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Scouting for Corn Rootworms

Michigan State University

Cooperative Extension Service

IPM Facts

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## Scouting for Corn Rootworms

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Corn rootworms are key corn pests in Michigan. Two species of rootworms are present: the western<sup>1</sup> being the most common, the northern<sup>2</sup> species, being much less abundant. The greatest damage is done by the immature rootworms (larvae) which feed exclusively on corn roots. Scouting for these pests is a proven method for optimizing rootworm management decisions.

### Description of life stages:

Immature rootworms are small, whitish, thread-like larvae about 1/8 to 1/2 inch long. They have a brownish head and tail section with three pairs of legs near the head. Adults are very active beetles

about 1/4-inch long with hard shells. Northern corn rootworm adults are pale green or yellow without wing markings; western corn rootworm adults are yellow to reddish with three black stripes down their wings. These wing stripes vary from thin streaks to nearly covering the entire wing.

### Life cycle:

The oval yellowish eggs are laid in the soil near corn plants in August. Eggs overwinter and hatch during early to mid-June of the following year.

Rootworms feed for several weeks before pupating in July. After pupation the adults emerge from the soil during late July or August. They prefer to feed on corn silks, but will also eat corn leaves, tassels, and pollen. Movement of adults between fields is common and they remain active until the first hard frost.

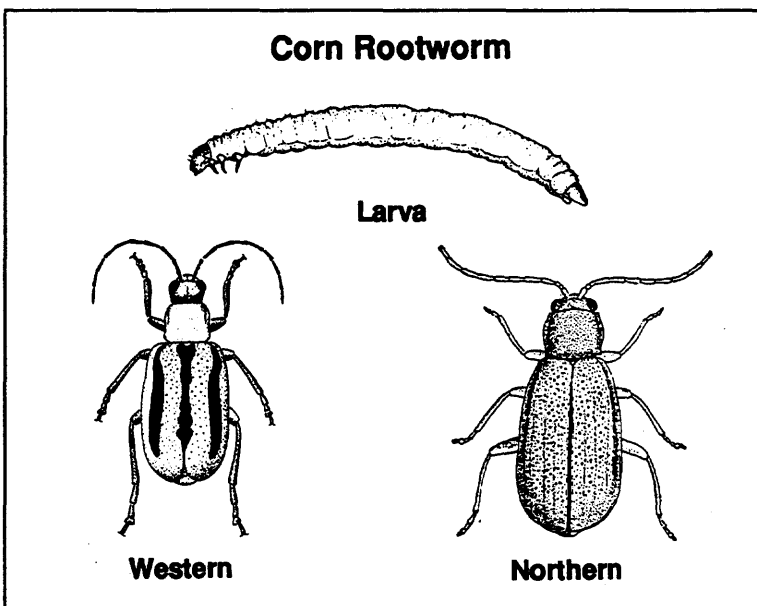
### Damage:

Larvae consume small rootlets and also tunnel inside the larger primary and brace roots. Seriously damaged plants may fall over (lodge) in high winds or wet soils. These lodged plants attempt to grow upright, resulting in the typical curved or "goosenecked" stalk. Occasionally, adult beetles feeding on silks can inhibit pollination and seed set.

### Scouting & economic thresholds:

An economically and environmentally sound insect management program is

based on determining if a rootworm problem actually exists before applying an insecticide. The need for a soil insecticide varies from field to field and depends on the population levels, soil types, history of previous cropping sequences and cultivation practices.



<sup>1</sup>Western corn rootworm: *Diabrotica virgifera virgifera* LaConte

<sup>2</sup>Northern corn rootworm: *Diabrotica barberi* Smith & Lawrence

**Adult silk feeding** - Adult rootworms feeding on silk may inhibit pollination if an insufficient length of silk extends from the husk. When scouting for silk damage, check 20 plants from five different areas of the field. Treatment should be considered if silks have been clipped shorter than 1/2 inch and if the beetles are still active. Silk clipping is only a problem prior to pollination; if brown silks are present then pollination has already occurred and will not be affected by rootworm feeding.

**Predicting rootworm potential in corn.** When planting corn following corn, it's essential to scout your fields for rootworm activity to predict the appropriate management strategy. As a general rule, half or less of the non-rotated corn in Michigan will show an economic benefit from a corn rootworm insecticide.

Begin adult counts 18 days after the first sighting of adult corn rootworm beetles (generally in late July or early August). Go into the fields (beyond the margins and border rows) and count the number of rootworm beetles on 60 consecutive plants - do not turn over leaves or peel back silks. Record this number and repeat in two more locations. If a total of 180 or more beetles were observed on the 180 plants checked (i.e., an average of one beetle per plant), a threshold has

been reached. If a field has more than one beetle per plant it should be rotated to a crop other than corn or a soil insecticide applied if planted to corn the following year. Continue counts weekly until a threshold is reached or adult numbers decline.

#### **Additional considerations:**

Adult counts are used to predict the potential number of eggs laid, and subsequently, the number of damaging larvae that may be present in a particular field the following year. Factors that affect larval survival may alter a management decision. Corn rootworm eggs are susceptible to cold temperature extremes and dehydration. In fields with borderline adult counts (those slightly over 180), it may not be economical to treat if the field has been exposed to very dry soil conditions or extremely cold periods without snow cover. Egg and larval survival in coarse textured soils is lower than in fine textured soils. For this reason, fields with lighter soils may not benefit from treatment if beetle counts are only slightly above threshold.

For more information on corn rootworm management, consult Extension Bulletin E-1582 ***Chemical Control of Insects and Nematodes in Field and Forage Crops***, and Extension Bulletin E-2264 ***Corn Rootworm Management***.

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**To protect yourself and others and the environment, always read the label before applying any pesticide.**

Illustrations courtesy of United States Department of Agriculture.



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