Impact of Transgenic Bt-Corn on Microbial Community Composition in Three Soil Types. (S03-blackwood140410-Oral)

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Abstract:

The effects of Bt toxins expressed by transgenic corn on soil microbial communities were investigated in a growth chamber experiment. Two lines of Bt-corn, expressing different Cry proteins, and their non-Bt isolines, were grown in pots containing three different agricultural soils. The soils ranged from a clay to a loamy sand, with 3.2 to 0.6% organic matter. After 5 weeks, the different soil types contained significantly different microbial communities as measured by PLFA profiles and total amounts of PLFA. Soil effects on bacterial and fungal metabolic potential, measured separately with Biolog assays, were also significant but accounted for very little of the total variability in the Biolog profiles. All 4 plant varieties, 2 Bt and 2 non-Bt, had very similar PLFA and Biolog profiles. Community composition of specific microbial divisions was also assayed by modified T-RFLP of the 16S ribosomal gene.

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