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

FEED THE FUTURE INNOVATION LAB FOR LEGUME SYSTEMS RESEARCH

October 2019



Legume Systems Innovation Lab Update from Dr. Cynthia Donovan, Deputy Director

I recently had the chance to travel to Senegal, combining a Legume Systems Innovation Lab site visit with my role as an External Advisory Panel member for the Peanut Innovation Lab managed by the University of Georgia. Senegal sits on the west coast of Africa; it is an important country for U.S. diplomatic and development interventions. USAID opened an office in Senegal in 1961 and has been working ever since to help build a strong economy with a focus on jobs, education, healthcare and agriculture. Having lived in Senegal for three years after my doctorate, I always look forward to the warm reception by friends and colleagues.

First Stop – Millet fields with integrated shrubs for bio-irrigation

At a Bambey Research Station field site in central Senegal, I learned about innovative research of Ohio State University with Institut Sénégalais de Recherches Agricoles (ISRA) that evaluates the role of shrubs in bio-irrigation. The shrubs have very long root systems that permeate down to water tables, enabling the shrubs to bring up water through the roots both for the shrub itself and for surrounding plants. In this case, I saw millet and groundnuts planted near the shrub and even without any fertilizer, the plants nearer the shrubs did better under the dry Senegalese conditions. The Legume Lab may even have an opportunity to fund research to add grain legumes such as cowpea into the shrub bio-irrigation system.

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Cynthia Donovan (center), Legume Systems Innovation Lab Deputy Director, visits with local farmers and researchers in Senegal.

From the Field

Helping Guatemala Farmers Adapt to A Changing Climate Through Improved Bean Varieties

The Legume Systems Innovation Lab has funded six initial activity projects focused on creative legumes systems research. One of these activities includes the release of improved climate resilient common bean varieties in the highland and dry corridor of Guatemala where drought can be devastating.

Residents of Guatemala's dry corridor are hungry. In 2018, drought-related crop failures directly affected one in 10 Guatemalans and caused extreme food shortage for upwards of 840,000 people according to the UN's Food and Agriculture Organization (FAO). Thousands of Guatemalans support and feed their families with subsistence farming and the alarming climate trends of the dry corridor are making each year harder to survive. Guatemala already has the sixth-highest rate of chronic malnutrition with nearly one out of every two children under five suffering from stunting or low height-for-age (USAID).



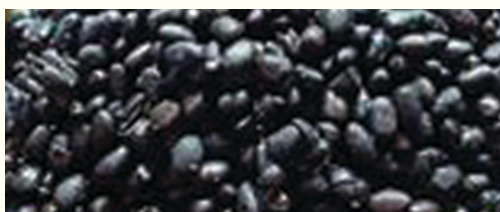
Mr. Herminio Jerónimo with his ICTA Patriarca crop. Photo courtesy of Angela Miranda

"Selection and Release of Climate Resilient Common Bean Germplasm for The Highland and Dry Corridor of Central America" is a Legume Systems Innovation Lab project aimed at providing smallholder farmers with improved climate resilient bean varieties. Led by Dr. Phil McClean from North Dakota State University the project works closely with the Institute of Agricultural Science and Technology (ICTA) in Guatemala.

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Featured Legume of the Month

BLACK BEANS



Black beans, or "common beans," are from the *Phaseolus vulgaris* legume family, a plant that is native to the Americas. Other names for these beans include turtle, frijol negro, and zaragoza. According to the USDA, a one cup serving of cooked black beans provide 15.32 grams of protein and high in folate (64% DV).

Cooking with Black Beans

Guatemalan-styled refried black beans is a favorite of Angela Miranda, bean researcher with the Institute of Agricultural Science and Technology in Guatemala. Angela also collaborates with Dr. Phil McClean from North Dakota State University on an initial activity project with the Feed the Future Innovation Lab for Legume Systems Research. Their project is introducing enhanced common bean varieties into the dry corridor and highlands of Guatemala.

These enhanced varieties are drought tolerant and high yielding offering smallholder subsistence farmers hope for improved livelihoods.



Guatemalan refried black beans make a great addition to any dish. Photo credit TeaandFog.com

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Puzzled??- Can You Figure It Out????

A Little Fun with Beans

Four bean farmers got together for lunch. Each grew different varieties of beans. Based on the facts below can you tell which farmers grew which bean varieties?

- Farmer A grew a black bean.
- Farmer B did not grow a red bean.
- Farmer C grew a pinto bean but not a cowpea.
- Farmer D did not grow a black bean.
- Each farmer grew two varieties.
- No farmer grew two beans of the same variety.
- No two farmers grew the same two varieties.
- One farmer that grew a red bean also grew a cowpea.
- One farmer that grew a black bean also grew a pinto.
- One of the farmers grew a cowpea did not grow a red bean.
- Neither of the farmers that grew a black bean grew a cowpea.

Bonus question - What did the farmers have for lunch?

[Answer](#)



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