Environmental Sciences Graduate Program Student Seminar Series

Modeling the Effects of Management and Environmental Factors on Ecosystem Services from Corn and Soybean Dominated Agricultural Production Systems

Abha Bhattarai

March 5th, 2021 | 2:00-3:00 PM

Join Zoom Meeting

https://osu.zoom.us/j/99820921442?pwd=d3hpTS9wYnc2Z29uZDR4NE4wNy81UT09

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Abstract

Ecosystem services from agricultural production systems can be influenced by weather and management practices such as type of tillage, fertilizer source, timing and rate, presence of cover crops, and residue incorporation. Knowing the long-term impacts of different management practices can be crucial for designing and implementing sustainable agricultural systems. Process-based biogeochemical models such as the DeNitrification and DeComposition (DNDC) model have been widely used to simulate the impact of various management practices on agricultural ecosystem services such as crop yield, soil organic carbon content, greenhouse gas emissions and nutrient leaching. My research will focus on using the DNDC model to simulate ecosystem services for several agricultural sites with unique soil types located in the Maumee River Watershed with corn-soybean rotation in Northwestern Ohio. Effects of management practices such as conventional vs no tillage, fertilizer source, timing and rate, and cover crop incorporation on ecosystem services such as crop yield, soil organic carbon content, and greenhouse gas emission will be assessed for these sites. The model will then be validated with measured data available for the sites. I expect to elucidate the best management practices for managing ecosystem services in the corn and soybean dominated Midwest agricultural production systems.