

Team Aims to Prevent Crop Losses from Future Disasters

When heavy rains ravaged the Midwest in June 2008, submerging large patches of farmland in muddy waters, the United States agricultural industry lost billions of dollars through washed-off soil and resultant roo damage. To minimize losses from similar disasters in the future, a team of climatologists, crop modelers, agronomists, economists and social scientists in the Corn Belt aims to develop sophisticated support tools based on historical climate patterns.

Funded with a \$5 million grant from the United States Department of Agriculture, the team led by Purdue professor Linda Prokopy is examining how crop viability is affected by events such as rainfall and drought.

“We’re trying to make climate information more useful and useable to producers so that they can make longer-term planning decisions — how to plant crops, where to plant them and what kind to plant for maximum efficiency,” says Prokopy of the study, which encompasses a 12-state region stretching from the Dakotas to Ohio.

Viability and variability

Agricultural crops contribute about \$150 billion annually to the U.S. economy, most of which comes from the intensely cultivated Midwest. Their viability relies in part on increasingly variable climate patterns. The new project, Useful to Usable (U2U): Transforming Climate Variability and Change Information for Cereal Crop Producers, will study biophysical and economic impacts of different climate scenarios on corn and soybean yields in the North Central region. Researchers also will study how producers and advisors are likely to use the information.

“Currently, climate information isn’t very useable — it’s scattered in a lot of different places, and the models don’t fully expand on crop use. Farmers don’t have time to troll the Internet looking at different sites, so they’re not using the information, which is having deleterious effects on the environment,” she says.



Building a foundation of knowledge

The U2U project is being funded by the Agriculture and Food Research Initiative (AFRI), the USDA’s National Institute of Food and Agriculture flagship competitive grant program established by the 2008 Farm Bill.

AFRI supports work in six priority areas: plant health and production and plant products; animal health and production and animal products; food safety, nutrition and health; renewable energy, natural resources and the environment; agriculture systems and technology; and agriculture economics and rural communities. Funded programs use a disciplinary-based approach to building a foundation of knowledge for solving current and future problems.

Along with collecting historical information on climate variables and crop outcomes, the U2U team members will imbed decision-making tools into the software they’re developing. Ultimately, that will help farmers, extension educators and other agricultural professionals maximize crop yields even in the face of disaster.

“If they don’t know what’s likely to happen, they won’t change what they’re doing. That’s the rational thing to do — to not change if you don’t know what else is needed,” Prokopy says. “But this is such a critical region of the world’s food supply, and we want to ensure we can grow crops in a sustainable manner.”