



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

FEED THE FUTURE INNOVATION LAB FOR LIVESTOCK SYSTEMS

Equip – Strengthening Smallholder Livestock Systems for the Future

Background

The unprecedented rapidly growing increase in demand for animal-source foods in Africa, which is projected to triple in 2050 relative to 2005 levels, is creating significant opportunities for Africa's poor populations who produce the majority of the continent's animal-source foods. The project titled "Equip– Strengthening smallholder livestock systems for the future" strives to improve the incomes, livelihoods and nutrition of smallholder farmers. It will do so through two areas of study: (1) increasing livestock productivity through increased supply of quality feeds (Feed subproject) and (2) testing an intervention strategy to reduce stunting in young children through egg consumption and reducing enteric dysfunction through improved chicken husbandry (CAGED subproject).

The Feed subproject focuses on increasing quality feed supply for important livestock species in the respective countries. These are dairy cows in Ethiopia and sheep and goats in Burkina Faso, but the work will have significant spillover impacts to other livestock species and neighboring countries. Efforts in Ethiopia contribute to achieving the vision of the Livestock Master Plan to increase domestic cow milk production by 93% by 2020. In Burkina Faso, the project will contribute to the National Policy for Sustainable Livestock Development, 2010-2025, which has, as one of its four axes, increasing animal productivity and production through improved feeding and other strategies. The feed research will develop the knowledge, skills, tools and products needed to scale up efforts on quality feed production and delivery in the two countries.

The CAGED subproject addresses the goal of the Ethiopian Livestock Master Plan to increase poultry production through improved, semi-scavenging family systems. Poultry feces are considered a key source of infection in children by enteric (i.e., in the intestines) pathogenic bacteria, which causes environmental enteric dysfunction, a condition which is estimated to cause up to 40% of stunting in the developing world³. The CAGED subproject tests the benefits of improved household chicken production on child growth through egg consumption and the benefits of improved chicken husbandry practices that reduce the exposure of children to their droppings, which may also improve their health and growth.

PROJECT OVERVIEW

Duration: 5 years (December 2017- December 2022)

Donor: Bill & Melinda Gates Foundation

Target countries: Burkina Faso and Ethiopia

Main implementing partner: Feed the Future Innovation Lab for Livestock Systems, IFAS, University of Florida



Photos: (Left) woman with milk and cow (ILRI); Middle) woman feeding goat (ILRI); (Right) young girl with chickens (UF/IFAS)



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Components of research

FEED:

- 1) Inventory of feed resources through a landscape analysis to document the quantities, nutritional qualities and prices, availability and accessibility of feeds.
- 2) Increasing the yield, quality and preservation of fodder with location-specific improved forages for the countries' different agroecologies
- 3) Determining and meeting of nutrient requirements of indigenous livestock with balanced rations
- 4) Improving the capacity to analyze the nutritional value of livestock feeds with near infrared reflectance spectroscopy (NIRS)
- 5) Examining effects of synergizing feed, management and genetic interventions on milk production and health of dairy cows (in Ethiopia only)

CAGED:

- 1) Initial formative research phase: This seeks further proof of the relationships between *Campylobacter*, EED and stunting. It involves collecting data on colonization of young children and animals by *Campylobacter* and identifying the sources of infection of children through Whole Genome Sequencing. This research phase will also collect baseline data for the subsequent phase.
- 2) Experimental phase: This will evaluate the impacts of chicken husbandry interventions as well as improved access to eggs combined with training in nutrition and WASH on the linear growth of children between 6 and 18 months of age. This phase will also further study causes of environmental enteric dysfunction.

Implementing partners in Burkina Faso	Implementing partners in Ethiopia
University of Florida	University of Florida
International Livestock Research Institute (ILRI)	ACDI/VOCA
Environmental Institute for Agricultural Research (Institut de l'Environnement et de Recherches Agricoles, INERA)	Ethiopian Institute of Agricultural Research (EIAR)
University of California-Davis	Hawassa University
	Haramaya University
	International Livestock Research Institute (ILRI)
	Ohio State University
	University of California-Davis
	Washington University in St. Louis

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¹ <http://dialogues.cgiar.org/blog/demand-and-supply-for-livestock-products-in-the-african-drylands/>

² Abdulahi A, Shab-Bidar S, Rezaei S, Djafarian K. Nutritional Status of Under Five Children in Ethiopia: A Systematic Review and Meta-Analysis. *Ethiopian Journal of Health Sciences*. 2017;27(2):175-188.

³ Trehan I, Kelly P, Shaikh N, Manary MJ. New insights into environmental enteric dysfunction. *Arch Dis Child*. 2016;101(8):741-4.

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