Land management and topography influences on soil carbon accumulations in a Northeastern US watershed. (S05-dell094647-Oral)

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Abstract:

Proposed strategies utilize enhanced sequestration of C in soils as a means to reduce atmospheric CO2 concentrations. Further development of that approach will benefit from a better understanding of the spatial variability of soil organic C across complex landscapes with variable land management. Soil organic C concentrations are being determined across a multi-field watershed in south central Pennsylvania where land use includes row crop production, forest, and pasture. Composite samples (5-10 cores) were obtained from the upper 5 cm of the soil profile on a 30 m grid in 1996, 2000, and 2002. Total soil C was determined by combustion using a CE Instruments elemental analyzer. Analysis of total soil C from a portion of the sampling positions within the watershed showed that C concentrations were at least double in forest and pasture soils compared to cultivated soils (18 to 24 vs. 45 to 50 g C/kg). Impacts of tillage, manure application, crop rotation, and landscape position on the variability in soil C among locations in the cultivated fields will be presented.

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