**The Impact of Cropping Systems on Soil properties in Fredonia and Princeton Kentucky**

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**Abstract**

Cropping systems in Kentucky are strongly dominated by corn, tobacco, soybeans and wheat. Various crop management practices affect soil properties resulting in different functional quality of the soil to support crop growth. Crop rotation and tillage practices influence soil properties, and understanding the effect of these practices is essential to maintaining optimal soil environment. Therefore, the objective of this research is to determine the effects of various common cropping practices in western Kentucky on soil chemical and physical properties. In addition, soil samples from pasture, wood, and garden practices will be collected to use as a reference for comparison among crop fields. The study sites were selected from Caldwell County. There was six cropping systems identified, such as Monoculture systems (MS), Crop rotation Systems (CRS), Tobacco Cropping Systems (TCR), Corn/Soybean – cover crop (CC), Corn/Soybean-wheat (CSW), and three undisturbed fields (pasture, forest, and garden). Soils were sampled on October 1st, 2017. Undisturbed and disturbed samples were collected from the fields at depths of 0-7 cm and 7-15 cm. Undisturbed samples were collected using soil core (ring sample), while disturbed samples were taken using hand trawl. The samples were kept in the refrigerator until analysis. The undisturbed soil samples were used to analyze bulk density, porosity, macroporosity, and soil water holding capacity. The disturbed samples were used to analyze soil organic matter (SOM), soil pH and water stable aggregates (WAS). Soil compaction will also be directly measured in the field using penetrometer. Data from this study will be analyzed using the ANOVA. The least significant differences (LSD) values will be reported at a level (α)= 0.10. The correlation will be used to evaluate the relationship between SOM and other soil properties. The detail results will be described in the poster.

***Keywords: Bulk Density, Porosity, Water holding capacity, Soil Organic Matter, Soil pH, Water Stable Aggregates.***