The Impacts of Land Management Practices on Soil Organic Carbon and Soil Physical Properties

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ABSTRACT

To understand how to care for our soils, an understanding of soil physical properties must first be established. Soil organic carbon (SOC) refers to the carbon component of the organic compounds found in soil organic matter (SOM). SOC can be an indicator of soil structure, tilth, aeration, drainage, and stability. Soil pH is the measure of hydrogen ions suspended in a soil solution and will determine if the soil is acidic or alkaline. The pH of the soil is important to know because it will be a factor in soil fertility. Field capacity is defined as the amount of water held in the soil after excess water has drained away and downward movement has decreased. At field capacity, the water and air contents of the soil are considered to be optimal for crop growth. Bulk density is an indicator of compaction and is measured by the dry weight of soil divided by its volume. These properties are important to soil quality and help promote crop productivity. This study was conducted to assess the effects on common land management practices on the levels of soil organic carbon, soil pH, soil water content at field capacity, and bulk density. The location of the study was at Murray State's West Farm, with nine sites, including sod, CRP, tobacco one, tobacco two, corn one, corn two, soybean, short hemp, and tall hemp. At each site, undisturbed and disturbed samples were collected using three replications and then tested in the lab for SOC, soil pH, soil water content at field capacity, and bulk density. The results from the study will be discussed in the poster.

Keywords: bulk density, compaction, field capacity, pH, soil organic carbon