



Mini-feedlot in Beitbridge District, Zimbabwe agro-ecological region V. (Photo credit: Sikhhalazo DUBE /ILRI)

### Objectives of the project

The general objective of the Livestock Production Systems in Zimbabwe (LIPS-ZIM) project is to increase livestock productivity in two dryland agroecological regions in Zimbabwe ideally suitable for cattle production: Natural Region IV located in the low-lying areas in the north and south of the country with an annual rainfall of 450-650 mm, severe dry spells during the rainy season, and frequent seasonal droughts; and Natural Region V covering the lowland areas below 900 m above sea level in both the north and south of the country with an annual rainfall below 650 mm and highly erratic.

Specifically, the project is increasing the adoption of climate-relevant innovations in livestock-based production systems, and improved surveillance and control of livestock diseases. These efforts are helping tackle nutrition challenges, increase market profitability, diversify incomes from livestock, and improve animal health.

### Background

Livestock provides income and employment to farmers, agricultural service providers, and others involved in the value chain. Zimbabwe's livestock production system is characterized by small-scale subsistence farming. Despite the importance of livestock to rural livelihoods, productivity remains low. This is, in part, attributed to farmers' poor knowledge and adoption of good livestock practices, lack of efficient control and monitoring of animal diseases, lack of adequate veterinary service delivery (disease surveillance and vaccination coverage), feed unavailability, and associated high costs, poor quality of animals, frequent droughts, and a poor enabling environment. For instance, tick-borne diseases are causing high cattle mortalities due to dilapidated communally owned dip tanks and a lack of regular supply of acaricides.

In overcoming these challenges, the project has identified and is scaling out climate-smart livestock production practices and technologies to increase the adoption of business and climate-smart feeding practices, adaptive breeds, and animal management practices (stocking rates) that impact livestock production. The climate-smart innovations include animal health management, improved breeds, improved feed, fodder management and conservation, water harvesting, and manure management, which are critical in increasing productivity and enhancing resilience. A key intervention is research on the epidemiology of diseases, and the most efficient ways of controlling them, considering the communities' indigenous knowledge on these aspects.

### The theory of change to achieve the objectives

The project seeks to improve the quality and sustainability of animal-sourced foods through climate-smart livestock production systems anchored on the diversification of incomes and optimized livestock utilization and through animal disease control. Farmers, therefore, can improve farm productivity and send better quality and increased quantities to the market, thus being able to negotiate better prices and increase household income. The diversified streams of income will lead to resilient communities that are both food and nutrition sufficient. Engagements among different stakeholders will enable long-term and mutually beneficial relationships. It is anticipated that there will be knowledge and skills gained through the capacity building of partners and beneficiary institutions, with evidence generated from the project actions.

The project aims to achieve increased adoption of climate-relevant and cost-effective production innovations through innovative animal production practices and improved marketing systems. Increased income from crops and livestock will promote investment into the livestock sector by farmers while better disease detection, surveillance, and control systems will minimize disease outbreaks and promote off-take.

The theory of change is anchored around the following results which are all interconnected:

#### For **Outcome 1:**

- ✓ Climate-adapted and cost-efficient production, marketing, and investment practices and innovations for livestock production systems in Zimbabwe's agro-ecological Regions IV and V are selected based on scientific evidence; for this purpose, the project carried out a situation analysis through surveys, group discussions (in-person and virtual) and reviewed secondary data.
- ✓ Animal husbandry and related practices, technologies, and innovations are tested, evaluated, integrated, and out-scaled in production systems in the agro-ecological regions IV and V; for this purpose, feed and forage, disease control, and surveillance technologies are being tested, and evaluated with selected farmers who act as learning points.
- ✓ Further, the project is fostering income generation and diversification along the livestock value chain with a strong integration of crops and livestock systems; for this purpose, inclusive market systems in Natural Regions IV and V are being developed. Value chain actors are being capacitated to out-scale the adoption of tested, evaluated, and approved technologies, and innovations.

#### For **Outcome 2:**

- ✓ Understanding that climate change has created environments for the emergence and spread of animal diseases that impact livestock productivity, the project is researching vector ecology and migratory patterns of humans which may lead to encroachment to vector habitats, and factors underlying the movement of these vectors into new areas. This will also increase knowledge of the linkage between climate change and vector/disease outbreak distribution.
- ✓ Understanding that animal disease control is premised on the country's capacity for disease surveillance and detection, the project conducted a comprehensive evaluation of surveillance and control systems in the following areas: (i) governance, (ii) technical practices (including enhancing diagnostic capacity for centralized and decentralized early detection (including linkages with private stakeholders), (iii) communication, and (iv) sustainability; this to revamp these systems. The findings are being used to strengthen the capacities of teams for surveillance and early detection of emerging and re-emerging diseases.
- ✓ LIPS-Zim implements a participatory epidemiology approach taking cognisance of the existing conventional control methods and the indigenous knowledge systems. These activities are:
- ✓ strengthening the capacities of implementors in the control of livestock diseases (vaccines, movement control, extension, and treatment).



Figure 1. Theory of change pathway

The project is carrying out various activities to increase awareness and knowledge, share lessons learned, and ensure that best-bet technologies are scaled out. For instance, the project established farmer field schools where other farmers and stakeholders could see and learn about technologies. The project also facilitated exchange visits, learning tours, feedback meetings, and on-site training sessions.

