**Improving soil quality by conserving insect pathogens**

This study found that organic fields had a greater abundance of naturally occurring entomopathogenic fungi (EPF) than conventional fields in 2011, but that no differences were present in 2012. Conventional producers who used organic fertilizers on their fields had greater abundance of one type of EPF, *Metarhizium*, in their farm soils than other conventional producers. This suggests that organic practices in corn and soybean fields, and the application of organic fertilizers in conventional fields, could bolster the abundance of naturally occurring EPF.

**What was done and why?**

The researchers hypothesized that organically farmed soil is more suitable to EPF than conventional soil, certain soil properties and farming practices would be correlated with the abundance of EPF, and herbicides and fungicides could have negative impacts on EPF.

Project objectives were to:
1. Survey abundance of entomopathogenic fungi in conventional and organic soils
   a. Determine the occurrence of EPF in soil samples by measuring mortality of insects from EPF
   b. Determine abundance of soil-borne EPF with selective media
   c. Test correlations of EPF abundance with soil properties and field history
2. Measure the effects of common pesticides on EPF

**What did we learn?**

1. Occurrence of EPF was significantly lower in conventional fields compared to organic fields in 2011 (but not 2012).
2. Abundance of EPF in the genus *Metarhizium* was lowest in conventionally farmed soils in comparison to the other soil types in 2011 (but not 2012).
3. Abundance of *Metarhizium* was explained by both soil properties and some cropping practices for the 2011 data (but not 2012).
4. Herbicides and fungicides used in a laboratory experiment did not reduce the abundance and virulence of *Metarhizium* in bulk soil.