The effect of land management and topography on soil organic carbon sequestration. (S05-venteris132107-Poster)

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Abstract:

Spatially distributed samples for mass C were collected on four zero-order watersheds representing hay, pasture, conventional tillage, and continuous no-till corn (since 1964). The study was conducted at the North Appalachian Experimental Watershed in Coshocton, OH. About 45 samples were collected for each management practice. Differences in mass C between agricultural practices were more important than between topographic positions. Mean mass C (30.4 cm depth) for the no-till watershed was 7.7 kg m-2 (+/-0.13). The means for the other practices (5.3 kg m-2) were not statistically different from each other. The tilled watershed was slightly wetter than the no-till watershed, otherwise soils were similar. The positive effect of no-till on carbon sequestration was confirmed. The magnitude of the difference indicates that identification of long term no-till fields is critical to carbon inventory. The pasture and hayfield soils were well to excessively drained with large % coarse fragments (18%). Moisture conditions in these watersheds may have prevented carbon production/ accumulation under normally favorable practices. The sequestration potential of hay and pasture lands may be limited by the soils chosen for such practices.

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