



Agronomic Spotlight

Mid-Season Corn Insect Identification

- Many mid-season corn insects feed on leaf material, thus reducing surface area available for photosynthesis.
- Assessing mid-season corn insect damage should include observation for plant symptoms and insects present.
- Mid-season insects described in this document include: corn rootworm, European corn borer, armyworms, grasshoppers, and stalk borers.

When scouting corn for mid-season insect damage, plant symptoms as well as insects present should be noted. This document provides descriptions of plant damage that may occur and the insects that may be responsible. If specified damage or insects are present, seek specific insect threshold and control measures that may apply.

Corn rootworm

Western corn rootworm (*Diabrotica virgifera virgifera* LeConte), northern corn rootworm (*Diabrotica barberi* Smith & Lawrence), and southern corn rootworm (*Diabrotica undecimpunctata howardi* Barber) are important corn pests. In the Midwest and farther north, the southern corn rootworm causes damage only as an adult as they cannot overwinter in these areas.

Corn rootworms (CRW) can cause damage as both larvae and adult beetles. Newly hatched larvae begin feeding on root hairs, but as they grow, they tunnel into roots and can chew them down to the base of the plant resulting in extreme damage to plant vascular and structural systems. Beetle feeding results in long, narrow strips on corn leaves that turn light gray. Leaves that experience heavy feeding may split or fray.

Larvae are slender and white, ½ inch (13 mm) long, have a brown head, and have a dark plate on the top side of the 'tail' end. Western CRW beetles are yellow to green colored with a black stripe along the sides of the wing covers, 5/16 inch (7.5 mm) long. The male wing covers are typically darker colored than those of the females. Northern CRW beetles are pale green to tan, ¼ inch (6 mm) long, and males and females are similarly colored, but females are longer and have a larger abdomen than males. Southern CRW beetles, also called spotted cucumber beetles, are 3/8 inch (9 mm) long, green to yellow, and have 11 spots on their back.



Figure 1. (L) Corn rootworm larvae, (C) corn rootworm larvae damage to standing corn, (R) western corn rootworm beetle.

European corn borer

European corn borer (*Ostrinia nubilalis* Hübner) is a significant economic pest of corn. Plant injury from European corn borer (ECB) occurs when their boring damages vascular tissues, thus disrupting the flow of water, sugars, and nutrients.

Newly hatched larvae usually feed deep within the whorl, removing shallow layers of leaf tissue creating thin 'windows' in leaf tissue. As they grow, larvae can chew completely through leaves and emerging leaves may exhibit 'shothole' patterns. The ECB larvae can also tunnel into leaf midribs, leaf collars, and later into ear shanks. Sawdust-like frass accumulated at the entrance of a hole indicates ECB presence. Larvae are creamy to grayish in color, about 1 inch (25 mm) long, and exhibit subtle rows of small brown spots running the length of their bodies.



Figure 2. (L) European corn borer larvae, (R) 'shothole' pattern on emerging corn leaves from feeding within the whorl.

Armyworms

Armyworms are named for the way they move as a group across the ground in an army-like fashion. They migrate together in search of food, consuming available host plants in their path. True armyworm (*Pseudaletia unipuncta* Haworth) tend to be a problem in grassy, weedy fields. When herbicides begin to control weeds, the larvae move to host plants such as corn. Fall armyworm (*Spodoptera frugiperda* Smith) tend to be more of a problem in late-planted corn.



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Figure 3. (L) True armyworm, (C) Fall armyworm, (R) severe armyworm feeding on corn. *True armyworm image courtesy of Roger Schmidt, University of Wisconsin-Madison, Bugwood.org.*

True armyworm (TAW) remove leaf tissue from the edges often eating everything but the midrib. Feeding begins on lower leaves and progresses upwards, with the whorl leaves being eaten last. Larvae are easily viewed on plants and many may feed upon the same plant. They are about 1 ½ inches (38 mm) long, vary in color from dark greenish-brown to black, and have long white, orange, and brown stripes running the length of each side of the abdomen. The head is a yellowish-brown color with a mottled appearance.

Fall armyworm (FAW) larvae feed deep inside the whorls, leaving behind large, ragged-edged holes in whorl leaves. Holes may be 1 or 2 inches across and often mirror each other on opposite leaves that have emerged from the whorl. Severe feeding may actually resemble hail damage. Larvae grow to about 1 ½ inches (38 mm), have smooth skin, and vary in color from light tan or green to almost black. The larvae have a predominant white, inverted Y between the eyes on their head, distinguishing them from other armyworms.

Grasshoppers

Grasshoppers (*Melanoplus* spp.) feed on corn leaves, and large populations may consume all leaf material except for the tough midrib. Grasshopper feeding may look similar to armyworm feeding, except that armyworm feeding will begin on the bottom leaves and progress upwards, whereas grasshoppers rarely begin feeding on the bottom leaves and show no pattern to feeding. Grasshopper damage is most likely to occur during dry years when grasshopper populations are high.

Grasshoppers can be up to 1 ¾ inches (44 mm) long when mature and are brown to grayish-green. Nymphs appear very similar to adults, except for a smaller size and the absence of fully developed wings.



Figure 5. Grasshopper feeding on corn. *University of Georgia Archive, University of Georgia, Bugwood.org.*



Figure 4. Fall armyworm damage to corn leaf.

Common stalk borer

Common stalk borer (*Papaipema nebris* Guenee) damage to corn appears as large, ragged holes in leaves from their feeding inside the whorl. When holes are several inches long, the leaves can break or be cut from the plant. Affected plants may grow abnormally, being twisted or bent over, and may not produce an ear.

Common stalk borer larvae exhibit distinct longitudinal white stripes interrupted by a purple midsection and an orange head with a black stripe. Mature larvae are around 1 ¼ inches (32 mm) long.



Figure 6. Common stalk borer. *James Kalisch, University of Nebraska, Bugwood.org.*

Sources:

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Web sources verified 05/18/2015

For additional agronomic information, please contact your local seed representative. Developed in partnership with Technology, Development, & Agronomy by Monsanto.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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