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Black Cutworm Monitoring 2017

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Abstract
This is the time of year when calls about black cutworm (BCW) scouting dates start to roll in, especially when Corn Belt states to the east have reported high moth numbers in traps. Despite what is being observed in states to the east (Illinois, Wisconsin and Indiana), there have been relatively few captures in Iowa. Minnesota has also reported few captures this year, so Iowa is not the only state avoiding major moth flights so far in 2017.

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This is the time of year when calls about black cutworm (BCW) scouting dates start to roll in, especially when Corn Belt states to the east have reported high moth numbers in traps. Despite what is being observed in states to the east (Illinois, Wisconsin and Indiana), there have been relatively few captures in Iowa. Minnesota has also reported few captures this year, so Iowa is not the only state avoiding major moth flights so far in 2017.

Black cutworm moths arrive in Iowa with spring storms and lay eggs in and around fields. Emerging BCW larvae feed on winter annual weeds, cover crops and seedling corn leaves. Larvae cut seedling corn as they mature. Scouting is essential to determine if an insecticide application will be cost effective as these pests are sporadic in nature. When to scout for BCW caterpillars is based on the accumulation of degree days after a “peak flight” of moths occurs. Degree days are a measure of temperature used to gauge the developmental progress of the insect. A peak flight for BCW is defined as capturing eight or more moths over two nights in a wing style trap baited with a pheromone lure.
To find out when moths arrive in Iowa, cooperators around Iowa monitor pheromone traps and report moth captures. Cooperators started checking traps in the beginning of April, and the first BCW moth was captured in Woodbury County on March 24.

Generally, we use moth capture data to predict cutting dates for the nine climate divisions/crop reporting districts in Iowa. This year, however, we are reporting peak flights by county and providing degree day resources for more local cutting prediction dates using actual accrued degree days for a specific location. The reported peak flights in Iowa from April 1 thus far are below (Table 1), and we will continue to post new peak flight updates as they arrive to the Integrated Crop Management Blog.

**Table 1. Reported black cutworm peak flight dates from April 1 through May 9, 2017 in Iowa.**

<table>
<thead>
<tr>
<th>County</th>
<th>Peak flight date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marshall</td>
<td>April 14</td>
</tr>
<tr>
<td>Muscatine</td>
<td>April 16</td>
</tr>
<tr>
<td>Tama</td>
<td>April 16</td>
</tr>
<tr>
<td>Woodbury</td>
<td>April 24</td>
</tr>
</tbody>
</table>

Next, use this [degree day calculator](https://crops.extension.iastate.edu/cropnews/2017/05/black-cutworm-monitoring-2017) to determine when 300 degree days is approaching for your area based on any nearby peak BCW flights. Make sure the “Iowa Long Term Climate Sites” is selected for Available State and “Growing Degree Days (base=50)” for Select Parameter. Then input the peak flight date for the first set of dates and today’s date for the second set before clicking on the “Make Plot” button. The resulting map will show you how many degree days have elapsed since the peak flight.
As the degree days approach 300, keep a close eye on the map as you will want to be scouting a few days before the actual 300 scouting threshold in case your fields have experienced slightly different temperatures than the reporting stations on the map. Iowa counties near the border of Illinois should probably pay attention to IL cutting dates, which are posted at the University of Illinois’s *The Bulletin*.

It is important to remember that just because a peak flight has not been reported for your area, it doesn’t mean that fields won’t be injured by BCW larvae. Conversely, high trap captures don’t necessarily translate to high injury potential.

**Scouting.** Poorly drained, low lying or weedy fields, as well as those next to natural vegetation or with reduced tillage, may have higher risk of BCW injury. Cornfields with poorly terminated cover crops may also be attractive to egg-laying females. Late-planted corn may be more vulnerable to larval feeding. Some Bt hybrids provide suppression of BCW (e.g., Vip3A, Cry1A.105, Cry2Ab2, and Cry1F proteins), but larvae can still cut young plants.

Scouts are encouraged to look for any activity during early-season stand assessment, or at least several days before cutting dates. Fields should be scouted for larvae weekly until corn reaches V5. Examine 50 corn plants in five areas in each field for wilting, leaf discoloration and damage or plants that are missing or cut (Figure 1). Flag areas with suspected feeding and return later to assess further injury. Larvae can be difficult to locate, but can sometimes be found by carefully excavating the soil around a damaged plant.
Figure 1. Black cutworm larval injury usually begins above the soil surface. Leaf feeding (left) may be observed. As larvae mature, they can severely damage or kill plants (right). Photo on left copyright Marlin Rice; photo on right courtesy of Jon Kiel.

Identification. BCW larvae have grainy, light grey to black skin and four pairs of fleshy prolegs on the end of the abdomen (Figure 2). There are pairs of dark tubercles, or bumps, along the side of the body. The pair of tubercles nearest the head is approximately 1/3 to 1/2 the size of the pair closest to the abdomen (Figure 3). BCW larvae can be confused with other cutworms and armyworms. Certain characteristics can be used to tell species apart and are summarized in this article on cutworm identification.

Figure 2. Black cutworm larvae have grainy and light grey to black skin. Photo by Adam Sisson.
Figure 3. Black cutworms (left) can be distinguished from other larvae, like the dingy cutworm (right), by the dark tubercles on the middle of the back. On each segment, the tubercle closest to the head is about 1/3 the size of the tubercle closest to the rear for black cutworm. Corresponding dingy cutworm tubercles on each segment are roughly the same size. Photos by Adam Sisson.

Thresholds. Common thresholds for seedling, V2, V3, and V4 stage corn plants are 2, 3, 5, and 7 plants cut out of 100, respectively. A dynamic threshold for BCW may be useful with corn price and input fluctuations. An spreadsheet with built-in calculations is available for download and can be used to help with black cutworm management decisions.

Preventive BCW insecticide treatments applied as a tank-mix with herbicides are a questionable practice. BCW is a sporadic pest and every field should be scouted to determine insect presence before spraying insecticides.

If you see any fields with BCW larvae while scouting, please let us know by sending a message to ajsisson@iastate.edu. This information could help us to refine future predictions.

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