

## Fungal Control of Corn Borer- 1998 Results

USDA/ARS entomologists working at ISU have carried out on-farm research with PFI for three years, testing a biological control for the European corn borer. This potential control is a fungus, *Beauveria bassiana*, that is already present in Iowa cornfields and that can actually coexist with the corn, in between the cells of the plant. By enhancing levels of the fungus, the research team has been able to reduce tunneling by the borer and sometimes to increase corn yields. PFI cooperators participating were: **Doug Alert and Margaret Smith**, Hampton; **Ron and LaDonna Brunk**, Eldora; and **Dennis and Kate McLaughlin**, Cumming.

In 1998, the scientists wanted to apply the fungal treatments on a "farming scale." A complication developed as the Environmental Protection Agency (EPA) cautioned that the corn-based carrier material with which the fungus was applied might inadvertently infect the field with aflatoxin, which spreads through infected grain. So in 1998, the researchers tried a number of alternative carriers for the *Beauveria*. These were: 1) Corn Kernel Carrier (the same grain-based material they had been using); 2) Corn Cob Grit Carrier; 3) Clay Carrier; 4) Media Substrate @ 14/20 Mesh (the same media that the fungus is grown in); 5) Media Substrate @ 20/40 Mesh; and 6) Control (no application).

Overall corn borer pressure was light in 1998. Some of the *Beauveria* fungus treatments were more effective than others. Treatments number 1 and 4 generally reduced stalk damage more than the others. On the Brunk farm, the treatments had a statistically significant effect on tunneling but not on corn yields. At the McLaughlin farm, the treatments affected yield significantly, but tunneling was not statistically different among treatments.

Without much corn borer pressure in 1998, researchers were unable to find consistent differences between *Beauveria* treatments and untreated controls. The treatments are currently being evaluated for aflatoxin. The study will be repeated with the PFI cooperators again in 1999 to find an alternative to the corn kernel carrier with which the EPA is more comfortable. The researchers hope to develop a combination that will provide a reliable alternative to synthetic insecticides.

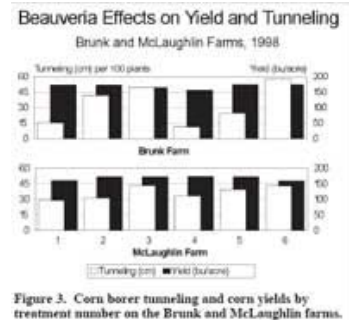


Figure 3. Corn borer tunneling and corn yields by treatment number on the Brunk and McLaughlin farms.