

# CEREAL LEAF BEETLE CONTROL

COOPERATIVE EXTENSION SERVICE

MICHIGAN STATE UNIVERSITY

EAST LANSING

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Beginning in 1967, state and federal control of cereal leaf beetle will be discontinued. Hence, any control measures for the insect must be taken by growers on their own farms. The following information identifies the cereal leaf beetle problem and gives control instructions:

The heaviest populations of the insect are located primarily in the southwest and south central Michigan areas where they are a severe pest of oats. Wheat, barley, and rye are damaged less than oats, but in the tender growing stages of these plants, injury can be considerable. *This new pest is spreading and now is found in all counties of the lower peninsula.* Except for the southwest part of Michigan, severe damage to date has been restricted to isolated areas. But this insect can increase its population rapidly, so small grain crops must be inspected regularly to determine control needs.

**Description of damage.**—Oats are the preferred host. The damage described here is for that crop, although the injury on all of its grass and cereal host plants is similar, but less intense than it is on oats. Whole fields may be destroyed by the cereal leaf beetle. Both the adults and larvae (often called grubs or slugs) chew long strips of plant tissue between the veins of the leaves. The adult usually eats through the leaf tissue, while the larvae leaves the lower epidermis (skin) of the plant

leaf intact. When enough feeding occurs, the leaves of damaged plants turn white at the tips and upon drying are rust-colored.

Note: This white-tipped condition is, for the most part, a blanching of the color in the leaves. As far as is known,

only the cereal leaf beetle of the many insect pests of cereals and grasses causes this white-tipped condition. Hence, white-tipped grass and cereal grain leaves and the black-slime covered larvae are abundant proof that the insect problem is the cereal leaf beetle.

## DESCRIPTION OF THE INSECT

**Eggs.**—They are elongate-oval shaped, about one-sixteenth inch long, yellowish when first laid, almost black at hatching. They are laid on their sides on the upper surface of the leaves of host plants.



**Larvae.**—Mature larvae are about three-sixteenths inch long, hump-backed with brown-black heads and legs, and



yellow bodies. The body is usually covered with an "inky" liquid material.

**Pupae.**—The membranes covering the pupae are thin and transparent.



Similar to the eggs, the pupae are bright yellow when first formed and dark-colored like the adults when mature. The soil cells in which the cereal leaf beetle pupates are lined with a secretion which hardens to form a tough, smooth cell.

**Adults.**—These are three-sixteenths inch long. The head and hard, upper wing covers are metallic-blue-black



while the legs and the front part of the thorax (just behind the head) are orange-red. They overwinter in old hay, in wheat and corn stubble, within

hollow weed stems, along fence rows, and under the bark of trees. From these places they migrate in the spring to native grasses, and from here to

winter wheat and barley and finally to oats.

The table below contains suggestions for control of cereal leaf beetle:

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## BARLEY, OATS, RYE, AND WHEAT

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PROGRAM	MATERIALS	WARNINGS
<i>Treatment — Pests When to control</i>	<i>Amount of actual chemical to apply per acre (unless otherwise directed)</i>	<i>Apply chemical no closer to harvest than number of days given</i>
<b>Foliage Treatment:</b>	<b>Sprays Applied by Ground Equipment:</b>	
The time to apply treatments is critical. If adults are numerous in early May, a spray is needed to protect spring-planted small grains and may be needed for heavily infested, late-planted fall grains.	Carbaryl (Sevin), 1 pound WP or SC. Apply in 7 to 15 gallons of water.	Do not apply carbaryl after the heads begin to form. (This allows for treating up to the time the tip of the head begins to show.) Carbaryl is very toxic to bees; avoid using it where they will be harmed. The insecticide presents no residue problem from drift onto alfalfa, clover, or pastures.
On all grains, whether planted in the fall or spring, a treatment will be needed when the larvae are numerous. This usually occurs the latter part of May and the first week of June.		Effectiveness of Carbaryl has been affected adversely by too low gallonage of water applied per acre. Consequently do not apply less water per acre than herein suggested. See warnings under malathion for information on temperature regarding carbaryl.
<i>Please note:</i> The above information on when to apply treatments for adults and grubs is based on average weather conditions. Because these conditions vary from season to season, further instructions will be given next spring and early summer as to the best time to treat oats, wheat, rye, and barley for cereal leaf beetle.	or Malathion, 1 pound EC. Apply in 7 to 15 gallons of water.	7 days. Malathion presents no residue problem from drift onto alfalfa, clover or pastures.
	or Azinphos (Guthion), ½ pound EC or WP. Apply in 7 to 15 gallons of water.	Note: When applying malathion or Guthion, air temperatures should be 65° F. or higher; for carbaryl, 55° F. or higher. For the most part, rising temperatures are preferred to falling temperatures when applying these chemicals.
		30 days. This also includes grazing. Use only once per season. Allow 16 days between drift of the insecticide onto alfalfa and clover and harvest or grazing of these crops. <i>Do not use on rye or barley.</i> See warnings under malathion for information on temperatures regarding azinphos (Guthion).
	<b>Sprays Applied by Aircraft:</b>	
	Interest is increasing in the use of aircraft for treating cereal crops for insects. This method requires the same attention to proper timing of treatments, thorough application, and choice of pesticides as does control by ground equipment. Chemical drift usually, is more critical with aircraft than with ground equipment. Hence, the information on drift precautions in the	

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**BARLEY, OATS, RYE, AND WHEAT**


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PROGRAM	MATERIALS	WARNINGS
<p><i>Treatment — Pests</i> <i>When to control</i></p>	<p><i>Amount of actual chemical to apply per acre (unless otherwise directed)</i></p> <p>column on warnings must be heeded carefully. Use one of the following insecticides for aircraft application:</p> <p>Carbaryl (Sevin), 1 pound WP or SC. or Malathion, 1 pound EC. or Azinphos (Guthin), ½ pound EC or WP. (Note: Apply any of the above three materials in 1 to 4 gallons of water. Higher gallonages are especially beneficial when using carbaryl). or Malathion, ½ pound ULV (ultra low volume undiluted concentrate spray.)</p> <p>Malathion ultra low volume spray is applied in a concentrated form without water. It is presently applied by aircraft equipped with special nozzles. Only malathion is registered for application by the ultra low volume method.</p>	<p><i>Apply chemical no closer to harvest than number of days given</i></p> <p>Because of the danger of contaminating nearby crops with more persistent and highly toxic insecticides, only carbaryl (Sevin), azinphos (Guthin), and malathion are suggested herein for aircraft application for control of cereal leaf beetles. Apply one actual pound of either malathion or carbaryl, or ½ pound of azinphos (Guthin) in no less than one gallon of water. Apply the aircraft treatment at no more than 10 feet above the crop and when the wind is less than 8 miles per hour.</p> <p>Warning: Use the same warnings for aircraft application of carbaryl, azinphos, and malathion as given for ground equipment. Precaution: Carbaryl may cause an increase in aphids and is not suggested for the May-early June spray when these insects are present in fields.</p>

Read the package label for instructions on how to use insecticides safely. It is better to read this information today than to worry about mistakes tomorrow.

