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WATCH FOR THE CEREAL LEAF BEETLE

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GROWERS! Watch carefully for any stage of the cereal leaf beetle, and for crop damage you suspect has been caused by this insect. Report any suspicious cases to your nearest agricultural representative, research station, plant protection office, or agricultural college. Prompt control of small infestations may prevent or delay the buildup and spread of this new pest in Canada.

ORIGIN AND DISTRIBUTION

The cereal leaf beetle occurs on grain crops from Siberia to North Africa, but it has been most destructive in Central Europe, especially in the Balkan countries.

It was first identified in the United States in July 1962, in southwestern Michigan and northwestern Indiana near Lake Michigan. In 1963 it was also found in northwestern Ohio. It has since spread over much of these three states and into northern Illinois.

In 1965 a single beetle was found near Harrow during a survey in southwestern Ontario. No beetles were found in a more intensive survey of the same area in 1966. Surveys in 1967 showed that the beetles were widely distributed over about 70 square miles in Essex County, but the number was small. Also, one beetle was found at Bickford in Lambton County near the St. Clair River.



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LARVA

EGGS

LEAF DAMAGED BY LARVA



WHAT TO LOOK FOR

Adults

Adult cereal leaf beetles are about $\frac{3}{16}$ inch long and less than $\frac{3}{32}$ inch wide. The wing covers and head are bluish black. The legs and the part of the thorax just back of the head are reddish orange.

Eggs

Eggs, when just laid, are yellowish in color and cylindrical to elliptical in shape. As they mature they darken, and they turn almost black just before they hatch. They are no bigger than the head of a pin, and are usually laid singly, or in rows of three or four, near the midvein on the upper surfaces of cereal leaves. On corn they may be laid on the under surfaces of the leaves.

Larvae

Grown larvae are little longer than adults and look like slugs. As usually noticed on a leaf they are brownish black, owing to a covering of moist fecal material. When this covering is removed, or right after molting, they look like small yellowish potato beetle larvae.

Pupae

Pupae are formed in the soil in cells of earth. Each cell has a thin yellowish-brown lining. In this, the resting stage between larva and beetle, the insects are seldom seen.

HOST PLANTS AND DAMAGE

Adults and larvae of cereal leaf beetles feed on cereals, some grasses, and corn, though corn is not a preferred host. Damage is most severe on young succulent spring-seeded oats and barley, but it may also be serious in the spring on fall-seeded wheat.

Both beetles and larvae feed mainly on the upper surfaces of leaves and chew lengthwise between the leaf veins. Beetles chew completely through leaf tissue, causing leaves to split lengthwise and giving them a tattered appearance. Larvae seldom gnaw through the lower surfaces of leaves.

When feeding is heavy, young plants become silvery and look as if they had been injured by frost. The plants may be killed, or so seriously damaged that the crop is not large enough to harvest.

In Europe crop damage of 25 to 50 percent is reported. Before suitable controls were found, some fields in Michigan and Indiana had to be plowed down.

Corn is planted too late to be seriously damaged by this insect in the areas presently infested in the United States. When beetles feed on corn, the plant usually outgrows the limited damage they cause.

LIFE CYCLE AND HABITS

Adult cereal leaf beetles overwinter, usually in clusters, in sheltered locations such as hedgerows, and fly some distance to find favorable sites. They may be found in trash, under loose tree bark, in old corn stalks, in

cracks in fence posts, and in other such places. The beetles are strong fliers and have been taken by traps in aircraft at altitudes of 1,000 feet.

When the temperature rises above 60° F, in the spring, beetles begin to come out of hibernation and feed on such plants as orchard grass and quack grass near their overwintering sites. Later they fly to winter wheat to feed, and occasionally they lay some eggs right away on leaves of these plants. As spring oats emerge, beetles infest the plants, and feed for about two weeks before laying most of their eggs.

Under favorable conditions, eggs hatch in five days and larvae grow to maturity in about ten days. It is these larvae that cause most of the crop damage.

The fully fed larvae rest for one or two days before leaving plants to enter the pupal or resting stage in the top 2 inches of soil. New beetles emerge in two to three weeks.

These summer adults feed chiefly on corn, if it is available, or on any late succulent grain crop. After feeding for about two weeks the beetles go into summer hibernation. With the approach of winter they move into more protected locations.

There appears to be only one generation in the area presently infested in North America. In parts of Europe beetles may live through a second season.

Weather has a strong influence on the length of the life cycle of the cereal leaf beetle. Warm weather may shorten the cycle and cold weather may lengthen it.

CONTROL

Carbaryl and malathion are the most promising insecticides of those tested. Carbaryl is effective against eggs, larvae, and adults, and retains its killing power for two to three weeks. Malathion controls only larvae and adults, and is effective only at the time of application. Concentrated malathion sprayed from aircraft gives control over a wide swath, and has been used extensively to reduce the spread of the beetles.

Be constantly on the lookout for this pest and report a find immediately. Consult your agricultural adviser about the need for control and control measures to use.

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