

FNE 93-12

**Northeast Region SARE MINI GRANT FINAL REPORT**

**Bio-Control of Corn Earworm and European Corn Borer in Sweet Corn**

**Project Leader:** Nicholas C. Maravell  
8565 Horseshoe Lane  
Potomac, MD 20854  
301-983-2167  
FAX 983-0290

**Restate Goals**

1. Test biocontrols for Corn Earworm and European Corn Borer in Sweet Corn.
2. Establish procedures for scouting, intervention, and evaluation.
3. Share information with other growers.

**Information on the farm**

Since 1979 I have organically farmed a variety of vegetable and grain crops. Vegetables have included snap peas, green beans, cowpeas, lima beans, potatoes, winter squash, pumpkins and gourds, sweet corn and Indian corn, and fresh soybeans. Grains, legumes and seed have included wheat, rye grain, barley, oats, sorghum, red clover, hairy vetch, black beans, soybeans, and buckwheat. Most recently my main crops are sweet corn, fresh soybeans, winter and decorative squash and gourds, and rye grain and hairy vetch seed. All field preparation, planting and cultivation done with tractors and standard farm equipment. All harvesting is done mechanically with the exception of the peas, corn and squashes. I have a five year rotation: Beans-corn-beans-squash/potato-small grains. Soils are silty clay loams to loams. I no-till rye, vetch, and rye/vetch mixtures for my fall cover crops. Most vegetable crops are succession planted, and some are double cropped after a small grain harvest.

**Cooperators**

**Roles**

Doug Britt, Agricultural Consultant, AgLife, Inc.	Locate products, scouting
Dr. Galen Dively, Entomology Dept., U. of MD	Consultation on use of Bt
Dr. Lee Helman, Entomology Dept., U. of MD	Consultation on cover crops for beneficials, and on monitoring pest damage to sweet corn

## What was done and How It was done

### Interplanting Red Clover with Sweet Corn

Interplanting Red Clover-Red clover was planted two weeks before sweet corn with a grain drill and in another area two weeks after sweet corn and broadcast by hand. Rotary hoeing was done on both plots to control early weeds.

### Strip cropping with Hairy Vetch and natural vegetation (weeds)

The center of a pure stand of Hairy Vetch was disked under in late May and planted to a short maturity sweet corn in early June. This configuration left 8 36" rows of sweet corn flanked by the equivalent of 8 rows of Hairy Vetch on either side. The Vetch was mowed in late June just as the leaves were beginning to brown. In addition, two 6 foot borders of weeds were allowed to develop on the outside of the Vetch patches in order to keep green vegetation as a beneficial insect habitat near the corn. Ears were checked for evidence of parasitization on pest eggs.

### Spraying with Bt

Four rows of corn scheduled to mature in mid-August were sprayed with Bt at the first sign of silking and at approximately 3 day intervals until the silks started to turn color. The spraying was done on the tips and silks only with a backpack sprayer at the labeled rate for Dipel. Four rows of the same planting were not sprayed.

Harvested ears from the sprayed and unsprayed rows were compared for evidence of tip damage due to borers or earworm.

### Release of *Trichogramma pretiosum*

For corn maturing in August, *T. pretiosum* was released over an eight week period culminating at the last August harvest and covering all corn from the pre-silk stage. The release rate was about 100,000 eggs per acre per week on an area of about one and one half acres.

Despite previous commitments, no *T. maidus* was made available by ~~the U of Iowa~~ *Illinois State Univ.* for this project.

## Results

### Interplanting Red Clover with Sweet Corn

The Red Clover treatment was not effective because the clover could not become well established before weed pressure threatened the viability of the