

Crop insurance and unintended consequences

August 14 2021



New research shows the interactions of crop insurance, climate change and corn yield risk. Credit: NC State University

A new study suggests that crop insurance serves as a disincentive for farmers to adopt climate change mitigation measures on their croplands.

The study by researchers at North Carolina State University examined the interactions of warmer temperatures, crop yield risk and crop [insurance](#) participation by farmers. For the study, researchers developed

models using historical county-level corn and soybean production data in the United States, with an eye toward understanding the production impacts of rising temperatures.

The researchers found that variation in [crop yields](#) due to higher temperatures rose when more farmers had crop insurance. Interestingly, the results showed greater variability effects for corn yields than for soybean yields.

"This could be an unintended consequence of providing subsidies for crop insurance," said Rod M. Rejesus, professor of agricultural and resource economics at NC State and the corresponding author of the research study. "The concept of moral hazard could be present here. If insurance will cover crop losses due to various effects like drought or severe weather, a [farmer](#) may not want to pay the extra expense for [climate](#) change adaptation efforts such as using cover [crops](#) to improve soil health, for example."

Climate change—including warmer temperatures—increases the variability of crop yields; farming becomes a riskier proposition as this variability rises.

The study models indicate that an increase of daily minimum and maximum temperatures of 1 degree Celsius would increase county-level corn yield variability by 8.6 bushels per acre if 80% of farmers in a county have crop insurance. The same [temperature](#) rise in a county with 10% crop insurance participation would increase corn yield variability by just 6.2 bushels per acre.

The researchers pose possible solutions to this quandary for policymakers. They include providing more subsidies to encourage farmers' use of climate change mitigation efforts—like soil health practices—and starting high-level policy conversations about how to

possibly tweak rules and guidelines that govern crop insurance contracts in order to reduce the disincentive effects.

Rejesus will continue to study the effects of climate change, crop yields and crop insurance, including the role of certain climate mitigation efforts by farmers.

The paper appears in the *European Review of Agricultural Economics*. Former NC State Ph.D. student Ruixue Wang is the paper's first author. NC State postdoctoral researcher Serkan Aglassan also co-authored paper.

More information: Ruixue Wang et al, Warming Temperatures, Yield Risk and Crop Insurance Participation, *European Review of Agricultural Economics* (2021). [DOI: 10.1093/erae/jbab034](https://doi.org/10.1093/erae/jbab034)

Provided by North Carolina State University

Citation: Crop insurance and unintended consequences (2021, August 14) retrieved 26 April 2024 from <https://phys.org/news/2021-08-crop-unintended-consequences.html>

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