

Managing western bean cutworm in field corn

Chris DiFonzo, Field Crops Entomologist
Michigan State University

Pictures credits: C. DiFonzo, B. MacKellar (MSUE), T. Baute (OMAFRA)

Western bean cutworm (WBC) is pest of field corn in the western U.S. Beginning in the early 2000s, WBC expanded its range eastward across the corn belt. It was first detected in Michigan in 2006. Since then, populations increased and larval feeding was detected in commercial corn fields in west and mid-Michigan (roughly the I-127/ I-75 corridor) in 2009. WBC causes both yield and quality loss, as feeding opens the ear to molds and fungi.

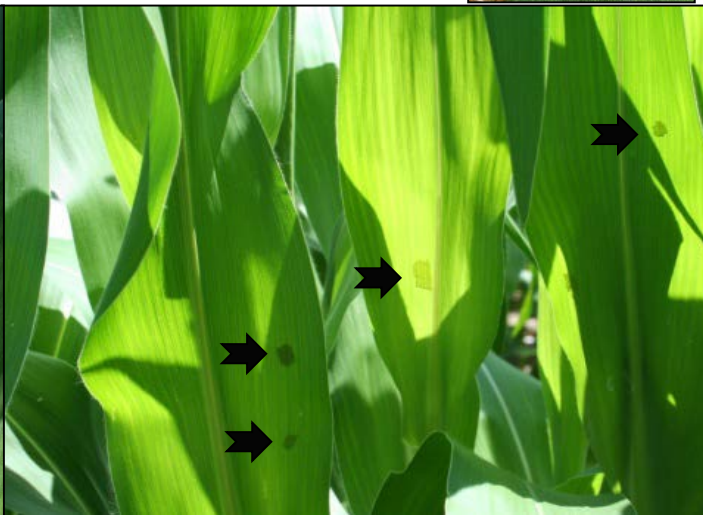
Pheromone Trapping: WBC moths fly at night and use smell, rather than sight, to find each other for mating. Female WBC release a specific chemical, called a pheromone, that attracts male WBC from great distances. The WBC pheromone has been artificially synthesized and is commercially available to monitor WBC populations. The most efficient trap is a bucket with a pheromone lure placed in a basket at the top. Males fly into the trap and fall into the bucket via a funnel. Check traps at least once per week, removing and counting the WBC moths. When trap catch peaks (generally **mid to late-July in Southern MI, late July to early August** in central and northern MI), begin scouting pre-tassel stage corn fields.



Bucket trap

Source for trap supplies: Great Lakes IPM
<http://www.greatlakesipm.com/>

Scouting for egg masses: Scout **pre-tassel or fresh-tasseling fields FIRST**, as lady moths prefer these stages for egg laying. Check 20 plants in 5 areas of the field for egg masses to determine % of plants infested. Egg masses are found on the upper surface of the top 3-4 leaves, often the flag leaf or the leaf immediately below the tassel (below left). Note that placing the sun behind a row may assist in finding egg masses by creating shadows on leaves (below right).



Color can help determine **egg mass age**. Eggs turn dark purple just prior to hatch.



Threshold: 5% or more plants with egg masses or small larvae (although newly hatched larvae may be difficult to see). This threshold is reached by **accumulating counts over 2-3 weeks**. It is critical to target spray applications so residue is present at or just after egg hatch. Thorough scouting allows you to target just the fields over threshold, since the WBC infestation in an area will be patchy, varying greatly from field to field based on crop stage. This saves money, and reduces the chance of WBC developing resistance to pyrethroids, something that entomologists are concerned about.

Wearing a cheap plastic face shield improves comfort & accuracy of egg mass scouting.



WBC Management with Foliar sprays

Use a **long-lasting pyrethroid** with 7-14 day residual to kill larvae that recently hatched, or are about to hatch. A ground rig with high pressure provides better coverage than an aerial application.

- The spray should be timed when egg masses and small larvae are present on the upper part of the plant. Larvae are difficult to control when they reach the ear zone.
- When tank mixing with a fungicide for ear mold control, spray timing may have to be adjusted a bit to be sure that fresh silks are present.

A note about Bt corn: Most Bt traits no longer provide adequate control of WBC, so most Bt fields in Michigan must be managed (ie scouted and sprayed) as if they are non-Bt corn. Only hybrids with the Vip trait continue to perform well against WBC.

- Note that Viptera hybrid availability may be limited in some parts of the Great lakes region.
- Scouting Vip corn is recommended later in the season to detect any unexpected damage. Report such damage to your seed dealer, agronomist or MSUE so the field can be checked

Later in the season, signs of WBC are easier to recognize, including holes chewed into the husk on the side of the ear and a distinctive scraping of the surface of dried kernels. Fields with heavy infestations should be noted because the quality of the grain may be reduced due to mold and fungal growth. Poor quality grain should be stored for a short time, or not at all, and moved off the farm as fast as possible.

