

Managing western bean cutworm in field corn

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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. A simple trap - a gallon milk jug with windows cut on four sides - is placed near a field. A pheromone lure is hung under the cap. Males fly into the jug and get trapped in the liquid at the bottom. Check traps daily, or several times a week, removing and counting the WBC moths. When trap catch peaks (generally **late-July into early August** in Michigan), begin scouting corn, starting with pre-tassel fields.



Pheromone Source: Great Lakes IPM
<http://www.greatlakesipm.com/>

Scouting for egg masses: Scout **pre-tassel or just-tasseling fields FIRST**, as females 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.



Just laid.....2– 3 days old.....4-5 days old.....hatch

Threshold: 5% or more plants with egg masses or small larvae (although newly hatched larvae may be difficult to see). Since the threshold is based on finding egg masses, scouting is critical to target spray applications so residue is present at or just after egg hatch (eggs are purple). Thorough scouting also 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.

Management	<div data-bbox="257 511 428 637"> Option 1: Pyrethroid spray </div> <div data-bbox="468 488 756 666"> </div>	<div data-bbox="928 511 1113 637"> Option 2: Transgenic corn </div> <div data-bbox="1149 488 1313 666"> </div>
<u>What</u>	<p>Long-lasting pyrethroid with 7-10 day residual to kill larvae that recently hatched or are about to hatch</p>	<p>Viptera and Cry 1F Bt corn (Herculex 1 & Xtra, SmartStax). Other Bts DO NOT control WBC.</p>
<u>Advantages</u>	<ul style="list-style-type: none"> • Spend money only on fields over threshold and requiring control. • Can spray any hybrid. 	<ul style="list-style-type: none"> • Control does not depend on scouting expertise or timing. • Efficacy may be better than an insecticide spray (Viptera).
<u>Limitations</u>	<ul style="list-style-type: none"> • Spray must be timed when egg masses & small larvae are present. • Lack of spray equipment or aircraft. • Control is not 100%. Still may have husk damage and quality issues. 	<ul style="list-style-type: none"> • Using Bt hybrids on uninfested as well as infested fields. • Cry 1F efficacy is limited, often providing suppression, not control. Yield loss and quality issues may still occur. Consider treating infested Cry1F hybrids.

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.

