Fungal Control of Corn Borer -- Year Two

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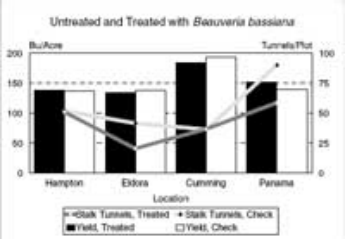
Beauveria bassiana (say "bo-vária") is a widely distributed fungus that kills insects including the European corn borer. Three PFI cooperators have worked for two years with our team to research the use of this fungus for biological control of the corn borer. Those cooperators are: **Ron and LaDonna Brunk** and **Steven and Tara Beck-Brunk**, Eldora; **Dennis and Kate McLaughlin**, Cumming; and **Doug Alert and Margaret Smith**, Hampton. The project was funded by a grant from SARE, the Sustainable Agriculture Research and Education program of the USDA.

In 1996, our team found that we could enhance natural levels of the fungus by applying it to corn fields. The most effective time for application appeared to be whorl stage of the corn (6-7 leaves). Applications at this stage markedly reduced the number and extent of stalk tunnels caused by the corn borer.

Untreated and treated with Beauveria bassiana

Figure 4. Corn yields and corn borer tunnelling.
The yield difference at Panama was statistically significant at the 95% confidence level.



In 1997, the project added a non-PFI farmer, Allen Bruck, of Panama, in Shelby County. On all four farms, the researchers compared whorl-stage application to check treatments that received no fungus beyond the natural levels. On two of the four farms, the application significantly reduced the number of tunnels (Fig. 4). At Hampton, Eldora, and Panama, the application significantly reduced the length of tunnels. At Cumming, the whorl application treatment was associated with a four-fold increase in infected corn borer larvae as measured after harvest. Under some conditions the fungus can actually take up residence between the cells of the corn plant, effectively inoculating it for corn borers.

At only one location in two years did we see a significant yield benefit with the fungal application (Fig. 4). This happened to be the one site where field-length strips were harvested by combine. We suspect that the yields from small, hand-harvested plots show too much variability to give significant differences. We hope to continue working with PFI farmers using field-scale plots.