THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Hardin County Extension News Release

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Unlocking the Potential of Cover Crops

Hardin County - A research and Extension team from The Ohio State University is inviting farmers in the Maumee River Watershed to participate in a USDA-funded project designed to help better understand the benefits and tradeoffs associated with integrating cover crops into corn-soybean rotations.

A total of 16 fields which meet the criteria of one of the following four treatment categories will be needed for this project. Treatment 1: Corn-soybean rotated fields with no cover crops or winter wheat in the last five years (4 fields: 2 corn, 2 soybean). Treatment 2: Corn-soybean-winter wheat rotated fields with no cover crops (4 fields: 2 corn, 2 with soybean). Treatment 3: Corn-soybean rotation with cereal rye cover crop for less than three years (4 fields: 2 corn, 2 soybean). Treatment 4: Corn-soybean rotation with cereal rye cover crop for over five years (4 fields: 2 corn, 2 soybean).

If you are a farmer with fields and rotations that fit in any of the four categories outlined above and are interested in cooperating with this research project, please get in touch with Mark Badertscher at the Hardin County OSU Extension office. Our research team will work with you during the end of the 2023 crop year to determine the suitability of your farm's location and management. Farmers whose fields are selected for this project will receive a small honorarium, $350 per field per year.

This is a 2-year project; field measurements will start in 2024 and continue through 2025. Field measurements will include soil samples, gas emissions, minimal tissue/biomass sampling, and drone imagery. The only farmer input requirements are calibrated yield/harvest data (but could also include any other information they would be willing to offer). Participants will not need to alter crop management; our team will collect information on what is already out there.

The project objectives include the following. Identify Best Practices: Uncover management practices and biophysical conditions influencing cover crop biomass production, variability, and their impact on soil health and nutrient cycling. Quantify Findings: Develop robust models using remote sensing and ground-truth data to quantify within-field variability in cover crop biomass and the cover crop effects on cash crop yields. Watershed-Scale Impact: Create a biogeochemical model to project cover crop effects on cash crop yield, carbon sequestration, and greenhouse gas emissions at the watershed scale. Knowledge Sharing: Develop an Extension curriculum based on study outcomes to develop recommendations for best management practices for cover cropping.

Cover crops can enhance soil fertility, improve soil health, and reduce greenhouse gas emissions. However, concerns about potential impacts on cash crop yields have left many wondering about effects that might impact their fields and cash crop yields. Stakeholders are calling for research to understand better the factors contributing to yield declines following cover crops and subsequent management strategies addressing the yield gap. With the outcomes of this project, constraints to cover crop adoption in the Western Lake Erie basin can be overcome. Overall, this project will provide a better understanding of cover crop dynamics and evidence-based insights to address concerns about the potential cover crop yield gap.

Article written by Jonah VanRoekel and Osler Ortez, OSU Department of Horticulture and Crop Science and edited by Mark Badertscher, OSU Extension-Hardin County.