# Management-dependent soil properties: Are they dependent in the short-term? (S05-shaw141714-Oral)

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### Abstract:

Few studies have documented land use effects on management-dependent soil properties in the southeast. We collected data for Alabama Ultisols located on the Appalachian Plateau (fine-loamy, siliceous, subactive thermic Typic Hapludults) and the Upper Coastal Plain (coarse-loamy, siliceous, subactive, thermic Typic Paleudults) under long-term (10-15 years) conventional and conservation tillage, pasture, and forested settings. Investigated parameters included: bulk density (BD), soil strength (SS), water stable aggregates (WSA), infiltration (INF), saturated hydraulic conductivity (KSAT), soil water retention (SWR), water dispersible clay (WDC), soil organic carbon (SOC), and soil microbial biomass C (SMBC). SOC, SMBC, WSA, SWR, and INF decrease as the degree of soil disturbance increases. These properties directly or indirectly impact map unit interpretations, however, their dynamic nature precludes inclusion in conventional Soil Survey efforts. However, as the mapping once-over nears completion, the National Cooperative Soil Survey must develop a framework by which this information can be catalogued for improving interpretations. Population of NASIS with ranges based on a disturbance index, such as the Soil Conditioning Index developed by the Soil Quality Institute, is one approach. Empirical modeling to predict land use effects on primary soil properties (e.g. SOC) coupled with mechanistic models that can evaluate these changes on soil hydraulic properties will be necessary to facilitate database population.

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