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Focusing on the Future

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FOCUSING ON THE FUTURE

Four federal research laboratories at Kansas State University are helping solve the world's looming food crisis

“Kansas State University is internationally recognized in sorghum, millet and wheat — from the plants’ genetics and genomics, to how they’re grown, to applications such as baking with the produced raw material.”

**— John Floros
Dean, College of Agriculture**

In the next 35 years, the world will need to produce more food than ever before in human history to feed a projected 9.6 billion people. Much of this population growth will be in developing regions such as China, India and Africa, where food production is low, crop losses are high, natural resources are dwindling and agricultural innovation is financially limited.

Kansas State University is helping smallholder farmers in key food producing nations solve these problems through four Feed the Future Innovation Labs.

The federal labs focus on reducing global hunger by helping smallholder farmers in developing nations grow better crops, improving methods for defending food crops against disease and insect pests, and establishing more efficient methods of distributing the harvests — all while helping these small-scale farmers in those countries turn a profit. Smallholder farmers are the majority in agricultural production.

Over the course of 14 months, Kansas State University was awarded four of the highly competitive Feed the Future Innovation Labs from the U.S. Agency for International Development, or USAID. The four labs are newly created by the federal agency and total more than \$100 million in funding — rivaled only by the University of California, Davis with five labs.

Kansas State University was a natural fit for the USAID’s four new Feed the Future Innovation Labs, said John Floros, dean of the College of Agriculture and director of K-State Research and Extension.

“As a university and in the College of Agriculture we have in-depth knowledge in the area of agriculture and the food system,” Floros said.

“The university is internationally recognized in sorghum, millet and wheat — from the plants’ genetics and genomics, to how they’re grown, to applications such as baking with the produced raw material,” he said. “We’re also leaders in how to minimize losses when taking food from the field to the consumer’s table and in intensifying agriculture sustainability so that our grandkids and their grandkids can continue to feed themselves in a sustainable way. Because of this expertise, USAID has decided to invest in us.”





Over the course of 14 months, Kansas State University was awarded four of the highly competitive Feed the Future Innovation Labs from the U.S. Agency for International Development, or USAID. Kansas State University has the second most Feed the Future labs in the nation.

The labs

- The Feed the Future Innovation Lab for Collaborative Research on Sorghum and Millet focuses on the African nations of Ethiopia, Senegal and Niger. Experts are using science and technology to produce innovations such as climate-resilient varieties of sorghum and millet as well as more profitable market approaches for the farmers in the three target nations. The lab is directed by Timothy Dalton, associate professor of agricultural economics.

The lab is funding several research projects in Ethiopia and West Africa that focus on genetically improving sorghum against environmental stresses and pathogens as well as expanding markets for farmers through entrepreneurship and more nutritious products.

- The Feed the Future Innovation Lab for Applied Wheat Genomics is working to develop wheat varieties that are resilient to the warning effects of climate change. Initially, the concentration will be in South Asia, which typically produces 20 percent of the world's wheat crop. The lab is directed by Jesse Poland, assistant professor of plant pathology.

Currently, the lab is conducting heat stress screening of wheat as well as looking at the food plant's genetics to develop new strains of wheat that produce more grain in the hottest and driest parts of the world.

- The Feed the Future Innovation Lab for the Reduction of Post-Harvest Loss will focus initially on helping the countries of Bangladesh, Ethiopia, Ghana and Guatemala reduce their postharvest losses and food waste for grain and oil seed crops, tuberous root crops, and peanut and legume crops. The lab is directed by Dirk Maier, professor of grain science and industry.
- The Feed the Future Innovation Lab for Sustainable Intensification is the newest lab. It is identifying technologies that will help smallholder farmers in key African and South Asian countries improve their management of land, water, soil, crops, trees and livestock while simultaneously improving yields and sustaining natural resources. The lab is directed by Vara Prasad, professor of crop ecophysiology and director of the Great Plains Sorghum Improvement and Utilization Center.

"It's a great honor to the College of Agriculture to have these labs from USAID, but it's important to understand that we didn't get these labs alone," Floros said. "We got them because the whole university is behind us. We recently started a universitywide initiative on global food systems and it shows the commitment and expertise that the whole university has in agriculture and food production, not just the College of Agriculture. That's imperative to improving the global food system."

By Greg Tammen