fast after drought and do not lose weight quickly during drought are selected for breeding. A bull that moves ahead of the rest of the herd during long treks for pastures is usually preferred as a breeding bull. Among the Somalis, the bull that moves fastest when the herd is approaching the water point is usually deselected because this indicates that the bull has a high water requirement or is less resistant to drought situations. Animals that are vulnerable to diseases such as TB are not used for breeding.
5. Demeanour –The aggressiveness or docility of the animal is a very important criterion depending on the situation. Where there is a need to train animals especially for draft power and to ensure proper mothering abilities, docility is selected for. On the other hand, the Luhyas community of western Kenya who use livestock in annual sports events, select bulls for their aggressiveness against each other.

6. Socio-cultural – The Somali communities prefer the camel bull, which sires more females, while the Rendille and Gabra communities prefer the camel bull, which sires males. Females among these communities are given as gifts to other people within the community. This practice instils a sense of unity and prevents conflicts within the same community, since the community, as a whole, owns the livestock.

The breeding policy in Kenya

The breeding priority of Kenya is to produce enough food for national self- sufficiency in meat. This has been so since Kenya achieved its independence since 1993 and continues to be so today. To achieve this the development of the livestock sector and in particular of the dairy sub-sector, depends heavily on the availability of high quality genetic materials. It is believed that such animal genetic resources are essential for the establishment and growth of a national herd of high productive potential. As a matter of policy, therefore, the government encourages, promotes and supports the search for and production of superior genetic materials, not only for local use but also for export. Hence AI programmes and other up-grading strategies have been initiated.

Prevention of loss of valuable indigenous genetic diversity

As a result of up-grading the local breeds for improved production in Kenya, there is loss of valuable indigenous genetic diversity. There is a need to reverse this trend and the following recommendations have been made:

- Documentation of indigenous knowledge on livestock breeds and breeding practices in the different communities in Kenya
- Recognition and organization of local livestock breeders into informal breeders associations so that breeders are encouraged and trained to adopt breeding programs based on modern approaches.
- Identification and characterization of all existing livestock breeds, with particular emphasis on the respective environment in which these animals are kept.
- Provision of incentives to the local livestock breeders especially pastoralists and the marginal farmers.
- Ex-situ conservation to be put in place by the government for those animals which have not been identified as possessing unique characteristics and which are currently not utilized and are therefore in danger of extinction.
- The development, by governments, of strategies for utilizing local breeds in cross breeding programmes, in environments where such genotypes can be sustainably used.
- Research to develop methods to facilitate rapid identification and documentation of existing local livestock genetic resources.

Contacts:

Eric Kisiangani
Practical Action Eastern Africa
AAYMCA Building (Second Floor)
Along State House Crescent
P.O. Box 39493, Nairobi, Kenya
Tel: +254 20 2715293 / 2719313 / 2719413
Fax: +254 20 710083
E-mail: kenya@practicalaction.or.ke

Practical Action
The Schumacher Centre for Technology and Development
Bourton-on-Dunsmore
Rugby, Warwickshire, CV23 9QZ
United Kingdom
Tel: +44 (0)1926 634400
Fax: +44 (0)1926 634401
E-mail: infoserv@practicalaction.org.uk
Website: <http://practicalaction.org/practicalanswers/>

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