1992

NF92-53 European Corn Borer Injury to Peppers

Frederick P. Baxendale
University of Nebraska--Lincoln, fbaxendale1@unl.edu

Laurie Hodges
University of Nebraska--Lincoln, lhodges1@unl.edu

Nebraska Cooperative Extension NF92-53

NebFact

Published by Cooperative Extension, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln

European Corn Borer Injury to Peppers

Frederick P. Baxendale, Extension Specialist — Entomology
Laurie Hodges, Extension Specialist — Horticulture

While European corn borers are frequent pests of field and sweet corn in Nebraska, peppers, potatoes, beans, beets, celery, tomatoes and other vegetable crops are also occasionally damaged.

The European corn borer overwinters as a mature larva in corn stalks or in the stems, stubble and debris of other host plants. Buff-colored moths begin to emerge in early June and deposit eggs in masses on the underside of leaves. Females may lay up to 500-600 eggs in clusters of 20-30 eggs. Egg masses are white and flat with individual eggs overlapping like fish scales. Eggs hatch in 3-7 days, depending on the temperature. Newly-hatched larvae are pale yellow-gray with black heads and are about 1/16-inch long.

When fully grown, European corn borer larvae vary in color from gray to tan and reach one inch in length. They have brown heads and several rows of dark spots running the length of the body. A second European corn borer generation occurs in late July and August, and if the weather is mild, a partial third generation may appear in September.

Late season corn borer larvae overwinter in pepper stems and plant debris. In Nebraska, the first generation is more often a problem on potatoes and field and sweet corn, whereas the second and third generations pose a greater threat to other vegetables, including peppers.

Initial feeding on peppers by newly hatched European corn borer larvae occurs on leaf surfaces or under the fruit cap. Later, as borers mature, they tunnel into stems and fruit leaving behind a tiny circular opening at the entrance site. These openings provide entry for bacterial and fungal pathogens which subsequently cause stems to collapse and fruit to rot.

Borers tunneling in stems result in wilted plants and stalks that break under the weight of developing peppers. Larvae invading the pepper fruit, normally enter through the calyx (stem) end. Once inside, larval feeding destroys internal structures and facilitates the development of a soft rot in weakened fruit walls. When corn borer larvae infest smaller peppers, the fruit are usually aborted by the host. Fruit invaded later in its development typically shows few obvious external signs of infestation. However, the fruit may develop a sun-scalded appearance later in the season.

Several natural enemies of the European corn borer, including predators, parasites and disease organisms are present in Nebraska to help reduce infestations. Unfortunately, these biological control agents are rarely able to keep corn borer populations in check and commercial pepper producers must rely on supplemental tactics, usually insecticidal treatments, to keep infestations from reaching unacceptable levels.

European corn borer management is difficult because once borers have tunnelled into plants, control is not possible. Insecticidal sprays can effectively reduce corn borer populations, but must be timed precisely to correspond with the two- to three-day interval between egg hatch and borer invasion of the stems and fruit. This limited treatment period makes early detection of the borer infestation essential. One way to determine the presence of an infestation involves regular field inspections to detect corn borer moths, egg masses and larvae. This approach is often impractical for producers because of the low number of borers that must be present to necessitate control and the short time available for treatment. In most cases, the best way to detect corn borer activity involves operating a black light trap in the vicinity of the pepper field. Traps can be found at some garden or farm supply centers and from several biological supply companies. Light traps should be in place before the onset of the second moth flight (roughly mid-July).

Insecticide treatments for European corn borer control are most effective when begun seven to ten days after the beginning of the moth flight or when four or more female moths are caught per blacklight trap for three consecutive nights. If treatment is based on field scouting information, plan to start treatments about five days after the first egg masses are found.

Insecticidal sprays should be directed to the underside of leaves and stem areas of fruit and repeated every seven days until harvest. Maintaining this treatment schedule is important since very low infestation levels may result in pepper rejection at delivery. Federal grade standards require US #1 fruit to be "free of insect injury", although some processors may accept peppers with up to five percent insect damage. Check with your buyer about the acceptable level of corn borer injury.

Insecticides labeled for control of European corn borer on commercially grown peppers include acephate (Orthene), *azinphos-methyl (Guthion), carbaryl (Sevin), *esfenvalerate (Asana) and *permethrin (Ambush, Pounce). In addition to these insecticides, *Bacillus thuringiensis* (Dipel) has shown considerable promise for control of European corn borers infesting corn. This product may provide acceptable corn borer control on peppers if applied before borers tunnel into the plant.

Products in the list above shown with an asterisk (*) are **Restricted Use Pesticides**. The use of trade names in this publication does not imply endorsement of the products named nor criticism of similar ones not mentioned.

For more information on pepper production, refer to NebGuide G81-540, *Peppers*.

File NF53 under INSECTS AND PESTS
E-1, Fruits & Vegetables
Issued January 1992

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Elbert C. Dickey, Director of Cooperative Extension,

University of Nebraska, Institute of Agriculture and Natural Resources.