### **Main activities**

- ✓ Situation analyses, identification, prioritization, and establishment of a research monitoring and validation system for climate-relevant and cost-effective production innovations.
- ✓ Piloting and evaluating innovative animal production practices, assessing their readiness for scaling, and packaging evaluation findings for upscaling.
- ✓ For improved marketing systems, activities include identification of existing opportunities for facilitating the creation of small and Medium Enterprises (SMEs) along the livestock value chain, business training, identifying bottlenecks to technology adoption, assessment of the market, supporting the revamping of markets, business coaching, and mentoring, and monitor the adoption rates of innovations.
- ✓ To improve disease detection, the project is investigating the distribution and prevalence of priority diseases (tsetse, ticks) and the impact of climate change on vector and disease distribution (based on historical and current data). The project surveillance activities include describing, assessing, and identifying gaps in the current zoonotic disease surveillance and response system, and then developing and adopting appropriate tools (existing and innovative) and programs to enhance surveillance and rapid response.
- ✓ For disease control systems, the project activities include training for participatory surveillance and improving capacity for data analysis and management, identifying gaps for controlling and prioritizing interventions; developing mechanisms for sustainable resource mobilization to control key diseases (including economic analysis); and rolling out the Integrated Tick- and Tick-borne Disease Control Strategy in Region IV and V; and developing cost-efficient vector control and disease prevention systems (including traditional knowledge and innovation).

### **Results achieved to date (December 2022)**

The LIPS-Zim project aims to enhance the adoption and scaling up of climate-adapted, cost-efficient, and science-based livestock production systems in Zimbabwe's semi-arid agroecological regions IV and V. In Mutoko, Buhera, Beitbridge, Gwanda, and Nkayi districts, over 1000 farmers have increased their incomes by growing forage varieties such as lucerne (*Medicago sativa*), velvet bean (*M. pruriens*), and sunn hemp (*Crotalaria juncea*), which were introduced by the project. With these new forage varieties, farmers provide enough feed to their cattle, increasing livestock weight and energy levels. The project scientists have also developed a promising eight-feed formula, which uses velvet bean, sorghum, lablab, and local feed materials such as Bambara groundnut haulms, monkey bread tree, sickle bush, poultry litter, and molasses. These feeds are in the process of being registered by Zimbabwe's Department of Research and Specialist Services.



To improve the surveillance and control of livestock diseases, the LIPS-Zim project has provided capacity development support in various ways. This includes refurbishing the Gwanda National Veterinary Laboratory and providing reagents, and lab equipment for diagnosing theileriosis and anthrax. As a result, the laboratory is now actively involved in diagnosing and controlling animal diseases in Gwanda District. In addition, the project piloted a cattle and goat footbath technology in

Chiredzi District in November 2022, which aims at reducing cattle mortalities caused by ticks and tick-borne diseases. In 2023, the project plans to construct more footbaths in other districts to further improve the control of livestock diseases and the overall productivity of livestock-based production systems in Zimbabwe's semi-arid agroecological regions IV and V.

### **Organization**

LIPS-Zim is implemented by the International Livestock Research Institute (ILRI) with consortium partners, namely the International Maize and Wheat Improvement Centre (CIMMYT), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the Agricultural Research for Development (CIRAD), Research Institute Development (IRD), the University of Zimbabwe's Veterinary Faculty, and the Government of Zimbabwe's Department of Research and Specialist Service (DR&SS), and the Department of Veterinary Services (DVS).

Members of the consortium have defined roles and responsibilities that leverage their strengths and collective action as follows: ILRI is the overall lead of the project. Further, ILRI is responsible for the following project components: climate-adapted and cost-efficient production, innovations for livestock production systems; inclusive market systems; and scale-out of the adoption of tested, evaluated, and approved technologies and innovations. ICRISAT directly supports Specific Objective 1 which seeks to increase the adoption of climate-relevant innovations in livestock-based production systems. CIMMYT leads crop and related practices, technologies, and innovations testing, evaluation, integration, and out-scaling. CIRAD and the University of Zimbabwe co-lead the enhancement of knowledge of the linkage between climate change and vector/disease outbreak distribution, strengthening of capacity for surveillance and early detection of emerging and re-emerging diseases and strengthening of capacity for control of livestock diseases, with direct support from IRD. In addition to technical support, DR&SS and DVS play supervisory and monitoring roles.

The Project is guided by the Project Steering Committee which includes stakeholders not directly implementing the project and is chaired by the Ministry of Lands, Agriculture, Water, Climate, and Rural Settlements. The committee meets at least twice a year.

### **Implementing organization**

International Livestock Research Institute (ILRI)



### **Partners of the project**

- ✓ Agricultural Research for Development (CIRAD),
- ✓ International Maize and Wheat Improvement Centre (CIMMYT),
- ✓ Faculty of Veterinary Sciences,
- ✓ University of Zimbabwe,
- ✓ Department of Research & Specialist Services (DR&SS),
- ✓ Department of Veterinary Services (DVS),
- ✓ Research Institute Development (IRD)
- ✓ International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

**Other main stakeholders**

Ministry of Lands, Agriculture and Rural Resettlement, National Research Institutions including universities.

**Location**

Zimbabwe (5 Provinces, 10 Districts) viz. Manicaland Province (one district), Mashonaland East Province (one district), Matabeleland North Province (three districts), Matabeleland South Province (two districts), Masvingo Province (two districts) and Midlands Province (one district).

**Funding and co-funding**

EU	€ 5,000,000
Total budget	€ 5,000,000

**Duration**

Four (4) years; 1 January 2020 – 31 December 2023

**Website**

[lips-zim.org](http://lips-zim.org)

**Updated on 26/07/2023**