

USDA funds research on crops and climate change

March 21 2011, By STEVE KARNOWSKI , Associated Press



In this March 10, 2011, photo Iowa State University researcher Lois Wright Morton holds an ear of corn in a lab at Iowa State in Ames, Iowa. Wright Morton is leading one of three new major USDA-funded research projects on the effects of climate change on agricultural and forest production. (AP Photo/Charlie Neibergall)

(AP) -- The federal government is investing \$60 million in three major studies on the effects of climate change on crops and forests to help ensure farmers and foresters can continue producing food and timber while trying to limit the impact of a changing environment.

The three studies take a new approach to crop and climate research by bringing together researchers from a wide variety of fields and encouraging them to find solutions appropriate to specific geographic areas. One study will focus on Midwestern corn, another on wheat in the Northwest and a third on Southern pine forests.

Shifting [weather patterns](#) already have had a big effect on U.S. agriculture, and the country needs to prepare for even greater changes, said Roger Beachy, director of the National Institute of Food and Agriculture, an arm of the U.S. Department of Agriculture. And since the changes are expected to vary from region to region, he said different areas will need different solutions. Some areas may gain longer growing seasons or suffer more frequent floods, while others may experience more [droughts](#) or shorter growing seasons.

"What the climatologists have predicted is that the areas that were at one time wet will in fact be dry and hot, not wet and cool," Beachy said as an example. "If that's correct, then we need to have varieties of crops that will grow in those areas and are adaptable to the changes in the climate. So really it comes down to if we don't do this, we may have some [food shortages](#) in certain kinds of foods."

The corn project will be led by a rural sociologist, Lois Wright Morton of Iowa State University. She said the collaboration between climatologists, soil scientists, plant scientists and others means the researchers will be asking questions they might never have thought of before.

"We really have assembled what I really think of as the really top scientists in the agricultural arena to address these (issues)," Wright Morton said, adding that her team members are not only experts in their fields, they're willing to learn from others. "That's a pretty potent combination."

Tim Martin, a professor of tree physiology at the University of Florida and the head of the forestry project, said it will focus on the loblolly pine, which covers 80 percent of the planted forest land in the southeastern U.S. Southern pine forests produce more wood products than any others in the country, and they pull a huge amount of carbon dioxide out of the atmosphere, making them important to the economy and environment, he said.

"Southern forests contain a third of all the sequestered carbon - stored carbon - in all the lower 48 states," Martin said. "And every year, Southern forests store enough additional carbon to offset about 13 percent of the greenhouse gas emissions in the region. So just by virtue of growing, forests take CO₂ out of the atmosphere and store it in the wood and in the soil."

Martin's team will aim to maximize the amount of carbon stored in those forests and in wood products, such as 2-by-4-inch boards used to build houses.

All three projects also will try to develop crops and forests better able to withstand climate change. For example, Martin said, his team will help foresters choose the best varieties of pines to plant in a particular place given changes expected in the climate there.

The leader of the wheat project, Sanford Eigenbrode, an entomologist at the University of Idaho, said grain crops store less carbon than trees, but they can be managed to maximize the benefit, such as with better tillage practices. His team also will look at nitrogen fertilizers, which are used heavily in wheat and corn production. When farmers use fertilizers efficiently, they don't have to buy as much - lowering their costs - and most of the nitrogen fuels crop production. When used inefficiently, he said, fertilizers pollutes water with nitrate runoff and air with nitrous oxide.

"It's a much stronger greenhouse gas, molecule by molecule, than is CO₂," Eigenbrode said of nitrous oxide. "So if we can learn to use our nitrogen as efficiently as possible we'll be doing good things for the farmer, the consumer and the climate."

NIFA announced last month that each of the projects would receive \$20 million. All three studies call for researchers to communicate closely with farmers and foresters to better understand their business decisions and try to improve the odds producers will adopt their recommendations. The research will be spread out among some two dozen universities.

A fair number of farmers are skeptical of the idea that human activities cause [climate change](#), but Martin said he'd tell them the research is still worthwhile. The studies aim to improve management of economically and ecologically important crops, and will make farmers better able to handle variable weather no matter what happens to the climate over time, he said.

"Regardless of what one may think about the cause, there's certainly plenty of evidence that climates are changing and those changes can affect our production systems for agriculture," Eigenbrode said. "It's important for our food security. So as climates change, agriculture has to change."

More information: National Institute of Food and Agriculture:
<http://www.nifa.usda.gov>

©2010 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.

Citation: USDA funds research on crops and climate change (2011, March 21) retrieved 17 April 2024 from <https://phys.org/news/2011-03-usda-funds-crops-climate.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.