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Western bean cutworms: characteristics and control

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Quick Facts

Western bean cutworms, originally a pest of field beans, have become a serious pest of field corn.

Mature cutworms leave the ear and burrow into the soil around corn plants where they construct earthen cells for the pupal stages.

Adult moths emerge between July 14 and August 1; eggs are laid shortly after moths emerge.

The major feeding site of the cutworm is the ear of corn; as the cutworms mature, they concentrate their feeding on developing kernels.

Destruction of kernels may reduce corn yields by as much as 30 percent to 40 percent.

Apply control measures after at least 95 percent of the field has tasselled but before many ears have formed.

The cutworm passes through five stages of development--egg, larva, pre-pupa, pupa and adult (moth).

The eggs, which are slightly smaller than a common pinhead, are laid in masses ranging from four to 200 eggs per mass (Figure 1). When first laid, the eggs are white. As they mature, they change to brown and then immediately prior to hatching they are purple to black in color. The eggs hatch in five to seven days.

The larvae are dark brown with faint diamondshaped markings on their backs (Figure 2). As they grow, the larvae change to a lighter color and by maturity they are gray to pinkish brown. At maturity, three short dark stripes running lengthwise appear on the first segment behind the head.

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Description

The Western bean cutworm, originally a pest of field beans, has become a serious pest of field corn. It occurs in the irrigated corn areas of northeastern Colorado.

1. Stan Pilcher, Colorado State University Cooperative Extension entomologist, Golden Plains Area, and Frank B. Peairs, Cooperative Extension entomologist and associate professor, entomology. 1/92. ©Colorado State University Cooperative Extension. 1994. For more information, contact your county Cooperative Extension office. Some recommendations change regularly. Please contact your Colorado State University Cooperative Extension county office for current recommendations.



Figure 1: Western bean cutworm (egg mass).



Figure 2: Cutworm larva feeding on corn.



Figure 3: Western bean cutworm moth.

The corn earworm, which also can be found in corn at the same time, does not have these stripes. The mature Western bean cutworm is about 1-1/2 inches long.

Mature cutworms leave the ear and burrow into the soil around corn plants. Here at a depth of 3 to 9 inches they construct earthen cells. The prepupal and pupal stages are spent within these cells.

The overall color of the moth is dark brown (Figure 3). The body is a light brown and 3/4-inch long. They have wings that have a spread of about 1-1/2 inches and are marked with creamy white stripes on the front leading edge. The light-colored hind wings are not distinctly marked.

Life History

The western bean cutworms overwinter as prepupae. In May and early June they change to pupae. The moths emerge between July 14 and August 1. Eggs are laid shortly after the moths emerge. The majority of cutworms feed until mid-September. When mature, they enter the soil and change to the pre-pupal stage to overwinter.

Damage

Dry beans. Eggs are laid on the undersides of bean leaves. Young larvae feed on lower leaves. Larger larvae chew holes in pods and then feed on the developing seeds. Larvae often spend the day hidden under debris on the soil surface. Western bean cutworm feeding results in both reduced seed yields and quality.

Field corn. The eggs are laid on the upper third of the plant, on the upper sides of the corn leaves. However, on upright leaf varieties, they often lay their eggs on the underside of leaves. Following hatch, young cutworms move to one of two places on the corn plant, depending on the stage of development of the corn. If the corn has not tasseled, the young cutworms migrate to the whorl areas and feed on pollen in the developing tassel. If the corn has tasseled, the young cutworms migrate to the ear and feed on silk. If the cutworms keep the silk chewed off, pollination may be poor.

In either case, once the ear has formed, it is the major feeding site of the cutworm. As the cutworms mature, they concentrate their feeding on the developing kernels. They reach the kernels either through the silk or through holes cut in the husk.

Cutworm feeding can destroy as much as 25 percent to 30 percent of the kernels on an ear. The destruction of the kernels by two or more cutworms per ear may reduce

the yield of shelled corn by as much as 30 percent to 40 percent. Usually the reduction of yield in corn intended for ensilage is not as severe. However, because of the kernel loss, the quality of ensilage is lowered.

Control

Consider treatment for western bean cutworm before the larger larvae start to feed on pods and seeds. If two larvae can be found per foot of row in irrigated beans or one per row in dryland beans, an insecticide treatment should be economical.

Western bean cutworm larvae and damage are very difficult to scout for, so efforts are being made to develop light trap or pheromone trap-based treatment guidelines. Currently, the best levels of control can be achieved with insecticides applied two weeks after moth catches peak in either the light trap or the pheromone trap.

It is still unclear what size moth catch will justify making a treatment. Weekly western bean cutworm flight reports are made available to radio stations and newspapers throughout northeast Colorado by Golden Plains Area Cooperative Extension.

Chemical control in grain corn should prove economical if one in 12 plants (8 percent) has egg masses or tassels infested with live larva. The best insecticidal control results from applications made when the crop is at least 95 percent tasselled, but before larvae have entered the ear. Pretassel infestations may have lower survival. Once larvae have entered the ear, the degree of control will be greatly reduced.

The insecticides registered for the control of western bean cutworm are given in the *Colorado Pesticide Guide--Field Crops*. Many of those used in corn have been associated with spider mite outbreaks, so fields should be monitored for spider mite problems if an application is made.

Be sure to read and follow all label instructions.