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

FEED THE FUTURE INNOVATION LAB FOR LEGUME SYSTEMS RESEARCH

The Feed the Future Innovation Lab for Legume Systems Research is a five-year research capacity building development program managed by Michigan State University that focuses on grain legumes in West and Southern Africa. Legumes are a nutrient-dense staple crop that have multifunctional roles in smallholder farm systems in developing countries including food and nutrition security, generating income, providing livestock feed and fodder, and contributing to the sustainability of soil systems through their nitrogen-fixing capabilities. Cowpea and common bean are the focal crops of the Legume Systems Innovation Lab.

The Legume Systems Innovation Lab goals include:

- Inclusive and sustainable agriculture-led economic growth
- Strengthened resilience among people and systems
- A well-nourished population, especially among women & young children

The strength of the Legume Systems Innovation Lab's design lies in its innovative and vibrant research to scaling strategy using a systems approach. Supported projects are diverse in research focus and address both the development and placement of innovative technologies with a thorough understanding of the systems they will impact thus leading to successful adoption. Projects are focused in three areas of inquiry:

- Integration of legumes into sustainable smallholder farming systems and agricultural landscapes
- Integration of legumes within local and regional market systems, including trade
- Analysis of sociocultural and/or economic motivators or barriers to legume utilization at various stages and scales within production and market systems

In addition, the Legume Systems Innovation Lab will focus on opportunities that address nutrition; the unique needs of women and youth; ensure greater resilience of people and systems under stress and shocks; and contribute to the development of human and institutional capacity for a resilient agricultural innovation system. Project activities are focused in the Feed the Future target and aligned countries of Benin, Burkina Faso, Ghana, Mali, Malawi, Mozambique, Niger, Nigeria, Senegal, and Zambia.

The Legume Systems Innovation Lab is funded by USAID under the Feed the Future Initiative.

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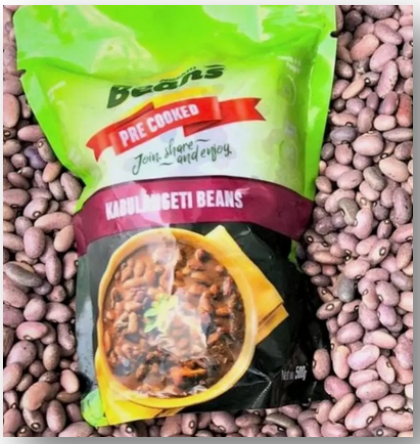
PROJECT OVERVIEW:
Improving Incomes and Nutrition Security Through Development and Commercialization of Consumer Preferred Processed Legume-based Products in Malawi and Zambia



Principal investigator/Lead institution
Dr. Robert Fungo, Alliance of Bioversity International and CIAT

Collaborating Institutions

- Feed the Future Agriculture Diversification (AgDiv) Activity, Malawi
- Lilongwe University of Agriculture and Natural Resources, Malawi
- Virginia Tech, U.S.
- National Bean Program, ZARI-Misamfu Regional Research Station, Zambia
- Trinity Super Foods, Zambia
- University of Zambia, Zambia

Project Overview

Most agro-processing in the majority of African countries is carried out by small and medium enterprises (SMEs) that are hindered by unavailable quality raw materials, lack of market information, especially consumer demand, inadequate knowledge on consumer preferences, product formulation, processing and packaging, limited access to appropriate technologies to reduce food loss, wastage and nutrient leakage, and insufficient knowledge on food safety standards.

However, some of these SMEs are still at early stages of development and thus need support to expand production and meet consumer demand. This project will provide immediate support to SMEs in Zambia and Malawi through (i) providing market information on the demand of value-added bean-based products, and (ii) testing promising value-added bean-based products and catalyzing commercialization.

This will entail implementing several sequential activities: i) a rapid market assessment of legume-based processed foods and ii) assessing the superiority of value-added legume-based products and processing technologies with potential to increase safe and nutrient density in products and legume utilization. Thereafter the findings in the first two research activities will be used to conduct a third (iii) activity, conjoint based analysis of consumer preferences for legume processed products. The results of the fourth (iv) activity of analysis of quality attributes and acceptability of legume-based products dried using bubble dryers and non-conventional technologies will be used to feed into the fifth (v) activity of optimization of the identified legume-based product formulations and recipes. The findings of optimization will be fed into a sixth (vi) study of an experimental auction study. In addition to the above sequenced activities, the project will implement parallel activities, including developing protocols for industry to produce shelf stable legume products developed and commissioning a review of the current country policies for processing and value addition industry for legumes.