

2000 Integrated Pest Management Implementation Report

Pheromone Trap Network for Fresh Market and Processing Sweet Corn

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Abstract: Since 1994, pheromone traps for the important lepidopterous pests of sweet corn, the E and Z strain of the European corn borer (ECB-E and ECB-Z), corn earworm (CEW), and fall armyworm (FAW) have been set up and maintained by cooperators at a number locations across western NY. Traps, lures and support for summer assistant time and travel have been supplied as needed through the IPM grant program. Trap catches were collated weekly and posted, with scouting and threshold information, on the vegetable extension staff electronic bulletin board, and on two of the Northeast Weather Association (NEWA) electronic bulletin boards. The information is used by consultants, Cooperative Extension field staff, and processor field staff to keep their clientele informed about pest flights, and to help make pest management decisions for both fresh and processing sweet corn.

Background and Justification:

Sweet corn for the fresh and processing markets is an important crop throughout western NY. Three of the major pests of sweet corn, European corn borer (ECB-E and ECB-Z), corn earworm (CEW), and fall armyworm (FAW) are moths in the adult stage and larvae in the immature pest stage, allowing them to be monitored using pheromone traps. Pest management is an especially important aspect of fresh sweet corn production because the unhusked ear is marketed, and the buyer is frequently very sensitive to damage or the presence of larvae in the ear. Harvest quality requirements are different for processing corn, which usually does not need as many insecticide applications as fresh market corn to meet quality standards. In both fresh market and processed sweet corn, pheromone trap catches provide valuable information to growers, consultants, and processor field staff making pest management decisions in sweet corn. Pheromone trap catches provide information to help decide when to start scouting fields for ECB, reinforce what scouts are finding, help choose the best spray materials for the pest complex that's present, and alert the industry to the arrival of the two migratory pests, CEW and FAW.

Objectives:

- 1) Establish a network of pheromone traps for sweet corn pests in western and central NY.
- 2) Provide regional trapping information and recommendations to agents, processor field staff, and consultants working with sweet corn.
- 3) Provide regional trapping information to growers, along with scouting and threshold recommendations.

Procedures:

- 1) Sets of one each of ECB-E, ECB-Z, CEW, and FAW traps were placed at each trapping location (Fig. 1). Scentry Heliothis net traps were used to trap ECB and CEW. The BCS/Agrisense Unitrap was used for FAW. Lures from Trece Inc. were used for both races of

ECB, and lures were replaced every two weeks. Lures from Hercon Inc. were used for CEW, and replaced every two weeks. Lures from Scentry Inc. were used for FAW, and lures were replaced every three weeks.

ECB traps were set up in mid-May at some locations, and as processing fields approached tassel emergence in other locations. CEW and FAW traps were set up in early to mid-July. Traps are placed at least 40 meters apart in grassy areas near corn fields, avoiding areas near hedgerows where air circulation is poor. Traps are mounted on posts such that the bottom of the trap is 0-6" above the grassy canopy. When possible, traps were moved to new fields as the previous fields matured and became less attractive to moths.

2) Cooperators checked traps weekly on Monday or Tuesday and sent catch numbers to Abby Seaman via phone or email. Weekly catches for each location were collated and posted on Tuesday evening on the vegetable extension staff electronic listserv and the following day on two Northeast Weather Association (NEWA) bulletin board sites, along with interpretation, and scouting and thresholds recommendations for fresh market sweet corn.

3) Information posted on the electronic bulletin board was incorporated into crop and pest updates mailed weekly throughout the season to approximately 400 subscribers by local extension programs, or provided to growers via direct contact with consultants. The trap catches were used by a private consultant handling sweet corn pest management for the two major food processors to time scouting and help make management decisions on approximately 35,000 acres of processing sweet corn.



Fig. 1

Results and discussion: Graphs of the trap catches grouped by Extension program area are provided in Figure 2. The summer of 2000 was cool and wet. Planting was delayed in many fields and a substantial acreage of processing corn was still in the field when a killing frost occurred in late September. The first generation flight of the bivoltine races of ECB started in late May. The second generation started in early to mid August. The univoltine Z race flight

was relatively spread out possibly due to the cool temperatures. Trap catches were generally moderate to high, and in-field populations were moderate. The CEW flight started in late August and numbers were quite high by the end of September, when a killing frost occurred. FAW numbers were variable this season, relatively low in some areas and high in others but they did not seem to be a big problem in the field.

Figure 2.















