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Modelling The Dynamics of Tillage Choices: Project & Grant Overview

Lyubov Kurkalova

North Carolina Agricultural and Technical State University

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Modeling the dynamics of tillage choices

Project Director: Dr. Lyubov (Luba) Kurkalova, Professor, Department of Economics,
<https://www.ncat.edu/faculty/lakurkal.html>

Project co-Directors:

Dr. Silvia Secchi, Associate Professor, Department of Geographical and Sustainability Sciences, University of Iowa, <https://clas.uiowa.edu/geography/people/silvia-secchi>

Dr. Tara Wade, Assistant Professor, Department of Food and Resource Economics, University of Florida, <https://fred.ifas.ufl.edu/faculty/wade/>

Dr. Roger Claassen, Economic Research Service, U.S. Department of Agriculture,
<https://www.ers.usda.gov/authors/ers-staff-directory/roger-claassen/>

The goal of the project is to develop methodologies for estimating the costs of continuous conservation tillage (CCT) with incomplete data and to use the methodologies to evaluate the costs of CCT –based carbon offsets in major U.S. agricultural regions.

The project's specific objectives are to econometrically estimate models of CCT using the data available in the USDA/NASS- collected Agricultural and Resource Management Survey (ARMS), improve GIS-based, simulation models of farmers' choices, develop maximum entropy-based approaches to estimation of CCT use models, and evaluate the costs of CCT –based carbon offsets in major U.S. crop production regions.

The studies conducted under the project evaluated the availability and structure of tillage time series data in recent issues of ARMS, and developed and estimated data-appropriate CCT choice models. Additionally, maximum and cross-entropy methodology has been applied to the development of CCT use models operating on incomplete and/or aggregated tillage choice data.

The project fills the gap in understanding of the dynamics of alternative tillage practices to stimulate the growth of the economically-sustainable use of CCT. The methodologies for estimation of the costs with incomplete data are expected to be relatively easily transferable to other environmentally benign farming practices.

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