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Western Bean Cutworm On Beans and Corn

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The western bean cutworm, *Loxagrotis albicosta* (Sm.), is a pest of concern to bean and sweet corn producers. Damage to beans and corn in Idaho has been restricted to the southcentral area from Glenns Ferry to Rupert. Additionally, this species has been recorded in eight other states and provinces in western Canada and Mexico.

Appearance

The adult is a miller moth which is active only at night. It has a body about three-fourths of an inch long and a wing span of 1½ inches. The forewings are rich brown with a very light tan to darker brown shading on the outer margin. The eggs are laid in masses of from five to 225 on the undersides of bean leaves and on all exposed parts of the corn plant. An average egg mass is about one-fourth of an inch in diameter. Individual eggs are slightly smaller than the head of a common pin, dome shaped and coarsely ribbed. They are pearly white when first laid but nearly black just before hatching.

Newly hatched larvae are creamy white to light gray with a black head capsule. As the larvae mature, the head capsule lightens to a brown color, and the body becomes tan. When mature, the larvae are about 1½ inches long, one-fourth of an inch in diameter and are tan colored. The segment immediately behind the head has three longitudinal white stripes which characterize these larvae from corn earworm larvae.

Life History

Adults emerge from early July to mid-August and live from 7 to 9 days. Egg laying begins about 3 days after emergence. Eggs hatch in about 6 days. Larvae are present from late July to mid-September. As cool weather approaches, mature cutworms enter the soil to a depth of 3 to 11 inches and construct earthen cells to overwinter. Late the following spring, the worms change to pupae and emerge as moths in early summer.



Damage

Newly hatched larvae feed on the undersides of bean leaves, buds and blossoms. When about half grown (one-half to two-thirds of an inch long), they begin feeding on bean pods and seeds. They feed mostly at night and spend the day in the soil around the plants. This is when the most obvious injury to beans occurs. Feeding and damage of this type may continue from the time pods first form through the time beans are drying in the windrow and until they are dry and threshed. Worm holes in the beans reduce yield, lower the grade and increase processing costs. Beans grown for seed require hand picking and/or electric eye sorters to remove damaged seed.

Damage to sweet corn for processing is more significant than to field corn although both may be equally infested. Newly hatched larvae feed on leaves and in the emerging tassel. Larger worms tunnel into ears at any point and feed on kernels, lowering yields and quality. Extensive hand trimming before processing may be required for sweet corn.

Control

Since extensive injury does not occur every year and may vary greatly from one field to the next, determining the need for treatment for each bean field is difficult. For corn, sampling is relatively easy — done by carefully examining corn foliage for egg masses, small worms and signs of feeding between the time eggs hatch and larvae begin feeding on or entering corn ears, usually between July 20 and Aug. 8. Since infestations may be spotty, several areas in each field should be examined. Treatments should be applied in field corn when one plant in seven shows egg masses or injury. Sweet corn for processing should be treated when 1 plant in 20 shows signs of infestation.

No easy, accurate way to assess the severity of larval infestation in beans has been developed. To assist bean

Table 1. Average injury expected in beans with various numbers of moths per trap accumulated to peak moth flight.

Number of moths per trap	Average percent damage to beans in a given area
500	0.5
1,000	1.0
1,500	1.5
2,000	2.0
3,000	3.0

growers in knowing when to apply control measures for the western bean cutworm, the University of Idaho Cooperative Extension Service developed a program in 1979. The program is called the Bean Cutworm Outlook and Notification Program (BEACON) and is operated by the University of Idaho with close cooperation by the USDA Agriculture Research Service at Kimberly. (The data were developed by the USDA Agricultural Research Service upon which the program is founded.) The BEACON program is funded primarily by the Idaho Bean Commission and assisted by several sweet corn processing companies.

The numbers of adult moths caught in 20 to 24 black light traps gives growers information to determine the optimum time for treatment for the western bean cutworm. Growers will also be able to determine how much average damage can be expected in the area of each of the traps during the season.

The best time to treat for the western bean cutworm is 10 to 20 days after the peak moth flight. During this time, 85 percent of the larvae can be controlled with currently recommended practices. Peak moth flight generally occurs July 23 or 24, but weather may cause it to occur earlier or later. Shifts in peak flight time can be detected by light trap catches. A grower can determine the average damage to expect based on the average number of moths caught up to peak moth flight in traps in his area. Table 1 shows the total number of moths caught per trap at peak moth flight and the average damage potential indicated to standing beans in a field. These damage levels are averages.

About 50 percent of the injured beans are lost through the combine during the harvest, and one good bean will be lost for every damaged bean during cleaning. Thus, the damage figures given here should be multiplied by approximately 1.5 to determine the total average loss the grower can expect from the western bean cutworm for a specific area.

Growers should not rely on moth catches from only one trap but instead on the averages from the traps in their growing area. Some fields will receive more damage than others. Bean fields in full bloom during peak moth flight tend to be more heavily damaged than fields blooming either earlier or later than the peak moth flight period.

Table 2. Western bean cutworm on beans and corn.

Insecticide	Maximum per acre actual material	Application methods, remarks
Beans		
Sevin (carbaryl)	2 lb	Repeat as necessary.
Dylox (trichlorfon)	1 to 1½ lb	Use sufficient water for complete coverage, but not less than 5 gal per acre. Repeat as necessary. Do not apply within 14 days of harvest.
Thiodan (endosulfon)	1 lb	Do not feed threshings or allow livestock to graze treated fields. Do not exceed 3 applications per season. Do not apply within 3 days of harvest.
Corn		
Sevin (carbaryl)	2 lb	Cutworms must be controlled before they enter the ears. Apply between July 20 and Aug. 8 when corn is 90 to 95% tasseled (field corn), or 1 out of every 7 plants becomes infested or shows 1 or more egg masses. For control in sweet corn, contact your canning company fieldman. To minimize bee kill, apply only in late evening if corn is in tassel.

Caution — Poison

All insecticides are poisonous and must be handled with care to protect the operator, livestock, adjacent property and the consumer. Read and follow the label instructions carefully each time a material is used. Keep accurate records of the pesticides you apply.

Pesticide Residues — The recommendations in this publication are based on the best information currently available for each chemical listed. If followed carefully, residues should not exceed the tolerance established for any particular chemical. To avoid excessive residues, follow recommendations carefully with respect to dosage levels, number of applications and minimum interval between application and harvest.

The grower is responsible for residues on his crops as well as for any problems caused by drift from his property to adjacent properties or crops.

Trade Names — Trade names are used to simplify the information presented. Use of these names neither implies endorsement of products nor criticism of similar products not mentioned.