



## Kentucky

**Regional objectives:** *Soil degradation; Forestry-ag integration; Microbial characterization*

**Production system:** *Corn-Soybean*

**Biochar producer:** *TBD – Local suppliers or [Circularity2](#)*

**University Collaborator:** *University of Kentucky*

Kentucky's history of high intensity and disturbance cropping systems, including tobacco, corn, and double-crop soybean, has caused significant soil degradation throughout the Bluegrass State. However, these soils are well-rated for their responsiveness to biochar. Integrating biochar into Soil Health Management Systems (SHMS) has the potential to rapidly reverse historic soil degradation, more rapidly, particularly because stable pyrolyzed carbon is less likely to be lost in warm, humid southeastern production systems. American Farmland Trust, in partnership with the University of Louisville, has an opportunity to study the important functional roles of soil microbial communities, including mycorrhizal functioning, which supports nutrient and water uptake and pathogen resistance.

Biochar impacts on soil microbial communities will undergo evaluation in partnership with Dr. Sarah Emery, Dr. Natalie Christian, and others from the University of Louisville. Soil microbial communities will be assessed using 16S (bacterial) and ITS (fungal) sequencing and arbuscular mycorrhizal fungi (AMF) root colonization on one farm. Soil GHG emissions may also be collected to assess biochar effects on emissions of CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub>.

## Questions? Contact State Leads:

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