

Corn Cutworms

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This publication discusses cutworms in corn — identification, conditions that favor infestations, damage they cause, and control.

Several types of caterpillars feed on seedling corn and may cut the stem. They are commonly referred to as cutworms and may reduce plant stand and yield if abundant. Severe cutworm damage to corn is rare in Nebraska and usually is confined to localized areas in eastern Nebraska. Central and western Nebraska corn may be affected by cutworms when corn follows sod, pasture, alfalfa, soybeans, small grains, or winter cereal cover crops. Fields with heavy plant residues or early season weed growth also are susceptible to cutworm attack. Dingy and black cutworms are the species most often associated with damage to corn in eastern Nebraska, although dark-sided cutworms also may be important in northeast and western counties. Other less common cutworm species include sandhills, glassy, spotted, and bristly cutworms, and occasionally army cutworms and pale western cutworms in western Nebraska.

Identification and Life History

Black cutworms

Black cutworms cause most of the serious cutworm problems in eastern Nebraska, but are seldom found west of the 100th meridian, which runs through Dawson County. Black cutworms do not overwinter in Nebraska. Moths migrate northward from southern states in early spring and deposit eggs on grasses, broadleaf weeds, and crop residue before corn is planted. Variations in wind direction and speed (which affect the migration and ultimate distribution of the moths), stage of corn development, and local environmental conditions are factors that strongly influence the severity of black cutworm infestations. When weeds are destroyed by cultivation or herbicides, cutworms move to newly emerged corn where damage soon appears. Although there is more than one generation per year, the first generation is the only one causing significant damage to corn.

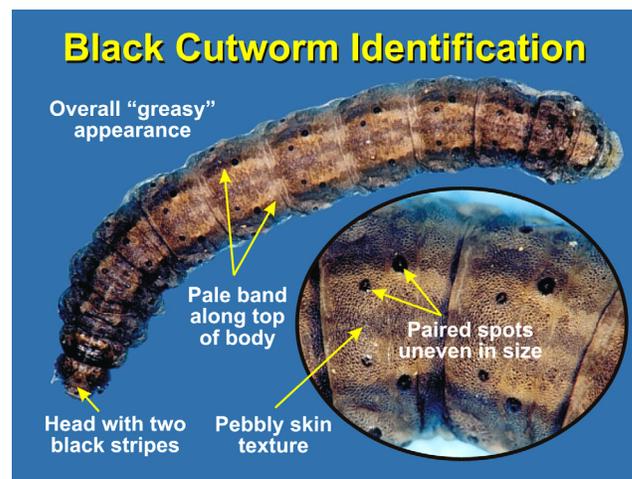


Figure 1. Diagnostic features to identify black cutworms.

Black cutworm larvae are light gray to nearly black in color with an overall greasy appearance. When viewed through a hand lens the skin has a rough pebbly texture. The head has two black stripes and there is a pale band along the top of the body. A key characteristic is that on the top of each abdominal segment there are two sets of paired spots which are unequal in size (*Figure 1*).

Dingy cutworms

Dingy cutworms overwinter as small larvae and are usually the first to damage corn in the spring. They are most often found in fields following or adjacent to legumes or with heavy crop residue. They are pale gray to reddish brown with mottled pigmentation and light gray, V-shaped markings on the back. A key characteristic to distinguish them from black cutworms is that on each segment there are two pairs of equal-sized tubercles, whereas on the black cutworm the pairs of tubercles are unequal in size (*Figure 2*). Dingy cutworms are about 1 inch long at maturity. There is one generation per year of this species. Dingy cutworms generally cause less damage than black cutworms because they feed primarily on leaves and only rarely cut stems. In most cases, treatment for dingy cutworms is not justified unless extensive feeding accompanies poor growing conditions.

