Fall Armyworm in Corn (Corn-Growing Area)

- Fall armyworm (FAW) larvae feeding can damage corn leaf or ear tissues at several corn growth stages.
- Larvae of FAW can be mistaken for other similar species.
- Genuity® brand corn products with insect trait protection have the potential to improve grain quality and yield potential by providing multiple modes of action for advanced above-ground insect protection.

Corn with Insect Trait Protection

Genuity® brand corn insect trait products have the potential to improve grain quality and increase yield potential by providing multiple modes of action for advanced above-ground insect protection. Genuity® VT Double PRO® and Genuity® VT Triple PRO® technologies provide dual modes of action for above-ground insects, including FAW, and Genuity® SmartStax® provides triple modes of action against FAW. Other corn products containing insect protection traits such as Optimum® AcreMax® or Optimum® Intrasect® only have a single mode of action against FAW (Table 1).

Identification

Fall armyworm (FAW) larvae can damage corn at various stages of development by feeding on leaf or ear tissues. FAW larvae are smooth-skinned, vary in color from light tan to dark green or black, with 3 yellow stripes and a dark stripe down the back. There is an equally wide, wavy, yellow stripe, splotched with red next to the dark stripe. Early instar larvae are dark green with black heads and usually found in groups on the plant. Larvae have 4 pairs of abdominal prolegs and a pair of legs at the end of the body. Full-grown larvae are about 1.5 inches long.

Larvae of FAW, true armyworm (TAW), corn earworm (CEW), western bean cutworm (WBC), European corn borer (ECB), and southwestern corn borer (SWCB) can be mistaken for each other (Figure 1). Correct identification can impact management decisions. To differentiate FAW larvae from other species, look at the head of the larva. The head of a FAW has a prominent white, inverted Y-shaped mark between the eyes. FAW larvae have an inverted Y on their head capsule and vary from light tan or green to almost black.

Table 1. Trait Comparison of Mode of Action (MOA) for Control/Management of Corn Insects in the Corn-Growing Area.

<table>
<thead>
<tr>
<th>Insect Species</th>
<th>Genuity® SmartStax®</th>
<th>Genuity® VT Double PRO®</th>
<th>Genuity® VT Triple PRO®</th>
<th>Optimum® AcreMax®</th>
<th>Optimum® Intrasect®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn Earworm</td>
<td>**</td>
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<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Fall Armyworm</td>
<td>****</td>
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<tr>
<td>European Corn Borer</td>
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<td>**</td>
<td>**</td>
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<tr>
<td>Southwestern Corn Borer</td>
<td>**</td>
<td>**</td>
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<td>**</td>
<td>**</td>
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<tr>
<td>Western Bean Cutworm</td>
<td>*</td>
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<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Refuge (Corn-Growing Area)</td>
<td>5% RIB</td>
<td>5% RIB</td>
<td>10% RIB</td>
<td>95:5 Integrated</td>
<td>5% Structured</td>
</tr>
</tbody>
</table>

1MOA/Control of Pest ** = single mode-activity, **** = dual mode-activity, ***** = triple mode-activity.

Figure 1. Larva of fall armyworm (FAW), corn earworm (CEW), European corn borer (ECB), true armyworm (TAW), western bean cutworm (WBC), southwestern corn borer (SWCB). TAW, SWCB photos Frank Peairs, Colorado State University, Bugwood.org.
Fall Armyworm in Corn (Com-Growing Area)

Comparing larval ear feeding damage: small holes and window pane feeding injury from ECB. Larvae feed on tassels, immature ears, ear shanks, and tunnel into stalks. Heavy infestations of larvae feeding on kernels may result in yield losses. Yield losses may also occur from ear drop and lodging caused by larval feeding damage in ear shanks and stalks.

Life Cycle

FAW moths migrate north during the growing season from overwintering sites in South Texas/Northern Mexico and South Florida. Adult moths lay masses of 50 to 150 spherical, gray eggs on leaves. Larvae hatch in 3 to 5 days and initially move into the whorl to feed. Typically, FAW require about 30 to 45 days to complete one generation. FAW has a wide host plant range that includes corn, sorghum, small grains, soybeans, cotton, bermudagrass, and rice.

Damage Symptoms

Young FAW larvae remove the top layer of the leaf and eat through leaves, causing small pin holes. Very early symptoms can resemble the sorghum, small grains, soybeans, cotton, bermudagrass, and rice. FAW will also infest corn from the tasseling to dough stage of growth. Larvae feed on tassels, immature ears, ear shanks, and tunnel into stalks. Heavy infestations of larvae feeding on kernels may result in yield losses. Yield losses may also occur from ear drop and lodging caused by larval feeding damage in ear shanks and stalks.

Comparing larval ear feeding damage: FAW feed by burrowing through the husk on the side of the ear, unlike corn earworm. Larvae also enter at the base of the ear, feeding along the sides and may tunnel into the cob. They usually emerge at the base of the ear, leaving round holes in the husks. CEW enter the ear through the silk channel, unlike European corn borer and fall armyworm, which enter through the husks or cob. As silks dry, corn earworm begin feeding on kernels (Figure 2). Larvae feed at the tip and along the sides of the ear near the tip. CEW are cannibalistic with typically only one larva surviving per ear.

Insecticide Applications

Inspection of plants damaged by FAW.

Determining the percentage of plants damaged by FAW. Pull some whorls and unroll the leaves to make larval counts. Scout corn around tasseling and silking. Look for large larvae in emerging tassels and very small ears. Continue to check closely for this insect until silks dry.


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