

# Insects

## The Cereal Leaf Beetle in Tennessee

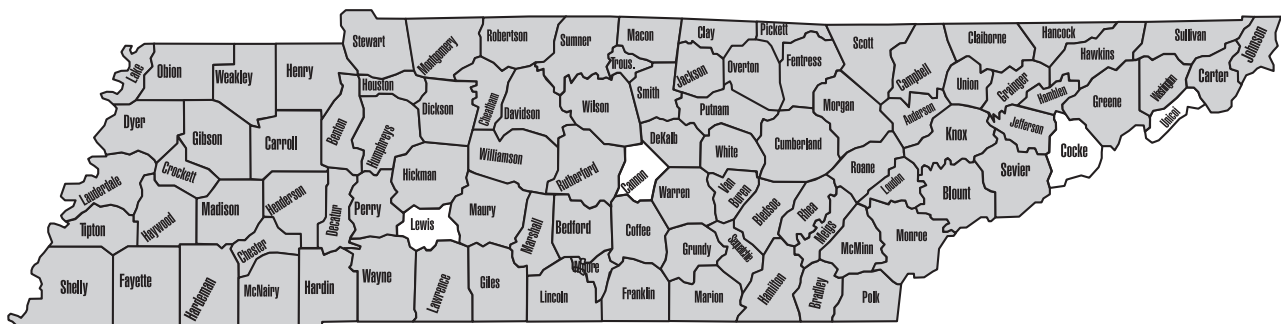
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### Introduction

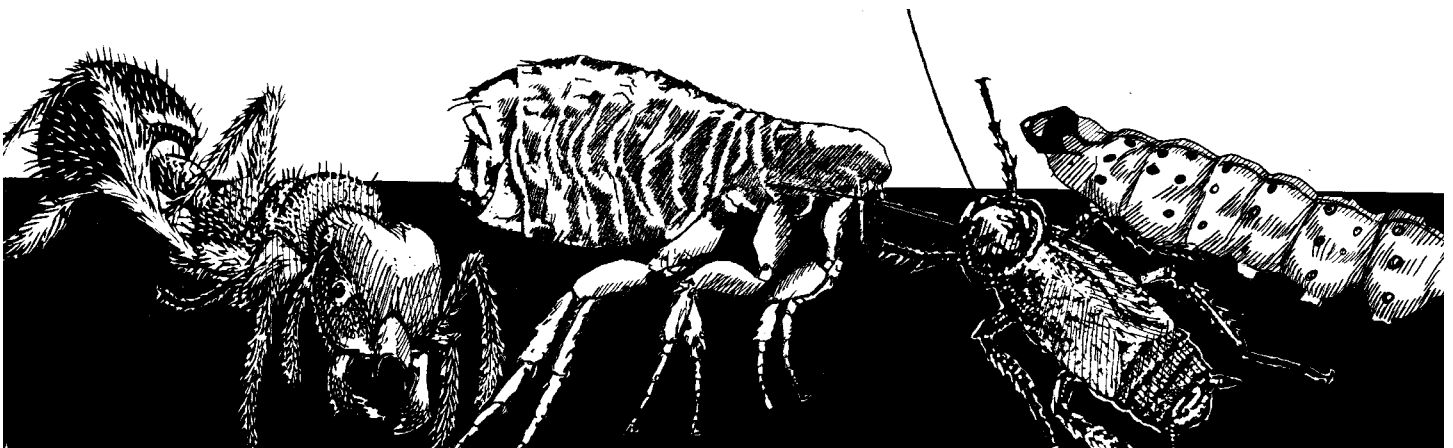
The cereal leaf beetle is a serious pest of small grains in many parts of the world. The insect was first identified in the United States in 1962 in Michigan. Since then, it has migrated into the surrounding states, as well as into Kentucky and Tennessee. The cereal leaf beetle has been reported in 93 counties in Tennessee and may be present in other counties as well (*Figure 1*).

### Life History and Description of Insect

The adult beetle (*Figure 2a*) is approximately 3/16 inch long; the male is slightly smaller than the female. The wing covers are metallic blue-black. The legs are red, and the segment just behind the head is also red. The eggs are about 1/16 inch long and are yellow, cylindrical and rounded on each end. Eggs turn darker just prior to hatching. Upon hatching, the larva is yellowish with brownish-black legs. The larva deposits a globule of blackish fecal material on its back.



**Figure 1.** Distribution of the cereal leaf beetle in Tennessee. *Counties marked to show distribution of cereal leaf beetle.*



**Figure 2.**



*a. Larval Damage*

This globule is moist and easily removed upon any contact with the insect's body. The larva is approximately inch long when fully grown (*Figure 2b*).

The female adults deposit their eggs on the upper surface of the leaves of the host plant leaves. In about three to four days, the eggs hatch. The larvae will feed on the host for three to four weeks. When the larvae are full grown, they enter the soil for pupation, which takes about a week to 10 days. After adult beetles emerge from the soil, they feed for about seven days and migrate away from the field. They return to the field in the following spring. Overwintering occurs in the adult stage in field trash, grain stubble or behind the sheaths of corn plants. There does not appear to be more than one generation of cereal leaf beetle each year in Tennessee.

## Damage

Adults and larvae damage grain crops in Tennessee. Small grains, such as oats, barley, rye and wheat, are attacked. Corn is also attacked, but the damage to this crop has been minimal to date.

Adults and larvae feed on the leaves of the host plant, chewing out long strips of foliage between the veins. Heavy feeding gives plants a yellowish-white, frosted appearance. Some heavily damaged fields take on a whitish appearance. Someone walking through a field where a large number of larvae are present will notice a wet, black residue on clothing from the fecal globules on the larvae.



*b. Larva feeding on leaf.*

## Control and Economic Threshold Levels:

25 eggs and/or larvae per 100 tillers

- The new economic threshold is based on the number of eggs and small larvae present, rather than large larvae.
- Proper use allows fields at risk to be identified and treated in time to prevent significant yield loss.
- Eggs and small larvae are easy for growers and scouts to locate on leaves in the spring, and the sampling system is relatively easy and time-efficient.

Recently acquired data from research have shown that wheat fields with thicker stands are not damaged as much as fields with thinner stands. Data from other states indicate that heavier seeding rates tend to discourage cereal leaf beetle infestations.

Future research efforts will include parasite introduction to control cereal leaf beetle populations in Tennessee. Michigan has achieved control of cereal leaf beetles by the introduction and establishment of insect parasites.

The following materials are recommended for cereal leaf beetle control on wheat, oats and barley:

Material	Rate/Acre	Precautions
Furadan 4F	1/2 pt.	Wheat, oats, barley. See label. Very toxic. See label for restrictions.
Lannate LV	3/4 - 1 1/2 pts.	See label.
Sevin XLR Plus	1 qt.	Wheat only. See label.
Warrior T	2.5 - 3.8 ozs.	See label.

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