

How Can Harvest Help Determine Future Insect Pressure in Corn?

Are random kernels damaged or are ears banana-shaped?

This kind of damage could indicate the presence of stink bugs. Kernels may have scars or appear bruised and dark. Kernels may be mottled in appearance, especially close to the tip of the ear. Heavy stink bug pressure early in the season can lead to deformed, banana-shaped ears. Damage may be caused by brown marmorated, brown, or green stink bugs.¹ The following crop should be closely scouted for stink bug damage and managed accordingly, especially if the field has a history of damage.

Is there feeding down the ear or do corn ears have rotten tips?

Late-season damage from corn earworm (Figure 1), fall armyworm, western bean cutworm, and European corn borer can damage corn ears and lead to increased incidence of disease and rot.⁴ Above ground traited corn products with protection from damage by these insects are available. However, large moth flights of corn earworm can lead to cannibalism among the larvae, which allows the larvae to

get to a large enough size to tolerate the *B.t.* toxin, resulting in subsequent damage.



Figure 1. Corn earworm damage to ear.

Was pollination incomplete?

In some cases, insects feed on silks during pollination causing incomplete pollination. This can occur when silks are clipped to less than ½-inch long prior to pollination. Although the insects that caused the clipping prior to pollination are no longer a threat to this year's crop, corn should be scouted for grasshoppers, corn rootworm beetles, corn earworm, and Japanese beetles the following year, as these insects can feed on silks.⁴

Is the crop affected by stalk or root lodging?

Lodged corn has damaged or broken stalks below the ear and can cause substantial harvest delays and losses. Heavy rain and wind can lead to stalk lodging, and damage by European corn borer can be severe. European corn borer larvae tunnel into the stalk or ear shank leading to broken stalks and dropped ears. Stalk lodging is also caused by stalk rot pathogens, which can be introduced by damage from European corn borer and corn rootworm. Corn rootworm larval feeding can also cause root lodging in corn (Figure 2).



Figure 2. Lodging as a result of corn rootworm feeding.

Use of above ground traited corn products with protection from European corn borer and below ground traited corn rootworm should be considered in subsequent years.³

Is the grain contaminated by aflatoxin?

Corn contaminated by aflatoxin has been infected by either *Aspergillus flavus* or *Aspergillus parasiticus*. These molds occur more often when insects feed on corn grown during droughty, high-temperature conditions. A felt-like, greenish-yellow to yellowish-brown mold can be found near insect damage on or between kernels (Figure 3). Samples can be taken during harvest by sampling during grain loading by passing a cup multiple times within a stream of grain. It is important to



take multiple samples as distribution is not even within the field. Rapid tests are available for in-field testing.²

Figure 3. Corn ear affected by aflatoxin.

Sources (verified 07/03/19)

¹ Stink bug kernel injury. 2019. The Ohio State University. <https://u.osu.edu/mastercorn/stink-bug-kernel-injury/>.

² Wrather, A., Sweets, L., Bailey, W., Claxton, T., Sexten, J., and Carlson, M. 2010. Aflatoxins in corn. University of Missouri Extension. G 4155. <https://extension2.missouri.edu/g4155>.

³ Nielsen, B. and Colville, D. 1988. Stalk lodging in corn: Guidelines for preventive management. Purdue University. AY-262. <https://www.extension.purdue.edu/extmedia/AY/AY-262.html>.

⁴ O'Day, M., Becker, A., Keaster, A., Kabrick, L., and Steffey, K. 1998. Corn insect pests – A diagnostic guide. University of Missouri Extension. <https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/16081/CornInsectPests.pdf?sequence=1&isAllowed=y>.