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Assessing Soil Health in Conventional Annual Cropping Systems and Perennial Forage Systems in Tennessee.

Abstract

Soil health is key to maximizing water and nutrient retention and enhancing the resiliency of the cropping systems. However, the more frequent droughts and floods Tennessee is experiencing threatens soil health. We compared soil health between conventional annual cropping systems and nearby perennial forage systems in farmers' fields in four counties in central and western Tennessee. Perennial forage systems had significantly higher ($P < 0.05$) soil pH, soil organic carbon (SOC) and sodium than annual systems when the four counties were combined. There was a county effect for soil moisture, SOC, aggregate stability, total holding capacity, and few soil nutrients. Enhanced SOC and permanganate oxidizable carbon (POX-C) in perennial forage systems indicate that such systems are promising for soil health and the resiliency of agricultural production systems.

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