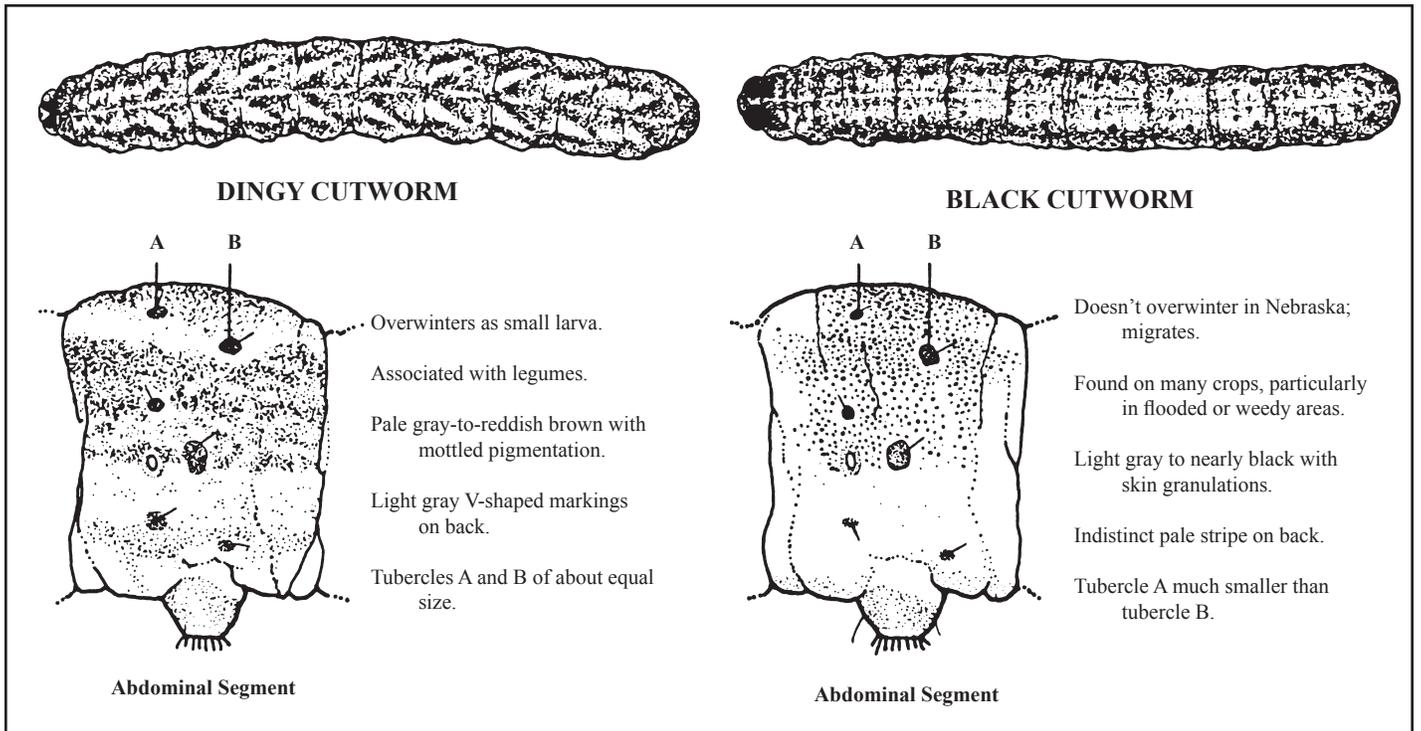


Figure 2. Chart showing differences between dingy and black cutworms.

Other species

Sandhills, pale western, and glassy cutworms feed primarily below ground and cut small plants below the soil surface. Sandhills cutworms occur primarily in sandy soils of northeast Nebraska. The pale western cutworm, primarily a pest of wheat in western Nebraska, also feeds on corn. The greatest threat is to corn planted the previous fall to a winter cereal that was heavily infested by this insect. Darksided, spotted, and army cutworms are climbing cutworms that feed on leaves. These cutworms cause substantially less injury than cutworms that feed below ground on the stem.

Conditions That Favor Black Cutworm Infestations

Cutworms can occur in any corn field. The following conditions appear to be conducive to serious infestations of black cutworms:

- corn following soybeans that had an abundance of winter annual or perennial weeds
- fields with heavy vegetative cover during the early spring
- fields planted into sod or legume pastures
- fields on bottom land or in low-lying areas
- fields bordered by dense vegetation or pastures
- tillage practices that allow plant residues or weeds to remain in spring.

Cutworm Damage

Depending on the species and growth stage of the cutworm and weather factors, a variety of damage symptoms

may be observed. Young cutworms feed on leaf tissue, cutting small holes (*Figure 3*). When black cutworms are about half grown (fourth instar), they become big enough to cut stalks or severely injure the plant by feeding at the base (*Figure 4*). A black cutworm can cut up to four 1-leaf stage corn plants or one 4-leaf stage corn plant before completing its development. Soil moisture conditions also may influence the type of damage. If the soil surface is dry and crusted, cutworms are more likely to feed on the stalk below ground. Usually when corn has reached the 6-leaf stage, the stem is too thick for cutworms to cut the plant.

Other Insects Causing Similar Damage Symptoms

Several other insects may cause damage similar to that caused by cutworms in seedling corn. It is important to accurately identify the cause of damage before implementing a control measure.

Common Stalk Borers

Common stalk borer eggs are laid in the fall in grasses such as smooth brome or broadleaf weeds. Caterpillars hatch in early spring and bore into stalks of grasses or broadleaf hosts such as ragweed. As the caterpillars grow larger, or if their original host is mowed or burned down with herbicides, the caterpillars will migrate to nearby corn plants to complete their development. Because of this behavior, damage often is limited to field borders or areas near grassy terraces. Initially larvae feed on leaves in the whorl and then bore into the stalk. As the leaves unroll, irregular rows of ragged holes will appear on the unfolding leaves. As larvae bore into the stalk they may kill the central growing point.



Figure 3. Leaf feeding by small black cutworms on corn.

