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Stalk borers--on the edge, in your corn

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Abstract

Stalk borers are notorious for killing or stunting corn rows next to fences, grassed waterways, and conservation terraces. To stop this damage, fields must be scouted on a timely basis if an insecticide is the method of control.

Keywords

Entomology

Disciplines

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the plant within the field by dragging rhizome pieces throughout the field. While horsetail is not listed on the label, products containing flumetsulam (Python[®], Hornet[®]) are reported to have activity on this weed. Horsetail is listed on the Permit[®] label.

A bulletin providing more information on the biology and management of horsetail is available on the Iowa State University Weed Science Web page: <http://www.weeds.iastate.edu/mgmt/2006/horsetail%20.pdf>.

Bob Hartzler and Mike Owen are professors of agronomy and weed science extension specialists with responsibilities in weed management.



Insects and Mites

Stalk borers—on the edge, in your corn

by Marlin E. Rice and Rich Pope, Department of Entomology

Stalk borers are notorious for killing or stunting corn rows next to fences, grassed waterways, and conservation terraces. To stop this damage, fields must be scouted on a timely basis if an insecticide is the method of control.

Stalk borers in grass

Stalk borer larvae have already hatched in Iowa and most of the larvae are now inside brome grass, other grasses, or giant ragweed. However, a few stalk borers may already be in corn because they moved there first instead of to grass. Stalk borers in brome grass eventually kill the grass, causing “dead heads” (see photo). When the larvae get too large for the grass stems, they crawl out in search of larger diameter plants, including corn.

Degree days and migration

Early June is the predicted time for southern Iowa when stalk borers will move out of grass and into corn across most of Iowa, except for the southwestern counties. Approximately 10 percent of the larvae will move out of the grass by 1,400 degree days (base 41 °F) and 50 percent of the larvae will have moved by 1,700 degree days. When 1,300–1,400 degree days have occurred in your area (see map), scout to determine whether the larvae are moving into corn. These dates predict when 10 percent of the larvae will move into corn.



Stalk borers in brome grass stems create “dead heads” and then migrate to larger stemmed plants, such as corn. (Marlin E. Rice)



Crop reporting district and 10 percent migration predicted.



A young stalk borer is identified by the black stripe on the orange head, and the purple “saddle bags” behind the legs. (Marlin E. Rice)

Scouting border rows

Scout corn adjacent to grass terraces, waterways, ditches, and fencerows, and especially those areas where stand loss has occurred in previous years. Stalk borers don't crawl very far from grass, so only the first four rows of corn next to grass would need to be sprayed. Look for small larvae resting inside the whorls or for new leaves with feeding holes. Larvae feeding in the whorl, but that haven't tunneled into the plant, can be killed with an insecticide. The smaller the corn, the more likely it is to be killed by stalk borers. Once corn reaches the 7-leaf stage (V7 stage), stalk borers are unlikely to kill the plants.

Fields with weeds

An exception to the border row problem is when weedy grasses or giant ragweed are growing throughout a corn field. If these weeds are killed with herbicides, the stalk borers move out of the weeds and into the corn. Stalk borers can destroy a corn stand under these circumstances. To prevent this destruction, an insecticide (Table 1) should be tank mixed with the herbicide (if it is a fast burndown herbicide) or the field should be sprayed with the insecticide approximately 7 days after the herbicide (if it is a slow burndown herbicide). Be sure to read the insecticide label before mixing pesticides.

Bt corn

In some of our experiments, we have found that Bt corn (YieldGard® hybrids) suppresses or slows down stalk borer injury. Bt corn does not have the same effect on stalk borers as it does on European corn borers, so don't expect complete control of this pest in Bt corn. We have not evaluated Herculex® Bt hybrids, so we are unfamiliar with the performance of this technology against stalk borers.

Economic thresholds

Economic thresholds can help in deciding whether to apply an insecticide (Table 2). These thresholds are based on the percentage of infested plants, and assume \$13 per acre control costs and 80 percent control with an insecticide. If the number of infested plants in the first four rows of corn (adjacent to grass, terraces, fencerows) exceeds the percentage given for the plant stage, an insecticide application can be economically justified. Young plants have a lower threshold because they are more easily killed than older plants. Scouting is not necessary beyond the V7 developmental stage in corn.

Table 1. Insecticides labeled for stalk borers.

Insecticide	Rate per Acre (Low and High Rates)
Ambush 2E	6.4–12.8 ounces
Asana XL	5.8–9.6 ounces
Baythroid 2	1.6–2.8 ounces
Capture 2EC	2.1–6.4 ounces
Discipline 2EC	2.1–6.4 ounces
Lorsban 4E	1–2 pints
Mustang Max	2.72–4 ounces
Nufos 4E	1–2 pints
Pounce 3.2EC	4–8 ounces
Warrior 1E or T	2.56–3.84 ounces

Read and follow all label directions.

Table 2. Commonly available insecticides labeled for stalk borer control in corn. Stalk borer economic thresholds at \$2/bushel of corn.

Leaf Stage	% Infested Plants
1	10
2	12
3	15
4	16
5	17
6	34
7	100

Marlin E. Rice is a professor of entomology with extension and research responsibilities in field and forage crops. Rich Pope is an extension program specialist in entomology with responsibilities in integrated pest management.