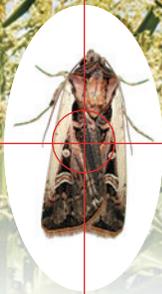


National Pest Alert



Western Bean Cutworm

Striacosta albicosta (Smith)

Distribution of Western Bean Cutworm in North America

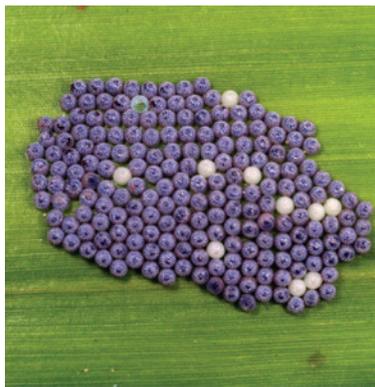
The presence of the western bean cutworm has been confirmed in Arizona, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, New York, North Dakota, Ohio, Pennsylvania, South Dakota, Wisconsin, and Wyoming.

Origin of Western Bean Cutworm

The western bean cutworm is native to North America. Prior to 2000, economic damage was confined to the western Corn Belt states, and several mountain states where dry beans also were grown. Beginning in 2000, economic damage was found in Iowa and Minnesota. It was collected for the first time in Illinois and Missouri in 2004, and in Indiana, Michigan and Ohio in 2006.

Description of Western Bean Cutworm

Eggs are nearly round with small ridges from the top to the bottom. They are laid in tightly packed clusters from 21–195 eggs, and average 52. They are white when first laid and turn dark purple a day or two before hatching.



Western bean cutworm eggs (left, newly laid; right, ready to hatch).

Newly-hatched larvae are a dull orange color with black heads, a black pronotum (hardened plate immediately behind the head) and 8-10 black spots on each body segment. Mature larvae have a broad, faint tan stripe along the back, no distinctive spots, an orange head, and the pronotum has two broad brown stripes, which are good characteristics to distinguish it from other corn caterpillars. Mature larvae are 1½ inches long. There are 6, and occasionally 7, larval stages. Larvae require about 56 days to develop.



Western bean cutworm adult.

Pupae are orange-brown in color, occur in the soil, and are rarely seen.

The adult moth is ¾-inch long. Each forewing has a broad, cream-colored stripe along the front edge and two distinctive markings—a small, light-colored circular spot just behind and halfway along the stripe, and a buff-colored, boomerang-shaped spot near the end of the stripe. The hind wings are light tan.

Life Cycle

In the midwest, adult flight usually begins in the later part of June and continues through August. One to five days after mating, females lay their eggs mostly on the upper surface of the flag leaf. Moths are most attracted to cornfields with tassels just beginning to emerge for egg laying. Females average 407 eggs laid. Eggs hatch in 5–7 days. Newly-hatched larvae feed on the tassel, corn pollen, tissue behind the leaf sheaths, and silks. The 4th and 5th instars may leave the ear tip and cut entrance holes through the husks and feed on the developing kernels through the 6th or 7th instar. Unlike corn earworms, western bean cutworms are not cannibalistic so several larvae may feed in the same ear. Twenty larvae per ear have been reported from Nebraska. After larvae finish feeding they chew through the cornhusk, crawl to the ground, and form a chamber 3–8 inches deep in the soil and overwinter. Pupation occurs the following May. There is one generation a year.

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Damage to Corn

Newly-hatched larvae feed in one of two places, depending on corn stage. In pretassel-stage corn, the larvae penetrate the flag leaf and feed on pollen in the developing tassel. In tassel-stage corn, larvae feed on shed pollen, leaf tissue, silks, and eventually move to the kernels. Extensive feeding on the silks during pollination may result in incomplete kernel set.

Larvae chew through the husk or the silks to reach the kernels. Unlike corn earworms, which restrict most of their feeding to the ear tip, western bean cutworms may feed anywhere on the ear.



Mold often develops on corn kernels damaged by western bean cutworms.

Injury to developing kernels can result in deformed ears, particularly when larvae feed on milk-stage kernels. Yield losses from one larva per corn plant at dent stage were estimated at 3.7 bushels per acre in Nebraska, or 30–40% in Colorado from heavily infested ears. In addition to loss of grain, ear molds may develop on the kernels, further reducing the yield quality at harvest.

Monitoring Corn Fields

Start scouting field corn at 25% predicted adult emergence (1,319 degree days at base 50°F) or when moths are caught during consecutive nights in pheromone traps. Pheromones can be purchased from commercial companies and are combined with a trap that collects the male moths. Traps are usually deployed by late June and need to be checked weekly or more often if large numbers of moths are being trapped.

Inspect the upper 3–4 leaves on 20 consecutive plants at five locations. Scout hybrids in different stages of development separately. A nominal threshold is 8 percent of the plants with eggs or young

Pheromone trap made from a milk jug.



Western bean cutworms can be identified by the two broad, brown stripes on the pronotum.

larvae found on the flag leaf or in the tassel during the silking/blister/early milk-stage corn stages (R1–early R3).

Control Recommendations

Insecticides can be used but timing of the application is critical. In whorl-stage corn, larvae will chew through the pretassel and feed on the developing pollen. As the tassel emerges, the larvae will move down the plant to the green silks and onto the kernels. Once the larvae enter the ear, control is nearly impossible. If the eggs have hatched, the insecticide should be made after 95 percent of the plant tassels have emerged, but before larvae enter the silks. If the eggs have not hatched and plants have tasseled, time the insecticide to when most of the eggs are expected to hatch. Eggs that are dark purple will hatch in 1–2 days. If an insecticide application is needed, cornfields should be checked for the presence of spider mite colonies. Select a product that does not stimulate mite flare up if mites are found.

Transgenic corn is another option for controlling western bean cutworm, but only hybrids with the Bt protein Cry1F have the potential to control this insect. Contact your local Extension office for control recommendations for your state.

For more information on predicting adult western bean cutworm flight in your area contact your local extension service.

For information about the Pest Alert program, please contact Laura Iles, co-director of the North Central IPM Center, at ljesse@iastate.edu.

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