

FOR IMMEDIATE RELEASE

Contacts:

Kansas State University: Elaine H. Edwards (elaine@ksu.edu or +1 785-532-1178)

CIMMYT/Borlaug Summit: Emma Quilligan (e.quilligan@cgiar.org or +52 1 5951069307)

Dr. Jesse Poland to Outline Breakthroughs in Genomic Selection and Precision Phenotyping at Borlaug Summit on Wheat for Food Security

Mexico City, March 27, 2014 – To accelerate the continual development of new and improved wheat varieties, novel approaches are needed to extend conventional selection methods, according to Dr. Jesse Poland, an assistant professor at Kansas State University and director of the Feed the Future Innovation Lab for Applied Wheat Genomics.

Poland will provide insights into “Genomic Selection and Precision Phenotyping” at the upcoming Borlaug Summit on Wheat for Food Security, which will take place in Ciudad Obregón, Mexico on March 25-28. The Borlaug Summit is being organized by the International Maize and Wheat Improvement Center (CIMMYT), the Borlaug Global Rust Initiative (BGRI) and the Patronato for Research and Agricultural Experimentation of the State of Sonora (PIEAES).

“Revolutions in genomics-assisted breeding, complimented by advancements in precision, high-throughput phenotyping will enable 21st century plant breeding on the scale needed to increase crop production and global food security despite less favorable climates and land degradation,” Poland wrote in his presentation abstract.

“With advancements in DNA sequencing technology, it has become less expensive to determine the genotype of new breeding lines than to evaluate those same lines in yield trials,” Poland continued. In this context, whole-genome prediction models (i.e. genomic selection) can be applied to more efficiently utilize resources while shortening the breeding cycle. At the same time, Poland explains that genomic selection cannot completely replace phenotypic assessment of new breeding lines. “To match the phenomenal advancements in genomics, novel approaches for precision, high-throughput phenotyping are needed.”

During his presentation at the Borlaug Summit, Poland will explain how working at the intersection of genetics, breeding, engineering, physiology and computer science will lead to the development of novel phenotyping platforms and the implementation of these platforms in plant breeding programs will match and expand the transformative effect of genomics-assisted breeding.

The Borlaug Summit on Wheat for Food Security honors the 100th anniversary of the birth and the legacy of Dr. Norman Borlaug, a legendary CIMMYT scientist who developed high-yielding, semi-dwarf wheat that is credited with saving over 1 billion people from starvation. The Summit will look back at Dr. Borlaug’s legacy as the father

of the Green Revolution, which sparked key advances in food production. Borlaug was awarded the Nobel Peace Prize in 1970 in recognition of his contributions to world peace through an increased food supply. Borlaug's wheat varieties were grown in Mexico, Turkey, India, and Pakistan, boosting harvests in those countries, avoiding famine in South Asia and sparking widespread adoption of improved crop varieties and farming practices.

Dr. Poland will be one of a number of experts speaking at the Borlaug Summit, which will focus on wheat's critical role in global food security. Other speakers include Howard Buffett, Chairman & CEO of the Howard G. Buffett Foundation; Dr. M.S. Swaminathan, "Father" of the Green Revolution in India and Chair of the MS Swaminathan Research Foundation; Sir Gordon Conway, Imperial College London; Dr. Ronnie Coffman, Vice-Chair of the BGRI and Director of International Programs, College of Agriculture and Life Sciences at Cornell University; Dr. Per Pinstrup-Andersen, 2001 World Food Prize Laureate; Dr. Steve Jennings, Head of Programme Policy at Oxfam; Dr. H  l  ne Lucas, International Scientific Coordinator of the Wheat Initiative; and Dr. Robert T. Fraley, Executive Vice President/Chief Technology Officer at Monsanto and 2013 World Food Prize Laureate. In addition, the President of Mexico, Enrique Pe  a Nieto, has been invited to speak.

Research in Dr. Poland's group is focused on wheat genetics and germplasm improvement. The group is currently developing new marker technologies for use in breeding, diversity studies and association genetics. In collaboration with public breeding programs, Dr. Poland is exploring the use of genomic selection methods in wheat breeding. In germplasm development, Dr. Poland's group is focused on developing new breeding lines with resistance to the major wheat pests including stem rust, strip rust, leaf rust and Hessian Fly. To compliment advances in genomics, Dr. Poland's lab is developing high-throughput phenotyping approaches for field-based evaluation of breeding lines. The primary focus of this work is the genetic characterization of heat and drought tolerance and the development of improved germplasm.

Dr. Poland currently supervises six graduate students, two post-doctoral scholars and sits on the graduate committees of five other students at Kansas State University and Colorado State University, where he holds affiliate faculty status.

For more information on the Borlaug Summit on Wheat for Food Security, visit www.borlaug100.org.

Additional information on Dr. Poland's work can be found at www.wheatgenetics.org.

About CIMMYT

Headquartered in Mexico, CIMMYT is the global leader in research for development in wheat and maize and wheat- and maize-based farming systems for developing countries. CIMMYT works throughout the developing world with hundreds of partners to sustainably increase the productivity of maize and wheat systems to improve global food security and livelihoods.

Improved, CIMMYT-derived wheat is sown on more than 60 million hectares in developing countries – over 70 percent of the spring wheat area planted with modern wheat varieties in those nations. These wheat varieties are responsible for bigger harvests that bring annual added benefits to farmers of at least US \$500 million.

CIMMYT is a member of CGIAR and receives support from national governments, foundations, development banks and other public and private agencies.