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Natural Resources Research Update

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Title: Cropping system diversity maintains or even improves soil organic carbon levels

Contributing Scientists: Gary Varvel

Location: Agroecosystem Management Research Unit, Lincoln, NE

Text: Storage of carbon by agricultural soils has been cited as one solution to soil degradation and global climate change. However, carbon sequestration in soils is a very slow and dynamic process. After 18 years in a rainfed environment in the western Corn Belt, soil organic carbon losses were occurring in monoculture corn, soybean, and sorghum as well as 2-yr soybean-corn and soybean-sorghum cropping systems, but not in two 4-yr cropping systems. These 4-yr cropping systems included an oat+clover crop once every four years that may be contributing a much greater amount of belowground biomass than any of the monoculture or 2-yr cropping systems. Producers may be able to maintain or even improve their soil organic carbon stocks by utilizing cropping systems that include even one year of a deep rooted legume.

Varvel, G.E. 2006. Soil Organic Carbon Changes in Diversified Rotations of the Western Corn Belt. *Soil Science Society of America Journal*. 70:426-433.

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