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Food For All

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Food for all

Three federally funded labs at the university focus on ending global hunger

Kansas State University's College of Agriculture had a banner year in 2013.

Beginning in July, Kansas State University was the recipient of three highly competitive grants totaling more than \$27.2 million from the U.S. Agency for International Development, or USAID. The grants establish and fund three of the federal agency's Feed the Future Innovation Labs at the university.

Feed the Future labs are a global collaboration among universities, industry and nongovernmental organizations. Labs focus on improving the resiliency and production of food crop plants as well as preventing crop losses in key, grain-producing countries in an effort to end world hunger.

"These federal centers are highly competitive amongst universities with strong agriculture programs," said John Floros, dean of the College of Agriculture and director of K-State Research and Extension. "The labs require not only a great deal of expertise, but also leadership in coordinating research. Kansas State University is proud to lead these efforts to improve our global food systems and help find solutions to feed the world's growing population."

Kansas State University's innovation labs are concentrating on wheat, sorghum and millet, and reducing postharvest losses through a combination of research, education and outreach in target nations.

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 overall goal with those three key producing nations is to improve farmers' productivity with sorghum and millet, which will reduce poverty and hunger," said Timothy Dalton, associate professor of agricultural

economics and the lab's director. "Additionally, we want to help the farmers with value-added product development to increase benefits to consumers, the private sector and farmers."

The Feed the Future Innovation Lab for Applied Wheat Genomics is working to develop wheat varieties that are resilient to the warming effects of climate change. Initially, the concentration will be in South Asia, which typically produces 20 percent of the world's wheat crop.

"Globally, wheat production is increasing at a rate of 1 percent annually, but there is evidence of yield stagnation in some regions, including South Asia," said Jesse Poland, research geneticist with the U.S. Department of Agriculture and an adjunct assistant professor of agronomy. "In fact, climate models predict that in tropical and subtropical regions such as South Asia, yield will decrease by 10 percent for every 1 degree rise in temperature. Given current cultivars and production practices, this would likely reduce production levels by 30 percent in these regions."

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.

"A tremendous amount of time and effort is being put into improving crop yields in the developing parts of the world, but then 20-30 percent of those crops are lost soon after harvest and before they reach the consumer," said Dirk Maier, professor and head of the grain science and industry department and director of the university's international grains program.

These innovation labs segue into the university's larger food security research effort, the Global Food Systems initiative.

— Greg Tammen