

- Live animals are also kept for capital investments and savings as well as bartering mode.
- Live animals, cattle in particular, are hired as draught power to cultivate field crops for generation of income.
- Crafted feathers are used to make ornaments that are sold to generate income.
- Embryos are flushed and sold locally and internationally to generate income.

Sustainable use of FAnGR

According to the Convention on Biodiversity (CBD), sustainable use is the use of the biological diversity resources in a manner and at a level that does not contribute to the long-term decline of biological diversity, thereby preserving its ability to meet the necessities and expectations of current and future generations. As a result, long-term use of FAnGR is crucial to ensuring that FAnGR are available for current and future generations. The Global Plan of Action for AnGR also recommends sustainable usage as the best option for preserving AnGR diversity.

There are various potential approaches for ensuring that FAnGR are used sustainably. However, in order for prospective methods to be implemented effectively, the social-ecological system, production systems, and the country's overall livestock development objectives must be considered. Collaboration and cooperation among relevant parties (e.g., the Department of Agriculture, Land Reform and Rural Development, Provincial Departments of Agriculture, breeders societies/organisations, Institutions of Higher Learning, research institutions, commodity organisations, breeders/farmers/livestock keepers/producers and consumers) is also essential. The approved National Plan for conservation and sustainable use of FAnGR, as well as the National Strategy and Action Plan for conservation and sustainable use of FAnGR endorsed by members of the National Working Group for FAnGR, also describe the current status, gaps and actions on sustainable use of FAnGR.

Various ways suggested include, amongst others, the following:

- Implementation of sustainable animal genetic improvement
- Infrastructure, e.g., Institutions of Higher Learning, human capacity, research institutions, farmers and herd book organisations; physical facilities, functioning recording and genetic evaluation systems; long-term financial support and strong links between these components.
- Implementation of structured breeding programmes
- Marketing of animals and their products, e.g., establishment of niche markets (free range, organic, grass-fed products),

value-added products (e.g., biltong, snap sticks, and droewors)

- Provision of technical services, e.g., improvement of feed resources/nutrition of animals, improvement of health and disease management
- Institutional support, e.g., legislation and policy interventions/livestock policy/national strategic plan and action/livestock breeding policy or act; planned training and capacity building initiatives, partnerships and collaboration among stakeholders
- Land availability



Conservation of Farm Animal Genetic Resources (FAnGR)

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**agriculture, land reform
& rural development**

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA



Introduction

Nearly two million people rely on livestock to supply all their economic, social, cultural and dietary needs. To the rural communities which keep livestock, animal genetic resources provide meat, milk, eggs, hides and skins, animals for hauling carts and ploughs, powering wells and mills, bring cash and prestige, act as savings and insurance and animal waste is used as a fertiliser and fuel.

The role and contribution of Farm Animal Genetic Resources (FAnGR) has often been overlooked, as they had to compete against high input and output breeds. However, indigenous FAnGR carry genes that enable animals to tolerate harsh environments, cope with thorny vegetation in drought prone areas, walk long distances and repel attacks by diseases and pests.



In general, indigenous breeds provide the necessary genetic diversity needed by modern agriculture as a means to ensure stability and are vital building blocks for future livestock breeding programmes. As such, conserving them is important, not only for the communities who keep the animals but also for the future of modern agriculture.

However, these animal resources are constantly being eroded and are nearing extinction. According to the FAO, one third of AnGR contributing to rural livelihoods are endangered, as a result of threats, including, but not limited to, the following:

- indiscriminate cross-breeding practices,
- expansion of intensive agriculture,
- change in the economy,
- establishment of protective areas,
- lack of market demand,
- disappearance of traditional livelihoods,
- loss of indigenous knowledge institutions.

What are farm animal genetic resources?

The acronym refers to those animals that are used, or may be used, for production of food and agriculture. Cattle, sheep, goats, pigs and chickens, for example, form the raw material that farmers depend on, to adapt to production conditions and cope with disease outbreaks.

What is conservation?

Conservation is an action undertaken to ensure that the diversity of farm animal genetic material is being maintained for contribution to

food production, agricultural production and productivity through planning strategies and policies for future purposes. Effective conservation of genetic resources is possible only if the breeds are identified and documented adequately, and there is full participation towards the conservation efforts of communities keeping animals.

There are basically two ways to conserve animal genetic diversity viz.: *in situ* and *ex situ*.

In situ conservation

This is the preservation of animal genetic diversity in the original production environment. This can be done in two ways: viz. on-farm or community-based conservation. Community-based conservation combines the sustainable use of a breed with the empowerment of rural people who keep it.

Benefit of in situ

It maintains recovering populations in the environment where they have developed their distinctive properties.

Ex-situ conservation

This means the preservation of genetic material outside its original production context. This is done in two ways: cryopreservation (dip-freezing) of genetic material, e.g. semen, oocytes, embryos and DNA; or as live population where animals are kept in zoos and on experimental or show farms.



Criteria for selecting breeds for conservation

In view of a number of breeds that are considered endangered and the financial implication that comes with the programme to conserve animal genetic diversity, it is imperative that strict selection pertaining to AnGR to be conserved be made. The selection criteria should include the following:

- Status of endangerment
- Adaptation traits
- Traits of economic importance
- Unique traits
- Cultural or historical values
- Genetic uniqueness of a breed
- Species that a breed belongs to.

Reason to conserve farm animal genetic resources

- Meet the present socio-economic demand (FAnGR are the source of income for poor rural communities, losing them will be detrimental to their livelihoods).
- Insurance against future changes in production circumstances.
- Cultural and historical reasons. (Cultural and historical values of most communities are reflected by the type of breeds they keep, therefore, conserving them is necessary to maintain their identity.)
- Opportunities to meet future demand
- Regenerating population after disease outbreaks
- Rescuing rare or endangered species or breeds
- Providing a source of genetic material for research purposes
- Supplying germplasm for development of new breeds Maintaining the indigenous livestock gene pool diversity.

Economic and cultural importance of FAnGR

Indigenous FAnGR and their products have different economic and cultural roles. In summary, cultural and economic roles of indigenous FAnGR and their products are as follows:

Cultural importance

- Live animals are slaughtered, consumed and used at different ceremonies and events such as rituals (e.g. traditional healer initiation, circumcision graduations), weddings (traditional and white), funerals, parties (e.g. graduation and birthdays), festive season celebration etc.
- Milk is used for home consumption and extracted cream from milk is used to make body lotions and to soften leather carry bags.
- Fats are used for medicinal purpose (e.g. fats from chickens are cooked and the oil indigenously used to moisten human ears, fats from goats are used in mixture of traditional medicines), for cooking, as leather softener and as moisturizer.
- Hide particularly, from cattle is processed to make musical instruments (e.g. drumbeats), garments, shoes, bags, carpets/mats, seats and shields.
- Live animals particularly cattle are also used for draught power to cultivate small sized land and for transportation of goods to nearby places.
- Manure particularly, from cattle, sheep, goats and chickens is used to fertilize soil.

Economic importance

- Live animals and their products such as meat, milk, hide, eggs and manure are sold to generate income.