

## European Corn Borer (ECB) Pheromone Trap Monitoring Instructions for 2020

Monitoring for European corn borer (ECB) using pheromone traps helps detect if and when moths are active in the area and when peak moth flight and peak egg laying is occurring. It is especially important in regions where multiple ECB pheromone strains exist and/or where one-generation (univoltine) and two-generation (bivoltine) populations overlap.

**Trap Type:** Hartstack traps are the most effective traps but are no longer available commercially and are and onerous to transport and store. The next best trap design is the Heliiothis trap (Fig.1) which is similar but made of nylon mesh and collapses for easy transport and storage. Other trap designs including sticky wing traps and bucket traps are available but are not as effective as the Hartstack or Heliiothis traps. See [the ECB Trap Checklist and Trap Supply Companies](#) Document.



Figure 1. Hartstack (left) and Heliiothis (right) traps are the most effective traps for monitoring ECB. OMAFRA CropIPM

**Pheromone Strains and Lures:** There are two different ECB pheromone strains across eastern North America; one responds to E-strain (a.k.a. New York) pheromone lures, and another responds to Z-strain (a.k.a. Iowa) pheromone lures. Both strains may co-exist, therefore using separate traps for each strain are recommended. In addition, there is a third strain that is becoming more prevalent, a hybrid strain that responds to a different blend of the E and Z pheromones and requires a hybrid lure (available through Solida – see Trap Supply Companies). These individuals may be missed when trapping only with E or Z-strain lures. Contact your provincial/state extension specialist to determine which strains you should be trapping for in your area. Each lure needs to be changed every 2 weeks, so 8-10 lures are needed per season. Store unused lures in the freezer. Lures can last for two years if stored in the freezer before use.

**Trap Number and Placement:** One Heliiothis trap per field is adequate, except in regions where both the E and Z pheromone strains co-exist. In this case, two traps should be used per field, one for each pheromone strain. Dedicate the same trap for the same lure strain each year to avoid cross contamination. Separate E-strain and Z-strain traps by a minimum of 30 metres (100 feet) so that the pheromones do not interfere with each other.

Trap placement is very important. Each trap should be placed within grassy weeds along the field edge; avoid bare ground or along windbreaks or hedgerows that can impede wind flow.



Pound a 6-foot stake or metal T-bar into the ground and tie the Heliophilis to the stake so that the trap bottom is no higher than 2 feet from the ground or 10 cm above the grassy weed canopy (Fig. 2). Pull the anchor string away from the trap and anchor it to the ground to maintain the trap's conical shape. Move the trap higher up the stake or T-bar as the vegetation grows taller or trim the vegetation under the trap to maintain the 10 cm of clearance above the grassy vegetation. Use a new pair of disposable gloves each time you handle a pheromone lure, especially when handling lures for the different strains, reducing the potential for cross contamination of the lures. Use a small binder clip or paper clip to attach the lure to the elastic band running across the opening of the bottom of the trap. Change the lure every two weeks.

**Figure 2. Heliophilis trap with trap bottom having 10 cm clearance above grassy weeds and anchor pulling trap into cone (a). Lure is clipped onto elastic band at the trap opening (b).**

### Trap Timing and Monitoring:

Traps should be set up no later than early to mid-May for higher CHU regions or early June for shorter CHU regions) and should continue until early September. Monitor traps at least once a week. Carefully remove top mesh bucket from the Velcro ring and invert the cone to dump the contents into a Ziploc bag. If moths are still alive, place bag in a freezer for a few hours before counting them. Check traps on the same day each week, preferably Monday or Tuesday and report trap data no later than Wednesday mornings to the Great Lakes and Maritime Pest Monitoring Network at: <https://arcg.is/0aWqr0>

### ECB Moth Look A Likes

Moths get beat up in the traps over time. Fresh male ECB moths are dark brown with zigzag markings (like heart beat readings) along their wings (Fig 3a). After being in the traps for a while, they lose the markings and are beige in colour (Fig 3b). Carrot seed moths can also be found in traps. They are very white compared to ECB moths (Fig 3c). Only count ECB moths when reporting to the network.

**Figure 3. Fresh male ECB moth (a) photo credit: M. Rice; worn out male ECB moth (b) photo credit: Y. Farhan, UGRC; carrot seed moth (c) photo credit: G. Quesnel.**

