

# Corn Blotch Leafminer

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Corn blotch leafminer (*Agromyza parvicornis*) is an insect that is present in every Michigan corn field, at very low levels, on lower leaves in the canopy. CBL was first described in the mid-1800s in the Midwest, but it is found across the U.S. Besides corn, its host range includes other grass species such as millet, crabgrass, and barnyard grass. Information on CBL is slim, since the only detailed report on its biology was published in 1914. Fortunately, it is rarely a pest, held in check by biological control and environmental conditions. However, sporadically, fields can support huge populations of this insect, and damage can be impressive, as shown in this bulletin.

## Biology

Adults are small, black flies. Females make tiny feeding wounds (bottom) on leaves, and lay eggs on the leaf surface. The larvae (maggots) tunnel between the leaf layers and feed using hook-like mouthparts, described by Phillips in 1914 as being used "in much the same manner as a hoe". As the maggots grow, the tunnels get wider. In heavy infestations, the entire leaf is mined by multiple larvae. The foliage dries up and shrivels, giving the plants a frosted appearance. When larvae are mature, they chew out of the leaf and drop to the soil to pupate. There are several generations per summer, but the first generation is the most noticeable because it attacks smaller plants.



CBL  
adult



Left: Above, CBL maggot inside its mine. Below, thin layer of leaf tissue removed to expose the maggot.

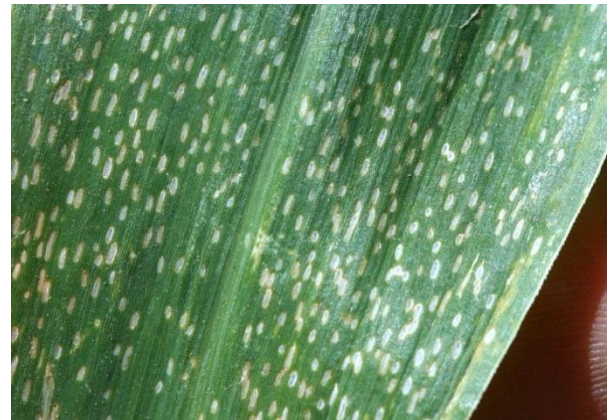


CBL pupae



Feeding punctures, made by female flies using the ovipositor, are characteristic signs of a heavy CBL infestation.

Lower leaves may be riddled with these tiny wounds.



## Damage

In the early 1900s, entomologists estimated that each CBL maggot consumed about  $\frac{1}{2}$  square inch of leaf tissue during its larval development. This isn't much – but if there are multiple maggots per leaf, the damage adds up. In Michigan fields, we have seen fields where the plants are riddled with mines, affecting entire lower leaves. This injury is permanent, because the leaves dry up and shrivel. The fields all had muck soil.



*Heavily infested corn field in a muck area, Gratiot County, MI*



## Management

In the isolated fields with significant CBL damage in Michigan, corn was attacked in the V7-V10 stage, when it was at least waist-high. The damage was mostly on lower leaves. While the mining looked ugly, little or no yield loss was anticipated by the end of the season. However, reports from the 1900s document CBL attacking corn seedlings, a more serious situation. Seedling attack was greater in cool springs, and perhaps more common then because of later planting dates.

Even if loss was documented, it is difficult to control leafminers with a foliar insecticide, since maggots are protected in the leaf. To kill adults, likely several applications would have to be made to encompass their egg-laying window over several weeks. More importantly, insecticide sprays would certainly disrupt the natural enemies in the system and lead to further problems. At least 18 different wasp parasitoids (an “army of parasites”) were described in the early 1900s, attacking CBL at such a high rate that “the chances that the miner will do serious mischief are reduced to a minimum”. Thus biocontrol is the most important factor keeping CBL in check.

CBL is a currently just a sporadic nuisance. However, the impact of milder winters on CBL overwintering and fly emergence isn't known. Further, the trend towards ‘insurance’ sprays may disrupt biocontrol of CBL. This is yet another reason to use insecticides only when needed.