7-28-2008

Use Treatment Thresholds for Western Bean Cutworm

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Abstract
Western bean cutworm adults have begun emerging in Iowa this year, particularly in the southwest and southeast. Corn fields in the late whorl stage are most attractive to egg-laying females, with damage becoming evident in August and early September. University of Nebraska has developed a degree day model for 50 percent adult emergence. This year, 50 percent emergence of western bean cutworm moths in southern and central Iowa was approximately July 21. So now is the time to start scouting for egg masses before larvae enter developing corn ears.

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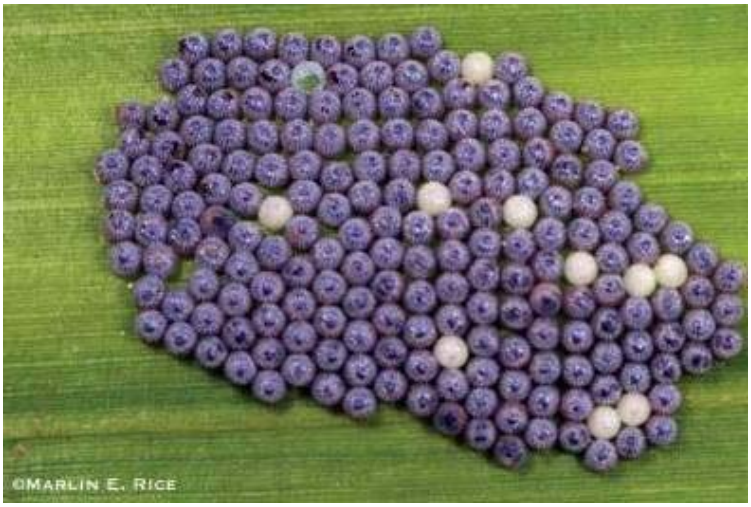
Integrated Crop Management NEWS

Use Treatment Thresholds for Western Bean Cutworm

By Erin Hodgson, Department of Entomology and Rich Pope, Department of Plant Pathology

Western bean cutworm adults have begun emerging in Iowa this year, particularly in the southwest and southeast. Corn fields in the late whorl stage are most attractive to egg-laying females, with damage becoming evident in August and early September. University of Nebraska has developed a degree day model for 50 percent adult emergence. This year, 50 percent emergence of western bean cutworm moths in southern and central Iowa was approximately July 21. So now is the time to start scouting for egg masses before larvae enter developing corn ears.

Description. The eggs are about the size of a pinhead, but usually laid in masses on the flag leaf. The eggs are white when first laid. They turn tan and finally purple just before the larvae hatch.



Western bean cutworm eggs turn purple when mature, indicating larvae will soon hatch.

Young larvae are approximately 0.25 inch in length and are tan with a faint diamond-shaped pattern on their backs. As the larvae mature, they become a pinkish tan or pale brown and reach a body length of 1.5 inches. Adult western bean cutworms have forewings with a mixture of buff, tan and grey with a cream-colored stripe extending nearly down the front edge; two light spots and a "boomerang" touch the stripe. Other late-season caterpillars and moths in corn can be easily confused with Western bean cutworm, but a 2007 ICM News article can help with identification.

These moths have one generation per year and can be overlooked for other late-season corn insects.

Damage. Before tasseling, young western bean cutworm larvae feed on pollen, but eventually larger larvae will feed on shed pollen, leaf tissue, silks and corn kernels. Larvae in the ear will feed on the tip, middle and shank. One larva per plant usually does not cause severe damage to the ear. But several larvae feeding on one ear could substantially reduce yield because western bean cutworms are not cannibalistic, compared with corn earworms. Sometimes heavy feeding can promote fungal pathogens in the ear. Western bean cutworm larvae do not tunnel into stalks; however, their damage is often confused with corn earworm and European corn borer.

Corn can experience severe damage when multiple larvae are feeding within an ear.

Scouting. Examine twenty consecutive corn plants in at least five locations in the field. Check the upper three or four leaves of each plant for egg masses or young larvae. Continue scouting for 7-10 days after adult peak flight. Timing of the application is critical. If the tassel has not emerged when the eggs hatch, larvae will move into the whorl and feed on the developing pollen grains in the tassel. As the tassel emerges, the larvae will move down the plant to the green silks and then into the silk channel to feed on the developing ear. Remember to scout refuge corn and all Bt corn without the Cry1F protein.

Management. Consider using a Bt corn hybrid, like Herculex™, which contains a Bt protein (Cry1F), to protect against significant western bean cutworm damage. However, there are treatment thresholds for non-Bt refuge corn. If eight percent of the field corn plants (four percent for sweet corn) have

an egg mass or young larvae are found in the tassel, consider applying an insecticide. If an insecticide is needed, apply it when 90 to 95 percent tassel has emerged. If the tassels have already emerged, the application should be timed for when 70 to 90 percent of the eggs have hatched. Once the larvae reach the ear tip, control is nearly impossible.

If an insecticide application is needed, corn fields should be checked for the presence of spider mite colonies. If mites are found, select a product that does not stimulate mite growth. Mite flares are especially a concern in moisture-stressed fields. There are several products registered in Iowa for corn leaf aphid (Table 1). Follow label directions and pay attention to spray guidelines.

Table 1. Insecticides labeled for Western bean cutworm in corn

Product (active ingredient)	***Application rate***	***Preharvest interval***
Adjourn (esfenvalerate)	2.9-5.8 oz/ac	21 days
Ambush (permethrin)	3.2-6.4 oz/ac	30 days
Asana XL (esfenvalerate)	2.9-5.8 oz/ac	21 days
Baythroid XL (beta-cyfluthrin)	1.6-2.8 oz/ac	21 days (0 days for sweet corn)
Bifenthrin 2EC	2.1-6.4 oz/ac	30 days
Lorsban 4E (chlorpyrifos)	1-2 pints/ac	21 days
Mustang Max (zeta-cypermethrin)	1.76-4.0 oz/ac	30 days
Penncap M (methyl parathion)	2-4 pints/ac	12 days
Pounce 1.5G (permethrin)	6.7-13.3 lbs/ac	30 days (for sweet corn only)
Proaxis (gamma-cyhalothrin)	1.92-3.2 oz/ac	21 days
Sevin XLR Plus (carbaryl)	2 quarts/ac	48 days
Warrior II (lambda-cyhalothrin)	0.96-1.6 oz/ac	21 days

Portions of this article originally appeared in the July 10, 2006 ICM article, Western bean cut worm, 2006. (link to : http://www.ipm.iastate.edu/ipm/icm/2006/7-10/wbc.html).

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