The Effects of Cover Crops on the Rhizosphere Bacterial Community and Development of the Subsequent Corn Crop. (S03-ackerman150036-Poster)

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Abstract:

The use of cover crops has many benefits, however, their effect on development of the following primary crop is poorly understood. This study examines rhizosphere microbial community structure and development of corn plants after nine cover crop treatments; turnip, oat, buckwheat, clover, dwarf essex rape, oat + turnip, wheat + rape, oat + rape and oat + clover. Corn plants were collected at growth stages V1, V2, V3, V6 and black layer over two seasons. At each stage, rhizosphere microbial community, and plant development were assessed. Plant development was measured through root morphology, leaf area, and nutrient status. DNA was extracted from rhizosphere soil for analysis by denaturing gradient gel electrophoretic (DGGE) separation of PCR-amplified 16S rRNA gene fragments, characterizing the bacterial community. Differences in corn plant development and rhizosphere community structure were observed in only a few treatments, most often, after oat + rape. There were no differences in grain yield. These results

suggest that cover crops, particularly oat + rape, have some effect on the subsequent corn crop. A longer-term study is required to obtain conclusive evidence.

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