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Purdue team aims to increase agricultural resilience amid climate change

WEST LAFAYETTE, Ind. - A team of Purdue University researchers is studying how cover crops and controlled drainage of water might help agriculture become more resilient to the stresses of variable weather and climate as farmers adapt to long-term issues such as those reported in the third [National Climate Assessment](#).

The NCA shares information that hits close to home for Indiana farmers, including the effects that changing weather patterns such as droughts, floods and harsh winters have on crops. The NCA3 assessment, a federal report released Tuesday (May 6) by the U.S. Global Change Research Program, predicts that complications from climate change will become increasingly unfavorable to agriculture in the next 25 years. It recommends more research into possible solutions so that farmers can adapt.

The Purdue researchers are part of an effort of 10 land-grant universities, the U.S. Department of Agriculture's Agricultural Research Service and farmers in the upper Midwest studying ways to make corn-based cropping systems more resilient and sustainable. The project, known as the [Sustainable Corn Project](#), is funded by the USDA's National Institute of Food and Agriculture.

The Purdue team's work in studying cover crops and drainage water management is aimed at helping crops become more productive amid variable weather and climate, said agronomy professor [Eileen Kladvko](#), a team member.

"We are researching practices that are not yet widely adopted across the state," she said.

Cover crops improve soil health over time by reducing erosion and increasing water infiltration and retention, said Kladvko, who is researching cover crops. The mulch provided by cover crops can conserve soil moisture longer during the growing season, resulting in reducing crop stress during dry periods.

"Many of these benefits require several years of using cover crops before they build up, however, so producers need to keep the long view in mind," she said.

Agronomy professor [Phillip Owens](#) is working to increase understanding of the role of soil variability in soil health and agricultural resilience.

Professors [Jane Frankenberger](#) in agricultural and biological engineering and [Laura Bowling](#) in agronomy are evaluating drainage water management, sometimes called controlled drainage, for its effect on conserving water that otherwise would drain away in the early growing season.

Some of the water can be stored within the soil itself by raising the outlet of the drainage system immediately after spring planting. The crops then would have increased availability to water during dry periods.

"While that system has shown only small increases in crop yields in some years, the potential benefits may become more important in the future due to climate variability and change," Kladvko said.

The Purdue team includes three Purdue Extension county educators - Hans Schmitz of Gibson

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County, Jon Neufelder of Posey County and Bryan Overstreet of Jasper County. They work help to educate farmers in their counties about corn production and climate. Kladivko and Frankenberger will report some of their findings at the [Resilient Agriculture Conference](#) Aug. 5-7 in Ames, Iowa.

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