Billbugs

Billbugs are 1/4- to 1/2-inch long weevils that feed on the base of seedling corn. Often they are difficult to find because they are dark colored, may be coated with soil and “play possum” when disturbed. Several different species may potentially damage corn in Nebraska, but their life cycles and damage symptoms are similar. They insert their beak into the stalk and cut a hole into the developing leaves inside the plant. When the leaves emerge there is a row of circular holes across the leaves. More severe feeding may kill the growing point, causing the leaves in the center of the whorl to die. Billbugs develop on nutsedge and other sedges, rushes, and semiaquatic plants, and are often associated with low areas of the field.

Southern Corn Leaf Beetle

A relatively new pest of corn — the southern corn leaf beetle — was seen in southeastern Nebraska in 2000. This insect has been reported to damage corn periodically in northeast and north central Kansas over the last few years, and also was reported in Missouri, Iowa, and Illinois in 2000.

The adult overwinters in sheltered areas and becomes active in April. In addition to corn it may feed on weeds, especially cocklebur. The adults are 3/16 inch long, dark brown and often covered with soil particles, making them difficult to see. They hide in the soil during the day and are difficult to find. They feed on the stems of corn seedlings, and may cut stems causing damage similar to cutworms on seedling corn. They also feed on the edges of leaves, producing a notched appearance, similar to leaf feeding by cutworms. If abundant they may cause severe damage to seedling corn.

Economic thresholds have not been researched for this insect, but use of thresholds similar to those for cutworms has been suggested. The same insecticides



Figure 4. Cutting at the base of corn plant by black cutworms.

labeled for postemergence use against cutworms would be appropriate for southern corn leaf beetles.

In some situations, **wireworms** may feed at or above the soil surface and bore into the corn stalk, damaging or killing the growing point. There are no effective post-emergence insecticides for wireworm control.

Scouting for Cutworms

Scout fields once or twice a week beginning with plant emergence. All fields should be examined regardless of whether a planting-time soil insecticide was applied. Cutworm scouting can be ended once plants are at the 6-leaf stage, since little additional cutting will occur. Observe plants at several locations in each field for evidence of leaf feeding or cutting of plants. Pay special attention to poorly drained areas and places where weeds were present before planting. If cut plants are found, examine the soil around damaged plants for cutworms. Cutworms feed at night and hide in the soil or under debris during the day. Make note of the size and species of cutworm.

A black cutworm pheromone trap can help pinpoint timing of scouting for this cutworm. By identifying when significant moth capture begins in an area, degree day information can predict when cutting by black cutworms is likely to begin. In eastern Nebraska trapping should start in late March or early April. A significant capture is defined as eight or more moths caught per trap over two nights. When 300 degree days (base 50°F) have accumulated after this date, fourth instar larvae are expected to be present. This is the first stage that is capable of cutting corn stems. At this time more intensive sampling for black cutworms is warranted. Pupation occurs at approximately 641 degree days (base 50°F) after first significant capture of moths. **This procedure cannot predict the severity of damage in individual fields. This must be determined by scouting.** Also, the absence of significant black cutworm

activity does not mean that cutworm scouting is unnecessary, other species still may cause damage.

Black cutworm pheromone traps and pheromone lures can be purchased from several companies, including: Gemplers, 1-800-382-8473, gemplers.com; Great Lakes IPM, 517-268-5693, greatlakesipm.com; or Trécé, Inc., 831-758-0204 trece.com/

Economic Thresholds

Foliar insecticides are recommended when 2 percent to 4 percent of the plants are cut below ground or 6 percent to 8 percent of the plants are cut above the soil surface, and cutworms less than 1 inch long are present. Damage below ground is more likely to kill the growing point, which is below ground until the 6-leaf stage. Plants are more likely to survive feeding if it occurs above the growing point of the plant.

Cutworm Control

The general recommendation for cutworm control involves use of a postemergence rescue treatment once economic levels of cutworm damage are detected. Early detection is essential. Treat if damage exceeds the threshold and cutworms are 1 inch or less in length. Cutworms longer than 1 inch likely are to pupate (i.e. cease feeding) before causing significant additional damage. If the soil surface is dry or crusted, shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after insecticide application of Lorsban 4E may improve control. Pyrethroid insecticides (e.g., Ambush, Pounce, Warrior, Asana) should not be incorporated, however.

Bt corns containing the Cry 1F protein (Herculex I and Herculex Xtra), and the Vip3A protein (Agrisure Viptera®), are labeled for control of black cutworms, and will reduce injury. Other cutworm species that overwinter as partly grown caterpillars may not be controlled adequately.

Preventive treatments applied at or before planting generally have given erratic control, especially where cutworm numbers have been high. These include granular and liquid insecticides as well as systemic seed treatments containing neonicotinoid insecticides, such as Cruiser (thiamethoxam) or Poncho (clothianidin). Also, most fields do not have a cutworm problem every year, so preventive treatments are often unnecessary. Planting time treatments may be advisable if replanting is necessary due to cutworm damage and cutworms are 1 inch or less in length.

A variety of insecticides are effective against cutworms in corn. See the UNL Department of Entomology's Web site at <http://entomology.unl.edu/> or insecticide label information for labeled insecticides, their rates and restrictions.

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