Bioproduct Agroecosystems as a Sustainable Post-Mining Land Use in Appalachia, USA.

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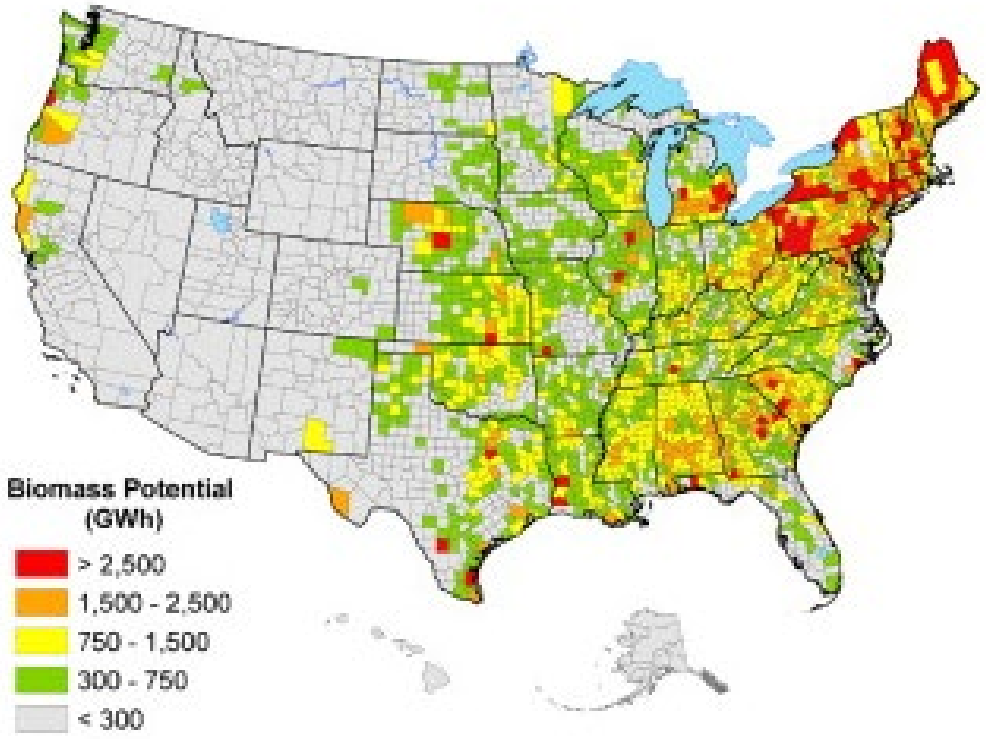
Surface mining has scarred > 2.5 million acres of land in the USA alone. In Appalachia, bioproduct crop production is an especially promising post-mining land use.

Hobet #21 Mine, WV USA



Milbrandt et al. 2014

Miscanthus x *giganteus*
Former Alton Mine site, WV
Jenni Kane

Direct and indirect manipulation of the soil microbiome to increase crop yield and soil carbon

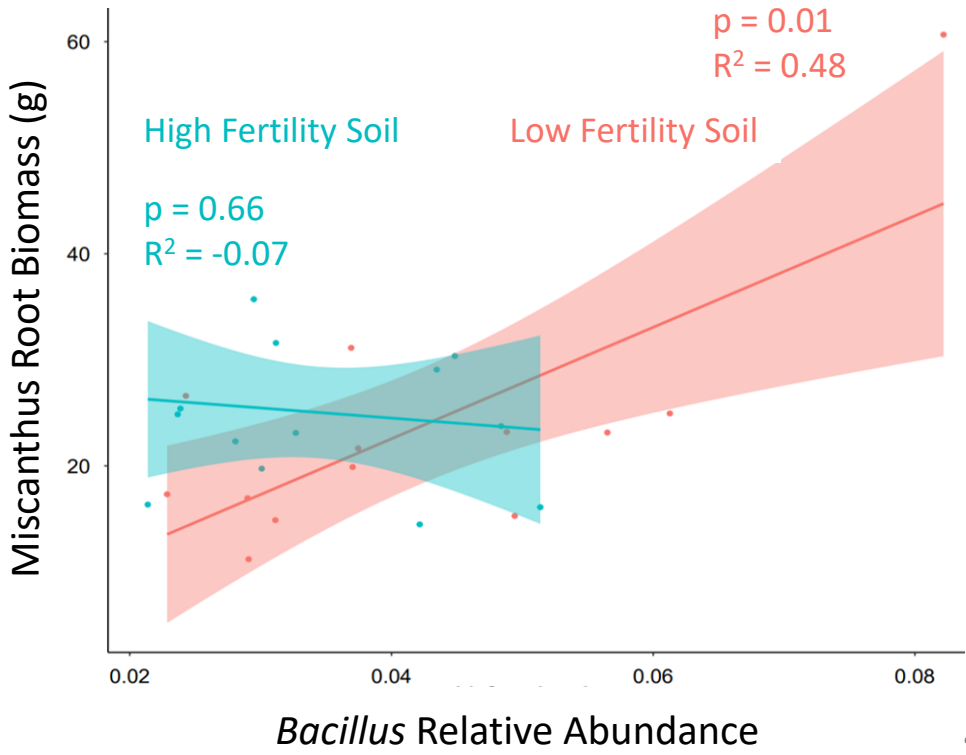
Soil Amendments

- Organic (Manure)
- High Inorg. (N-P-K)
- Low Inorg. (N-P-K)

