



Feed the Future Innovation Lab for Livestock Systems



One Health Approaches to Mitigate Brucellosis

October 2023 – October 2026

Brucellosis is a disease of paramount importance for animal and human health authorities in East Africa due to its socioeconomic and public health impacts. The disease burden is particularly high in pastoral systems, where herds mix freely, increasing the risk of transmission. Without proper control measures, chronic *Brucella* spp. infections in livestock can lead to numerous abortions and ongoing disease transmission. Human infection often occurs through consuming raw milk or exposure during livestock birthing events.

Effective control programs require robust health and economic systems supported by research, policy, and behavioral change interventions that take gendered effects into account. A key challenge in East Africa is the lack of adequate data for decision-making. Important questions remain unanswered, such as the prevalence of brucellosis in different farming systems and the specific *Brucella* spp. circulating in mixed herds, the return on investment of enhanced control measures, and strategies to promote behavior change for food safety and farm biosecurity.

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Project Goal

The overarching goal of this project is to support small-scale farmers by mitigating the risk of brucellosis in livestock, farmers, and family members.

Objectives

- Increase /Enhance/Improve the understanding of brucellosis risk and transmission patterns between livestock and humans in East Africa.
- Develop and validate risk and behavior science-informed control measures to mitigate the spread of brucellosis from livestock to humans via better production practices and proper food safety procedures with consideration of gendered roles and incentives and opportunities to empower and ensure inclusive benefits to women, men, girls, and boys in the adoption of practices to mitigate the spread of brucellosis, particularly for small-scale livestock producers/pastoralists.

- Strengthen the capacity to control brucellosis at the local, national, and regional levels, including government, academic, and private sector organizations.

Research Approach

In this three-year initiative, research studies will target households with livestock in four provinces in Rwanda and Narok County in Kenya, where the prevalence of brucellosis and disease transmission is high. In addition, patients who present to hospitals with fever combined with chills, headache, or fatigue will be tested for diagnosis of brucellosis, and the most likely source of infection will be determined (e.g., consumption of unpasteurized milk or exposure to aborted fetuses in livestock). Field studies will examine the roles of men and women farmers in livestock production and disease management, particularly brucellosis. Economic assessments will measure the return on investment when selected interventions (e.g., brucellosis vaccination in livestock) are implemented at the national level. Capacity-building activities will include training of animal health and public health professionals, as well as graduate students from Kenya, Rwanda, and Uganda, in disease risk assessment, risk management, and risk communication, as well as effective, locally adaptable, and gender-responsive control strategies. Finally, in the third year, a research-policy forum will be organized to present research results and policy options (e.g., enhanced surveillance and biosecurity, education and communication, vaccination in livestock) that can be considered for possible implementation by animal health and public health authorities in focus countries. When possible, policy options will be supported by socio-economic assessments comparing public health and economic consequences, as well as the return on investment, when choosing a selected policy option (e.g., business as usual vs. vaccination in livestock).

Additional Collaborators and Partners

- Rwanda Agricultural Board
- Rwanda Biomedical Center



Project website [link](#)

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