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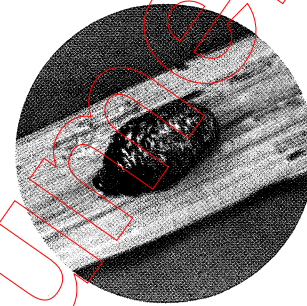
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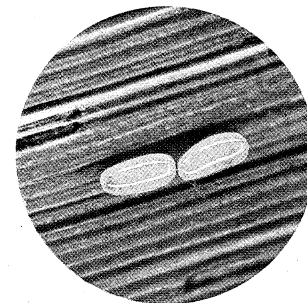
Cereal Leaf Beetle



Larva



Eggs



David L. Matthew, Jr., and C. Richard Edwards, Extension Entomologists

The cereal leaf beetle was first reported in the United States in 1962. The initial infestation was discovered in Michigan and Indiana in a small area 15 to 25 miles west and northwest of South Bend, Indiana. Since then, it has spread throughout Indiana, into adjacent states and north and east into New York and southern Canada.

Host Plants

The cereal leaf beetle appears to feed only on plants of the grass family. Though it will feed on wild and cultivated grasses, such as orchardgrass, quackgrass and timothy, it prefers spring-seeded small grains—especially oats. Summer adults feed on corn leaves, but the plants outgrow this damage.

Type of Damage

Both adults and larvae cause damage by feeding on the host crop. The adult beetles eat longitudinal slits between the veins and completely through the leaves, and may kill the plant. The larvae eat only the outer surface of leaves, giving them a silver cast and the whole field a frosted appearance before the plants die.

Description

Adult: The adult is a hard-shelled beetle, measuring $3/16$ inch long. Its wing covers and head are metallic bluish-black, while its legs and front segment of its thorax (just behind the head) are reddish-orange.

Egg: Newly-laid eggs are elliptical, yellow and

smaller than a pin head. Before hatching they turn almost black. Eggs are deposited singly or in rows of up to three or four, but never in clusters. They are usually found close to the mid-rib on the upper surface of (host plant) leaves. An exception is corn, where eggs are often laid on the underside of leaves.

Larva: The larva is slightly longer than the adult and resembles a slug. Although its skin is actually yellow to yellowish-brown, the larva's black, slug-like appearance is caused by a moist glob of fecal material which it deposits on its back. The only time a larva is found without this excrement is immediately after a molt.

Pupa: The pupa, or inactive stage, is also yellow to yellowish-brown. However, the pupa is rarely seen, because it is encased under the soil surface in an earthen cell which the larva builds before pupation.

Life Cycle and Habits

Cereal leaf beetle adults overwinter, usually in clusters, wherever they can find shelter—in old corn stalk leaves, in the cracks of fence posts, in chaff on the ground, in grain stubble and straw, and under the loose bark of trees.

In the spring, when temperatures get above 60° F, the beetles come out of hibernation to feed. They first attack wild grasses, such as quackgrass and orchardgrass, near their hibernation spots. Then they fly to fields of winter wheat and winter barley. (Cereal leaf beetles are strong flying insects. They have been collected as high as 1,000 feet above the ground in traps attached to an airplane.) When spring oats emerge, the beetles quickly infest the young plants, where they will both feed and lay their eggs.

The beetles feed for about 2 weeks before egg laying begins. With warm weather, the eggs may hatch in 5 days, and the larvae may develop in the next 10 days. It is the larvae that do most of the crop damage.

Before pupating, the larvae rest for a day or two on the leaves of host plants. Then they descend into the top 2 inches of soil, where they form pupal

cases and change into adults. The pupal stage usually lasts about 2 to 3 weeks before the new beetles emerge.

These summer adults first seek food. They feed mostly on corn which at that time is about knee high and the only grain that is young and succulent. After feeding for about 2 weeks, the beetles go into summer hibernation for the rest of the season. As fall and winter approach, they work their way into deep cover for winter hibernation.

The cereal leaf beetle has only one generation per year, in the field.

Control Measures

Control of the cereal leaf beetle is suggested when counts of small larvae average more than one larva per stem. Make counts on 20 randomly selected stems in each of five areas of the field (total of 100 stems) to obtain the average count per stem. If control is required, apply one of the following insecticides:

1. Azinphosmethyl (Guthion) at 1/2 lb. actual toxicant per acre (2 pints of 2 lb. per gallon EC or 1 lb. of 50% WP). Do not apply more than once per season. Do not harvest for food, feed, forage or graze within 30 days of treatment.

2. Endosulfan (Thiodan) at 1/2 lb. actual toxicant per acre (1 1/3 pints of 3 lb. per gal. EC). Do not apply after heads begin to form. Do not feed treated forage to livestock.

3. Malathion at 1 lb. actual toxicant per acre (1/5 gal. of a 5-lb.-per gal. concentrate), or

4. Malathion ULV at 10 oz. per acre of the 95% formulation. (For use by aerial application only by specially nozzled aircraft.) Apply undiluted. Do not harvest or graze malathion treated crops within 7 days of treatment.

Other Control Methods

Parasites of the cereal leaf beetle have been released and are established in many counties of the State. In addition, the wheat variety, **Downy** is resistant to cereal leaf beetle. Wheat producers in areas of heavy beetle infestations should consider planting this variety.