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Long-term Tillage System Impacts on Soil Erodibility

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Conservation tillage practices, such as no-till agriculture, have the potential of reducing the erodibility of a soil compared to conventional agricultural practices. This research sought to determine whether long-term agricultural practices affect the baseline erodibility properties of a soil. Two soils from Throckmorton-Purdue Agricultural Center in Tippecanoe County, Indiana were used during this experiment. One soil was treated with a long-term conventional tillage (fall chisel, spring disk) system and the other soil was treated with a long-term no-till system. The soils' interrill erodibility, and rill erodibility and critical hydraulic shear stress were measured under a rainfall simulator using soil boxes without crop residue, and in miniature-flumes respectively. The soil treated with a long-term conventional tillage (fall chisel, spring disk) system had a greater baseline interrill erodibility compared to the soil treated with a long-term no-till system. These results will be used as a basis for further studies assessing the baseline erodibility properties of soils from other agricultural practices.

KEYWORDS

Soil erodibility, interrill erosion, rill erosion, no-till, conventional tillage