

Corn rootworm updates

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What happened this year?

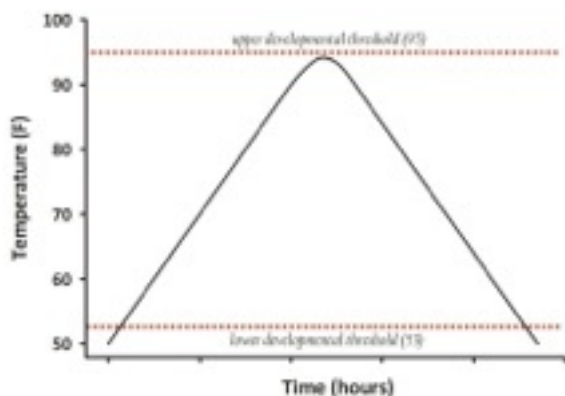
- Corn rootworm egg hatch was 2-3 weeks behind average (avg = 6 June for central IA).
- About 50% egg hatch happens between 684-767 accumulated soil degree days.
- Adults are emerging throughout Iowa.
- Now is the time to assess for root injury from larvae. Use ISU 0-3 root injury scale.



Corn rootworm larvae will feed and prune roots - reducing yield and making plants unstable.

How long will adults emerge?

- Based on accumulating air temperatures and biofix (first adult capture):
 - * WCR Males: 50% (118 DD), 90% (278 DD), 100% (505 DD)
 - * WCR Females: 50% (245 DD), 90% (429 DD), 100% (629 DD)
 - * NCR Males: 50% (169 DD), 90% (348 DD), 100% (570 DD)
 - * NCR Females: 50% (268 DD), 90% (449 DD), 100% (643 DD)
- Males emerge 5-7 days before females; mate immediately.
- Emergence could last 3-5 weeks after biofix depending on temperature.
- Females deposit eggs 10-14 days later, and continue for at least 30 days (350-400 eggs).



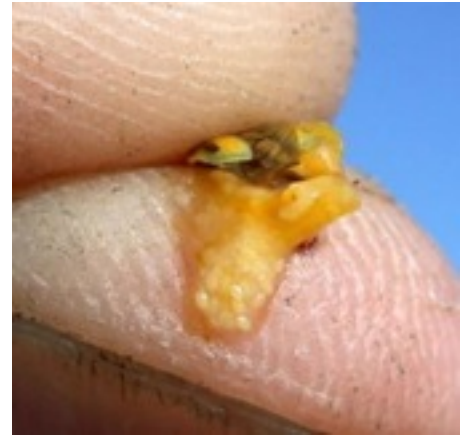
How to estimate degree days =
 $[(Max\ temp + Min\ temp)/2] - lower\ dev.\ temp.$

Example: $[(94 + 50)/2] - 53 = 19$

Add Day 1 + Day 2 + ... + today to estimate accumulated degree days for the season.

What about adult control during silking?

- Leaf feeding will not impact yield.
- Adults can interfere with pollination if they emerge before/during silking.
- Plants do not tolerate as much silk feeding in hot and dry weather.
- Late-planted or late-maturing hybrids are attractive to adults.
- Consider a foliar insecticide if: 5 or more beetles per plant under drought-stressed conditions (15 or more beetles per plant under ideal moisture conditions); AND silks have been clipped to less than 1/2 inch of the ear tip; AND pollination is not complete.
- Also, consider other pests that may be silk feeding (e.g., Japanese beetle).



Start scouting for adult corn rootworm during silking to make sure feeding is not interfering with pollination. Be sure you can identify the males* (black smudges or indistinct lines on forewings). Squish females with extended abdomens to confirm mature eggs.

Sample adults to determine action next year

- Plan for larval management the following season if beetles exceed 1-2 beetles per plant.

Action threshold for adult corn rootworm

Plants/ Ac	Avg beetle density <i>(continuous)</i>	Avg beetle density <i>(first year corn)</i>
14,000	1.4	1.0
16,000	1.3	0.9
18,000	1.1	0.8
20,000	1.0	0.7
22,000	0.9	0.6
24,000	0.8	0.6
26,000	0.8	0.5
28,000	0.7	0.5

What about timing adult control after silking?

- Adult suppression to reduce egg laying is difficult to time properly.
- Spraying at the first sight of beetles will kill males.
- Scout 2x/week for 6-8 weeks, learn to distinguish males and females.
- Plan for 2-3 targeted applications when females are gravid (mature eggs).
- Use "squish" test to look for mature eggs.

Guide to ISU 0-3 Node-Injury Scale

Developed at Iowa State University

Begin by looking for a circle of roots being completely destroyed or pruned back to within 1 1/2 inches of the stalk. If that isn't apparent, then work down the scale to 0.00. If at least one node is gone, then work up the scale to 3.00. Approximately 10 roots is equivalent to one node.

0.00 =	no damage
0.02 =	feeding scars
0.05 =	severe scarring or only the tips of several roots pruned
0.10 =	approximately 1 root eaten
0.25 =	1/4 node eaten
0.50 =	1/2 node eaten
0.75 =	3/4 node eaten 1
1.00 =	node eaten
1.25 =	1.1/4 nodes eaten 1
1.50 =	1/2 nodes eaten 1
1.75 =	3/4 nodes eaten 2
2.00 =	nodes eaten
2.25 =	2.1/4 nodes eaten 2
2.50 =	1/2 nodes eaten 2
2.75 =	3/4 nodes eaten 3
3.00 =	nodes eaten

To help visualize corn rootworm injury, try this interactive node-injury scale demo developed at ISU Entomology, www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html.

What is my current corn rootworm management strategy?

What is my average corn rootworm injury rating?

Should I consider changing anything for next year?