

**Soil Quality as Affected by Hemp and
Grain Production Systems in Western Kentucky**

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ABSTRACT

Since 2018, hemp cropping systems have become increasingly popular in Kentucky. However, there is limited data on soil's behavior/changes under these management practices as compared to corn and soybean cultivation systems. Therefore, the objective of this study was to determine soil characteristics including soil organic matter, bulk density, water holding capacity, macroporosity, and water at field capacity in hemp and grain cropping systems. The thirty undisturbed soil samples were collected from three different hemp fields and a corn, soybean, and a bare field adjacent to these hemp fields. Each field was located at Murray State University West Farm, Calloway County, KY. Analysis of variance (ANOVA) with LSD at 5% of significance was performed to analyze the data statistically. The detailed results from the study will be discussed in the presentation. The information from this research will be beneficial for producers and farm managers to predict the future of hemp production and corn-soybean-hemp crop rotation on the soil's quality to promote sustainable agriculture.

Keywords: Bulk Density, Crop Rotation, Hemp, Macroporosity, Soil Organic Matter, Water Holding Capacity