

Greenhouse Expansion Provides Home To Additional Wheat Researchers

The warm orange glow of the greenhouses at the Kansas Wheat Innovation Center (KWIC) provide a welcoming nightlight to Kimball Avenue, but most passersby don't realize the plants grown inside are the future of Kansas agriculture. That glow recently become a little bigger thanks to a new four-bay greenhouse expansion that will help get cutting edge wheat genetics into the hands of Kansas farmers, faster.

These new greenhouses will be used for public-private collaborative wheat research. Molecular and genetic research done in the KWIC laboratories will be supported by the greenhouses and a more controlled environment will both enhance and accelerate results.



"Through the wheat checkoff, Kansas wheat farmers have now helped fund construction of 22,750 square feet of new greenhouse space in Manhattan in the past five years," said Aaron Harries, vice president of research and operations for Kansas Wheat. "This new space will position the Kansas Wheat Commission and K-State to take full advantage of new wheat research discoveries that seem to be emerging every day. Some of the brightest wheat research minds and best facilities in the world are located here in Manhattan, thanks to the investment by Kansas farmers."

These new greenhouses will be the home to researchers from the Wheat Genetics Resource Center, Kansas State University's Poland Lab for Wheat Genetics and Heartland Plant Innovations.

The internationally-recognized WGRC has a mission to assure future advances in wheat breeding by harnessing genetic traits from wild wheat relatives collected from around the globe. While the WGRC already has lab space and a gene bank at KWIC, it will soon move into its own greenhouse bay in the expansion. Researchers for the WGRC are working to discover genes for resistance to viral, bacterial, fungal and insect pests. Once these genes are identified, they are transferred to modern breeding lines, ultimately to be released for farmers around the world.

The Poland Lab for wheat genetics at Kansas State University focuses on developing improved wheat germplasm along with novel breeding tools and methodologies. Research areas include technologies such as developing uses for drones in wheat improvement, high-throughput phenotyping, prediction models for wheat breeding, genome sequencing and much more.

Heartland Plant Innovations works to develop advanced technologies for gene discovery, trait validation and crop improvement. It was created with the intent of revolutionizing plant breeding and genetics. HPI focuses on doubled haploid production (a process that cuts five to seven years off of wheat variety development),

trait development, contract research and wide crossing (a joint program with the WGRC that inserts traits from ancient wheat into modern varieties).

The 12,750 square-foot expansion was constructed adjacent to the existing four greenhouse bays, offices and laboratories at the KWIC. The new space includes separate rooms for potting, seed processing, soil preparation and a soil room to receive and handle bulk potting. Special temperature control and grid lighting systems are also included in the project.

The majority of the funding for the expansion came from the U.S. Economic Development Administration, Kansas State University and the Kansas Wheat Commission, with additional support from the Dane G. Hansen Foundation.