

# Activity report: Livestock Genetics Flagship

## Towards climate-resilient dairy production in southern Zambia: Community group discussions on understanding dairy cattle breeding practices in low input systems

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# Project overview

The project 'Towards climate-resilient dairy production in Southern Zambia' is contributing to increased livestock productivity in the Southern Province of Zambia through identification and promotion of appropriate dairy technologies and innovation, with emphasis on livestock feed resources, productive performance traits of genetic importance in the system context, and key livestock health concerns that curtail increased milk production. The International Livestock Research Institute (ILRI) CGIAR Research Program on Livestock (CRP Livestock) Genetics Flagship team is training livestock sector actors on breeding management practices and interventions to enable the identification and adoption of best-bet, climate-resilient animals for dairy ranching in the Zambian production environment.

# Background

The Southern Province of Zambia is the traditional cattle-rearing zone in the country, farmers keep large herds of indigenous breed types and crosses of different breeds mainly for beef production and draught power. Many households in the region consider livestock as a source of wealth. The herds mainly comprise of local cattle with portions of the herds having improved genetics kept for dairy. Dairy production in the province is by three main categories of farmers: Large-scale commercial farmers, small-scale mixed crop-livestock farmers, and traditional farmers. Production practices adopted for dairy animals vary across the farming systems in line with the resource endowment and knowledge of the livestock keepers. Milk productivity is low, and there are no organized management and breed improvement programs that promote appropriate breed types for local conditions in the region. The small-scale mixed crop-livestock farmers offer great potential for improvement of milk production as they hold a large number of cattle.

Dairy processors in the Southern Province who collect raw milk through milk collecting centres (MCCs) affiliated to dairy cooperatives face a shortfall in the supply of raw milk against a growing domestic demand for dairy products. The processors thus import milk powder to compensate for the deficit.

# Community focus group discussions

To gain a clearer understanding of dairy breeding management practices adopted at the farm level under the mixed farming systems, focus group discussions (FGDs) were organized for farmers participating in a herd health program from Monze and Zimba cooperatives supported through Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Zambia. To manage number of FGD participants in line with the national protocols preventing the spread of COVID-19, interactive meetings were held over two days with different groups of farmers. The total number of farmers who participated in the FGD is presented in Table 1.

Table 1: Number of participants trained from different counties grouped by gender

	Number of technical staff trained		
	Men	Women	Total
Enumerators	4	1	5
GIZ partners	0	2	2
Monze dairy farmers	6	8	14
Zimba dairy farmers	8	9	17
ILRI/Alliance of Bioversity-CIAT	1	2	3
<b>Total</b>	19	22	41



Dairy farmers from Zimba District  
(Photographs by Gitau J. ILRI)



Farmers describe their production environment

Through the FGDs, community members provided information on the characteristics of their dairy cattle production systems. The tool adopted to guide the discussions with farmers and key informants is presented in Annex 2 of this report.

# Overview of the FGDs

Participants in each FGD introduced themselves and indicated the type of dairy enterprise they were engaged in. The project team then provided an overview of the project, and outlined the objectives of engagement with the livestock keepers. The farmers, in groups of four, described their area using maps in which they indicated the location of their farms in relation to access to livestock services.

Facilitated small-group discussions supported by the extension personnel from the Ministry of Livestock in Choma District were used to generate the information listed below using a predesigned tool to guide the discussions.

- Characteristics of dairy production systems in southern Zambia
- Determining traits of importance in dairy production
- Dairy cattle breeds of interest and their characteristics
- Mating methods and replacement options used by farmers
- Seasonality of calving, rainfall, and pasture availability – Using proportional piling techniques
- Sources of new/replacement breeding animals
- Sources of information for breeding management
- Record-keeping on the performance/productivity of the different breeds of cattle
- Most prevalent diseases in livestock
- Main constraints related to breeding and possible solutions



Farmers use colored cards for ranking preference  
(Photographs by Gitau J. ILRI)



Farmers use maize and beans to map rainfall seasons, calving and availability of pasture in a typical year

# Training on breeding management technologies for dairy production

The project team provided training for the farmers on:

- Breeding technologies that can be adopted, mainly focused on artificial insemination (AI).
- Use of a breeding the calendar as a management tool.
- Electronic learning tools developed through ILRI on raising healthy calves: feeding and housing of calves, dairy milk hygiene, calving process and routine management for dairy production.

# Preliminary information from FGDs

The farmers reported an average daily yield of 5-8 litres per cow. They mainly use bulls from their own herds or from their neighbours for reproduction. The use of bulls, however, leads to the spread of diseases, a high-level of inbreeding and low milk production. Although AI has been promoted as an effective technique for dissemination of genetic gain to producers (Mwambilwa et al. 2013<sup>1</sup>), its adoption by the small-scale farmers is very low. This was attributed to low conception rates and higher calving intervals.

Interventions are underway to provide synchronized AI during periods when the nutritional status of animals is good (at the beginning of rains). There is also a great need for better-quality semen for AI, and the limited availability of liquid nitrogen results in huge losses for service providers and farmers.

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<sup>1</sup> Mwambilwa, K., Yambayamba, K.E. and Simbaya, J., 2013. Evaluation of the reproductive performance and effectiveness of artificial insemination on smallholder dairy farms in Zambia *Scholarly Journal of Agricultural Science*, 3, 391–400



# GIZ-Livestock CRP Project team

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- Jennifer Gitau

## **2. Alliance of Bioversity International and CIAT**

- Ngoma Sikacey Noah

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# Annexes

1. To access the E-learning tools on best management practices click here: <https://m.learn.ink/ilri>

2. Training program

Time	DAY 1-Zimba Dairy farmers DAY 2-Monze Dairy farmers	Organization
8:30-9:00am	Introductions and scene setting Workshop objectives	ILRI / GIZ/ CIAT
9:00-9:15am	Group engagement-Mapping of farms in respect to livestock services.	ILRI
9:15 – 9:40am	Coffee break	
10:00-12:30	Session I: Group interactions/FGDs	MOL facilitators/ILRI
12.30-1:00 pm	Discussions	ILRI
1:00-2:00pm	Lunch break	
2:00 – 2:40pm	AI Training	Vet Doctor
2:40-3:00pm	Training and issuing of breeding calendar	ILRI/CIAT
3:00-4:00pm	E-Tools on best management practices for profitable dairy production	ILRI
4:00-4:30pm	Tea Break	