Sampling Protocol and Variation of Field Soil Carbon. (S05-zobeck171145-Poster)

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Abstract:

Previous studies have evaluated the amount of soil organic carbon (SOC) for grassland and cropped loamy soils but little data is available for sandy, semi-arid, thermic soils. In this project we determine the level of SOC that can be maintained by conservation reserve and native grassland in five sandy soils of the semi-arid and thermic Southern High Plains. The soils were sampled using a specially designed closed sampling chamber to allow calculation of bulk density while sampling at depths 0-5, 5-10, 10-15, 15-30, and 30-60 cm. Native range land (NR) and conservation reserve grassland (CR) were compared with nearby cropping systems (CS) in cotton, wheat, wheat and cotton in rotation, sunflowers, black eyed peas, and a high residue forage. SOC differences with depth were only found in the native range sites with the surface layer having about 40-60 % more SOC than the other layers. Significant differences in SOC for the surface layers were in the order NR>CR>CS. In most other depth layers the NR was greater than the CR and CS, which were the same. Overall, significant decreases in SOC were observed by surface texture in the order loam>fine sandy loam>loamy fine sand=fine sand.

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