



## Maine Potato IPM Program

### EUROPEAN CORN BORER

*Ostrinia nubilalis* (Hubner)

#207

#### GENERAL

The European corn borer (ECB) was first reported in North America in 1917 in Massachusetts, where it probably was introduced several years earlier in broom corn from Europe. Since its initial discovery, the insect has spread into Canada and westward across the U.S. to the Rockies.

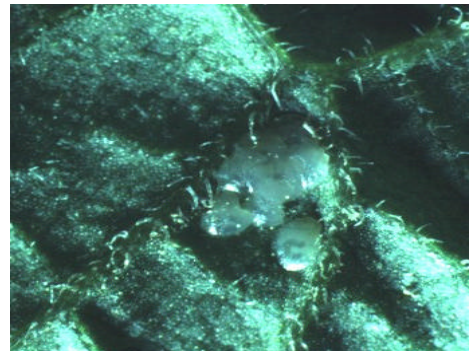
The ECB moth (Figure 4) is about one inch long with a wingspan of about one inch at rest. The female moth is light yellowish-brown with dark irregular, wavy bands across the wings. The male is slightly smaller and darker in coloration. The tip of its abdomen protrudes beyond its closed wings.

The fully-grown larva (Figure 2) is three-quarters to one inch in length. This borer is usually flesh-colored, but may range from light gray to faint pink, with conspicuous small, round brown spots on each segment.

#### LIFE CYCLE

In northern Maine, the ECB, usually, has only one generation per year with the occasional partial second generation. In other areas of the U.S., ECB can have as many as four generations per year. The first spring moths begin emerging in northern Maine in late June when approximately 500 – 600 growing degree-days (GDD) have accumulated (based on a modified Lovett's growing degree-day system with a base of 50 degrees F). In late June or early July, (625 – 700 GDD), the moths begin laying their eggs (Figure 1). The eggs look like overlapping fish scales. The eggs are laid on the underside of leaves in groups of 15 – 50 until as many as 500 are deposited on suitable hosts. The eggs hatch in three to nine days depending upon weather conditions.

The young larvae feed externally for a short time, up to three days, then bore into the stem. The borers are full-grown by fall, but remain in their host plants over the winter. In late May or early June, the overwintering larvae pupate (Figure 3) in the



## DAMAGE

The ECB prefers corn, especially sweet corn, but also attacks certain flowers, apples, eggplants, peppers, beans, tomatoes, potatoes, and many other herbaceous plants, including some weeds. The damage in potatoes is from internal stem feeding, which causes the stalk to break, killing the plants, or results in a secondary bacterial infection.

## MONITORING TECHNIQUES

Recording the accumulated growing degree-days, using a modified 50 degree Fahrenheit, base temperature system, is one method for monitoring spring moth flights.

The developmental threshold for the insect is 50 degrees F. Therefore, if the daily maximum temperature is 50 degrees F or above, degree days can be accumulated. If the daily maximum is 50 degrees F or above and the minimum temperature is below 50 degrees F, an artificial low of 50 degrees F is used.

*For example:*

$$\begin{array}{l} \text{daily max (if 50 degrees F or above) + daily min} \\ \text{or} \\ \qquad \qquad \qquad \qquad \qquad \qquad \qquad \div 2 = \text{MGDD} \\ \text{50 degrees F if below 50 degrees F} \end{array}$$

(MGDD = modified growing degree-day)

First spring moths expected at approximately 600 MGDD.

First egg masses expected at approximately 625 – 700 MGDD.

Another method of monitoring corn borer moths is utilizing pheromone traps. Pheromones are sexual attractants that will attract male moths to a trap. Generally, two types of pheromones are used— New York and Iowa. The pheromones are placed in separate traps, spaced so that the pheromone plumes will not mix and confuse the insect.

Black light traps can also be used to trap for ECB moths. Black light will effectively attract ECB moths, but will also attract a number of other insects to the trap.

## MANAGEMENT

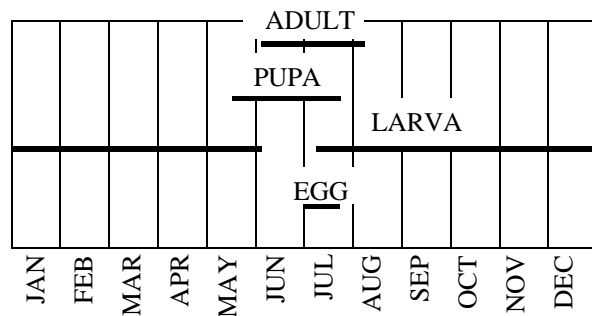
there is a very short period between egg hatching and larval entrance into the stem. For a list of recommended insecticides, contact your local Cooperative Extension office.

Many enemies of the European corn borer occur naturally. Two of the most common are lady beetles and predacious mites, which feed on eggs and young larvae. Many species of birds will dig overwintering borers out of plant debris.

There are also several disease-causing organisms, ranging from protozoans to viruses and fungi, that infect this insect. In addition, several parasites affect the ECB. Research is also being conducted on parasitic wasps that attack the eggs.

Cultural methods can be used to help manage this insect. Probably, the most important cultural management technique is to destroy the crop residue of infested plants at the end of the growing season. This can be accomplished by burning or plowing crop residue. This process will reduce overwintering survivability. Burning may help to reduce the

### EUROPEAN CORN BORER OCCURRENCE OF LIFE STAGES IN MAINE



Revised by James D. Dwyer, Crops Specialist, James F. Dill, Pest Management Specialist, and Hannah S. Carter, Potato Pest Management Professional. Photographs by James F. Dill. Revised April 2001: Replaces Potato IPM Fact Sheet #107.

If you require additional information, please contact the Potato IPM Program, P.O. Box 727, Presque Isle, ME 04769 or Pest Management Office, 491 College Ave., Orono, ME 04469-1295.

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