Trichogramma Wasps for European Corn Borer at New Melleray Abbey

Joe Fitzgerald, New Melleray Abbey farm manager

The monks of **New Melleray Abbey** farm nearly 2,000 acres as their primary source of income and have farmed since 1849. A three-year "discernment" process begun in 1991 led to a renewed commitment to farm sustainably. To this end, a portion of the farm has been certified organic, and the organic acres are expected to grow. In all facets of the farm we seek to protect and enhance the environment while providing a profit. We are constantly experimenting and are happy to be cooperating with Practical Farmers of Iowa in our pursuit of sustainability.

Joe Fitzgerald discusses New Melleray Abbey at a PFI Field Day.

In 1995 and 1996, with the assistance of ISU entomologists, we sought to control the European corn borer in field corn with timed releases of trichogramma wasps instead of chemicals. The ISU entomologists scouted fields to locate plots that offered the possibility of corn borer infestation. Once identified, the plots were flagged for eventual release of wasps. Later scouting determined whether enough corn borer larvae were present to warrant releasing the wasps.

Michigan State University research showed a 78 percent reduction of European corn borer larvae with the release of trichogramma (Orr and Landis, 1993). This was more effective than Dipel (Bt) At 34 percent, Pounce at 65 percent, and Lorsban with a 66 percent reduction. The tiny wasp parasitizes the corn borer by laying its eggs on the larvae. These eggs grow and develop at the expense of the corn borer larva, eventually killing it.

We found that European corn borer egg masses were 73 percent parasitized where there had been a release of the wasps. There was zero parasitism in the control plot, where no wasps were released. The trichogramma wasp shows promise as a chemical-free control for corn borer. At present the method is expensive and best suited to high-value crops such as sweetcorn and organic corn.

The recent introduction of Bt corn is giving farmers a new tool to control the corn borer. We grew some demonstration plots of Bt corn in 1996. The technology is new enough to lack a track record on effectiveness, environmental impact, and resistance by the corn borer. It seems prudent to maintain and utilize a variety of pest control options.

With ISU, we also tried a biological control for common stalkborer. A nematode that is lethal to the stalkborer was applied in a water suspension to the field. The spray was timed to coincide with the migration of the stalk borers out of grassy areas near the edge of the field. Numerical data were not collected, but there was a visible difference between treated and untreated plants. We will participate in more research using the nematode in 1997.