Environmental Sciences Graduate Program Student Seminar Series

Impact of Topsoil Depth and Amendment Application on Soil and Carbon Losses under Simulated Rainfall

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March 19th, 2021 | 2:00-3:00 PM

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

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Abstract

Topsoil loss due to erosion is a continued threat to the productivity and sustainability of agroecosystems in the Midwestern United States. Amendment application in the form of composts and fertilizers has the ability to restore degraded soils through improving soil quality and reduce adverse effects of soil erosional losses. The goal of this study is to assess soil quality using specific indicators on two truncated soils in Central Ohio and to evaluate the capacity of amendments (compost and fertilizers) to restore soil quality and resilience. Specifically, the objectives of this research are to (1) assess the rate of soil and carbon losses for soils with varying topsoil depths (TSD) and receiving varying amendment application and (2) assess the effect of moisture content (dry vs. wet) on the losses incurred under simulated rainfall. Treatments at each study site have three TSD (removal of 20 cm of soil, undisturbed soil, and addition of 20 cm of soil) and two amendment types (compost manure and synthetic N fertilizer). Preliminary results and conclusions will be discussed. The restoration and maintenance of soil health of eroded soils will allow for enhanced food security and environmental sustainability.