

Cereal Leaf Beetle

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The cereal leaf beetle is a small, Chrysomelid beetle, which has been associated with wheat and other cereal grains for many years. Adults have a greenish body, reddish thorax, and a black head (fig. 1). Eggs, which can be found on the leaf surface, are orange in color (fig. 2). Larvae, resembling small slugs, have a light yellow body with brown head and legs. Because the larvae are covered with fecal material, they usually appear black (fig. 3). Larval feeding will result in the leaves, especially the flag leaf, becoming whitish in color because of the loss of green leaf material (fig. 4). A result of this defoliation is a frosty appearance of the field.

During the 1960s and 1970s, parasitoids were introduced that kept the cereal leaf beetle below economic levels. For unknown reasons, these parasitoids are losing their effectiveness, which is leading to localized problems on wheat and other cereal grains. These problems have been especially a concern on oats in Ohio. Thus, in many areas of the state, the potential for cereal leaf beetle problems requires watching on the part of growers.

Assessment and Prevention of Injury

There is currently no information or thresholds available for how many adults might lead to economic injury by larvae. However, taking sweep samples will give growers an indication of the relative population

size. Sweep net samples are made by taking 10 sweeps per sample while walking through the wheat. Collections of only 2–5 adults in 10 sweeps suggest a low population. When more than 10 adults are collected, or >1 per sweep, growers should make a note that the field has a sufficient adult population and that the field should be sampled weekly to monitor the larval population.

Larvae are sampled by examining 10 stems from at least 5 locations within the field. The small, yellowish larvae should be counted and an average obtained of the number of larvae per stem, or flag leaf. The current threshold for determination of the need for treatment is 3 larvae per stem up to the boot stage, followed by a threshold of 1 larva per stem or flag leaf at boot stage and thereafter. When the threshold for larvae is reached, insecticides might be necessary to reduce larval numbers.

As the wheat begins to mature, the need for spraying diminishes. The health of the flag leaf is important to maintain good yields and test weights; however, the importance of keeping these plant parts healthy with chemical applications diminishes once grain fill is complete. The extent of the yield loss resulting from defoliation depends largely on when defoliation occurs relative to grain fill, the variety involved, and the weather conditions. Losses resulting from damage to the upper

Photo by H. Wilson



Figure 1. Adult cereal leaf beetle.

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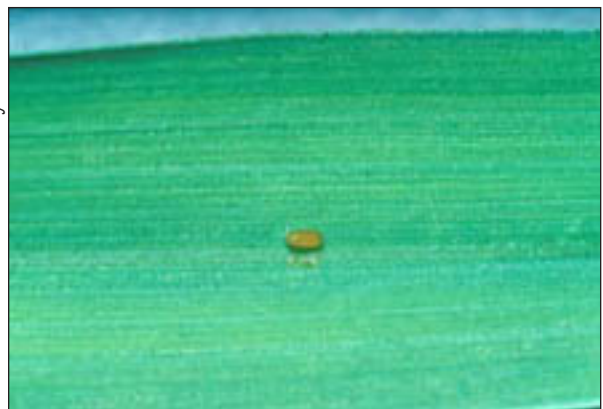


Figure 2. Cereal leaf beetle eggs.



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Figure 3. Cereal leaf beetle larvae.

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Figure 4. Cereal leaf beetle larval feeding damage.

two leaves tend to be highest when defoliation occurs shortly after pollination (which coincides closely with flowering), before grain fill is complete. If defoliation occurs toward the end of grain fill, losses will likely be much lower. If leaves are destroyed at such a late growth stage, sugars will be redistributed from other green plant parts, such as the spike and stems, to compensate for the loss of the upper leaves.

Growers should pay close attention to the pre-harvest intervals for the various insecticides that range from

7 to 30 days. Of special note, there is one material, Entrust, available for the organic wheat grower that is OMRI listed for control of the cereal leaf beetle larvae. This is a product made from a fermentation process of a living organism.

See Ohio State University Extension Bulletin 545, *Control of Insect Pests of Field Crops*, for those insecticides labeled for cereal leaf beetle, or for all insecticides labeled on wheat. Bulletin 545 can be accessed at <http://entomology.osu.edu/ag/>.

This publication refers to pesticide recommendations in Bulletin 545 that are subject to change at any time. These recommendations are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. Due to constantly changing labels and product registration, some of the recommendations given in this writing may no longer be legal by the time you read them. If any information in these recommendations disagrees with the label, the recommendation must be disregarded. No endorsement is intended for products mentioned, nor is criticism meant for products not mentioned. The authors, Ohio State University Extension, and the Ohio Agricultural Research and Development Center assume no liability resulting from the use of these recommendations.

Additional information is available from your local Extension office or The Ohio State University Entomology Agronomic Crops Insects web site (<http://entomology.osu.edu/ag/>).

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