Feed the Future Food Security Innovation Labs: Collaborative Research Programs

Feed the Future Innovation Lab for Collaborative Research on Grain Legumes

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Legume Innovation Lab

USAID
FROM THE AMERICAN PEOPLE
Grain Legumes are a strategic group of crops in USAID’s Feed the Future initiative.
Grain Legumes have Multi-functional Roles

- Nutrient-dense staple foods
- Generate income as a profitable cash crops
- Increase sustainability of cropping systems (BNF)
- Enhance livelihoods of women
- Improve child growth, nutrition and health
Legume Innovation Lab Strategic Objectives (SOs) contribute to Feed the Future R & D Priorities

• **SO1.** Advancing the Productivity Frontier for Grain Legumes
• **SO2.** Transforming Pulse Systems and Value Chains
• **SO3.** Enhancing Nutrition
• **SO4.** Improving Outcomes of Research and Capacity Building
SO1. Advancing the Productivity Frontier for Grain Legumes: To sustainably and substantively increase pulse productivity by improving plant adaptation to diverse agro-ecologies and reducing farmer vulnerability to climate change

Game-changing technologies-

- **Bruchid resistance** in common bean varieties for Eastern Africa and Central America
- Improved **Tepary bean** varieties with drought and heat tolerance
- Enhanced **biological nitrogen fixation** in large-seeded common bean market classes
- Resistance traits to aphids, thrips and pod-sucking insects in cowpea discovered
SO1. Advancing the Productivity Frontier for Grain Legumes- To improve integrated management decision-making by smallholder farmers

Game-changing technologies-

- **Sustainable biological controls** for integrated insect pest management in cowpea; ready for scale-up up in West Africa

- **Diagnostic and decision support tools** for improved soil fertility management in smallholder bean-maize systems, appropriate for low-literate farmers
SO2. Transforming Pulse Systems and Value Chains: To improve smallholder farmer connectivity to markets and governance management of pulse value-chains by stakeholders

Game-changing technologies and knowledge-

• Increased value of grain legumes for the benefit of value-chain stakeholders through improved understanding of factors shaping consumption and identification of solutions to weak-links in production, marketing and distribution systems
SO3. Enhancing Nutrition: To improve the nutritional quality of diets and enhance the nutritional and health status of the poor especially young children and women through the consumption of pulses/beans.

Game-changing Knowledge-

• Understanding of role of bean and cowpea consumption on child growth, gut microbiome ecology, and gut health and immune function.
Target Regions and Countries
Legume Innovation Lab

West Africa- Benin, Burkina Faso, Ghana, Mali Niger, Senegal

Eastern and Southern Africa- Malawi, Mozambique, Tanzania, Uganda, Zambia

Latin America and Caribbean- Haiti, Honduras, Guatemala and Ecuador
Challenges to Achieving Impact

- Sustainable community-based seed systems for legumes to provide resource-poor farmers access to affordable quality seed of improved varieties

- Nutrition education to enhance consumer understanding of the nutritional value and health promoting role of grain legumes in diets of the poor, especially children and women
Scaling-Up Initiatives by Legume Innovation Lab

- Community Seed Banks in Central America
- Dissemination of improved bean and cowpea varieties in West Africa and LAC
- Nutrition education to Mayan communities in Guatemala
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