

**1998 PROGRESS REPORT TO THE NEW YORK STATE INTEGRATED PEST MANAGEMENT PROGRAM**

**Title: Early season establishment of *Trichogramma ostrinae* for season-long suppression of European Corn Borer in Sweet Corn**

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**Abstract:** The most important insect pest of sweet corn in New York is the European corn borer (ECB) and control of this pest often requires multiple insecticide applications. *Trichogramma ostrinae*, an egg parasitoid from China, is a good candidate for biological control of ECB because it is effective in China and has performed well in experimental field releases in the US. Emphasis to date has focused on repeated inundative releases of *Trichogramma* for control of ECB infestations. However, observations of rapid dispersal by *T. ostrinae* within and between fields indicate the potential for one or two early season inoculative releases to establish *T. ostrinae* on farms each year. This proposed release method for *Trichogramma* is relatively simple and inexpensive, facilitating adoption by farmers.

We tested the effectiveness of early season releases of *T. ostrinae* in small fields of fresh market sweet corn grown on diversified vegetable farms. Early season inoculative releases of *Trichogramma ostrinae* in sweet corn resulted in parasitism of European corn borer egg masses up to 52 days after release, indicating successful reproduction and establishment on farm. These results indicate the potential for early season inoculative releases of this parasitoid to help control European corn borer in sweet corn over the duration of the season. These results corroborate results from similar trials in 1997, where parasitized corn borer eggs were found 79 days following release. Although total control is not anticipated by *Trichogramma* alone, the incorporation of corn borer mortality rates into the decision-making process should reduce insecticide inputs.

Additionally, we demonstrated the feasibility of prolonging the duration of *Trichogramma* emergence from release cartons. If the release occurs as a single pulse, it is at risk to unfavorable conditions such as low ECB density or poor environmental conditions. Since *Trichogramma ostrinae* exhibits a rapid rate of emergence, multiple releases have been necessary to assure successful emergence and persistence of *T. ostrinae* in the past. This year, we conducted research to determine whether protracted emergence could be accomplished by manipulating *T. ostrinae* to create different "age classes". We used host eggs that were parasitized on the same date, by the same parent population, and although the "age classes" were actually the same age, physiologically they were distinct. Because of this, we were able to manipulate the duration of emergence. A single age class emerges in about 3-4 days. However, by mixing age classes in a release, continuous emergence occurred over 12 days.

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