Microbial Amendments

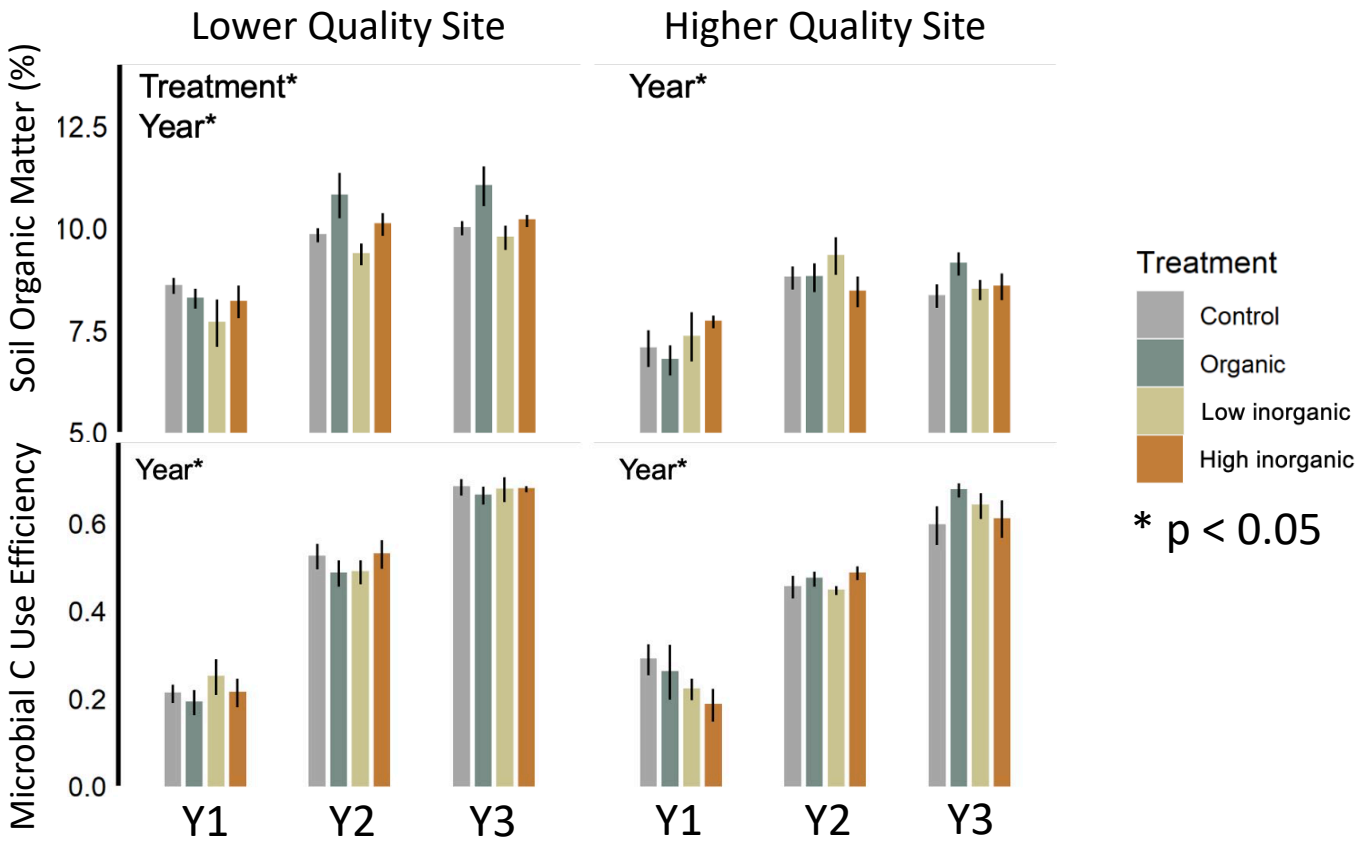
- Commercial "Biofertilizer"
- Microbiome Transplant

Microbial amendments increased Miscanthus root biomass.

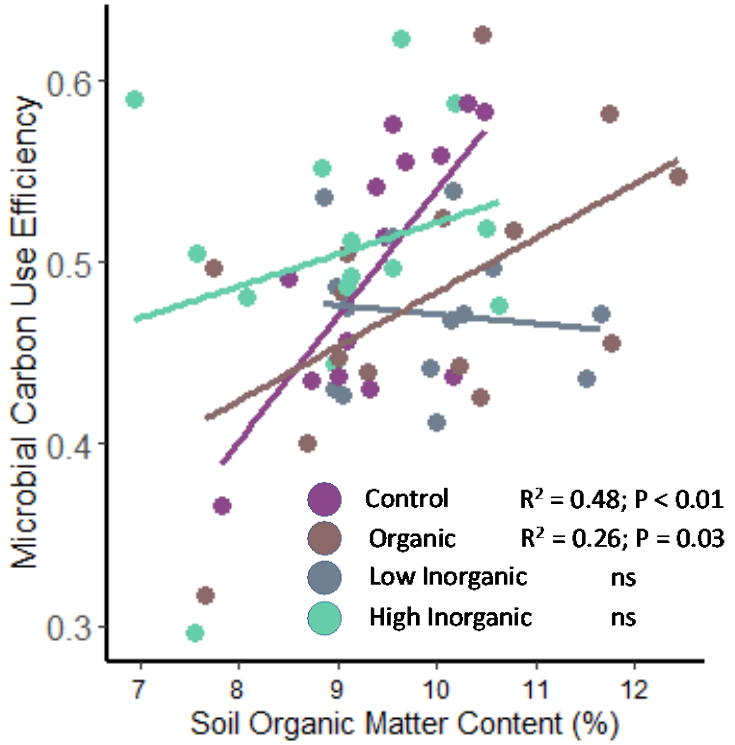


Three years of Miscanthus production on formerly mined soils has produced high yields and increased soil organic matter.

SOM and microbial C use efficiency increased over 3 years with variable treatment effects



Microbial CUE and SOM are linked depending on treatment



Questions?

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