Temporal Dynamics in Microbial Populations of a Mississippi Delta Vegetated Waterway. (S10-weaver142825-Oral)

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Abstract:

Ditches function in transporting agricultural surface runoff water and may also serve as a best management practice (BMP) for removal of nutrients and pesticides. A vegetated waterway in Sunflower County that carries runoff water into an oxbow lake is being evaluated for its value as a BMP. An initial plant survey identified 58 species from 23 families, including 13 woody species and 7 invasive species and a mix of dry- and wetland species. The soil in this site is classified as an alluvial Dowling clay, and it is typically poorly drained. The center of the ditch is nearly level and contains greater clay and less sand than the banks. Soil enzyme activity and Fatty Acid Methyl Ester (FAME) analysis of microbial communities was evaluated four times from fall 2001 to spring 2002. Enzyme activity varied widely both spatially and temporally. In contrast, FAME analysis revealed some spatial variation and temporal clustering. This supports a model that the microbial community has developed a structure reflecting long-term hydrologic and climatic factors but responds metabolically to short-term variation.

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