

Introduction to GMPRC

The Agricultural Research Service's **Grain Marketing and Production Research Center**



(GMPRC) is the United States Department of Agriculture's main facility for conducting research on measuring,

protecting and controlling the quality of cereal grains throughout the grain industry.

The mission of GMPRC is to "Conduct innovative research and develop new technologies to improve natural resources conservation and the production, harvesting, storage, marketing, and utilization of grain to ensure a safe, abundant, and high quality grain supply."

GMPRC in Manhattan, Kansas, is located in the heart of the Great Plains, which includes 13 states and produces more than 2/3 of all U.S. wheat, corn and soybeans.

Operating from a 60,000 square-foot facility and the nation's only 50,000 bushel capacity research grain elevator, the Center is composed of five research units:

- Biological
- Engineering
- Grain Quality and Structure
- Plant Science and Entomology
- Wind Erosion



Grain Marketing and Production Research Center

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GMPRC Manhattan, Kansas

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United States
Department of Agriculture



Agricultural Research
Service

Biological Research Unit

The Biological Research Unit conducts research on stored-product insects to develop pest control technologies throughout the marketing chain.



Multidisciplinary teams conduct research on:

- efficient use of insecticides and physical control technologies, such as aeration or heat treatments;
- ecology, population dynamics and behavior of pest and beneficial insects to optimize integrated pest management systems;
- developing novel insect control techniques based on genomics and proteomics.

Engineering Research Unit

The Engineering Research Unit (ERU) develops technology to measure grain quality and improved handling and storage techniques. To meet industry needs, ERU has projects that:

- develop technology to select kernels with specific quality traits for breeding lines;

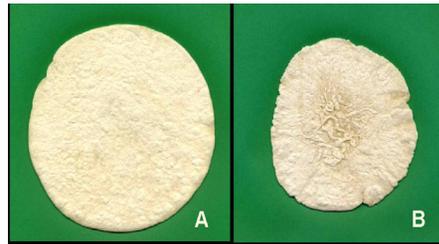
- develop image based sorting device;
- develop improved storage and handling techniques;
- provide engineering support, such as developing techniques to rapidly measure characteristics of insects, including vectors of infectious diseases.

Grain Quality & Structure Research Unit

The Grain Quality & Structure Research Unit, which includes the Hard Winter Wheat Quality Laboratory, ensures the safety and superior quality of the U.S. grain supply for the consumer by:

- conducting basic and applied research to identify the physical characteristics and structural/biochemical components governing grain quality;

- developing rapid, precise and accurate predictive technologies for cereal grain quality assessment;
- evaluating the end-use quality of cereal grain breeding lines.



Plant Science & Entomology Research Unit

The Plant Science and Entomology Research Unit (PSERU) provides new genetic solutions for wheat production problems. PSERU objectives are:

- develop adapted hard red or white wheat breeding lines with improved resistance to biotic and abiotic constraints;
- increase our understanding of the molecular basis of parasite virulence, host resistance and stress tolerance in wheat;
- develop and apply traditional and marker-assisted selection technology to breed more efficiently for these traits.



Wind Erosion Research Unit



The Wind Erosion Research Unit provides science-based wind erosion technology for environmentally, economically and socially sustainable agriculture. Principle objectives include:

- improve the Wind Erosion Prediction System (WEPS) for

cropland and extend it to range, forest and disturbed lands;

- increase understanding of particulate emissions from wind erosion processes;
- develop economically and environmentally viable practices, guidelines and systems that customers can apply to control wind erosion.

Collaboration with Kansas State University

Kansas State University (K-State) has a world-renowned reputation in many fields; however, they have an exceptionally strong program in agriculture. GMRPC scientists enjoy a close-working relationship with scientists at K-State, and the Plant Science and Entomology Research Unit is housed on the K-State campus.

In addition, a majority of the scientists at GMRPC are adjunct faculty members at K-State, where they participate in joint cooperative research activities.

There are also approximately 65 K-State students who work at GMRPC each year.

