



# Agronomic Spotlight

## Managing Stink Bugs in Corn and Soybean

- Stink bug populations can increase after a mild winter and in cropping systems that use no-till and/or cover crops.
- Stink bugs are commonly found on corn in the beginning of the growing season and soybeans later in the season.
- Insecticides should only be used when stink bug populations reach economic thresholds.

### Management Practices that can Increase Stink Bug Populations

Stink bugs are a significant crop pest in the southern United States, but have recently become more prevalent in the northern states as well. Stink bugs feed on a wide range of crops and vegetation, including corn and soybean. Stink bugs generally cause damage to corn in the beginning of the growing season and then feed on soybeans later in the season. In some regions, increased soybean acreage may be a factor for the increased stink bug damage noted in corn fields. Stink bug populations can also increase from any practice that increases winter ground cover, such as no-till management and/or cover crops, which provide overwintering sites. Increased stink bug populations, increased overwintering sites, and mild winters that improve the chances of overwintering survival increase the probability for stink bug damage to young corn plants in the spring. The following field management practices can result in increased stink bug populations:

**No-till.** Stink bug damage may be more severe in corn planted in no-till fields. Damage from stink bug feeding may occur throughout the field when stink bugs have overwintered in crop residue, while damage is typically limited to border rows in fields with conventional tillage. Figure 1 shows how different amounts of ground cover can increase stink bug damage in the same field. The section of the field that received conventional tillage with minimal soil residue produced normal corn ears. The area of the field with stubble residue had increased stink bug pressure which resulted in some abnormal ear growth.

**Cover crops.** Cropping systems that include cover crops are especially at risk for stink bug damage. A cover crop provides an overwintering site and an early spring food source. Stink bug populations can build on the cover crop and then move to emerging corn plants, and then to soybeans. Corn planted after a wheat or rye crop is more likely to have stink bug issues.

**Improper planting.** Stink bugs can access and feed on the underground stem and growing point of small corn seedlings when seed slots are not closed properly during planting. This may occur when soil is too wet or dry or when planter settings are not properly adjusted.

### Scouting for Stink Bugs

When scouting for stink bugs in corn or soybean fields, concentrate on field edges first as initial outbreaks usually occur in border rows. If stink bug damage is noted on the field edges, further examination of the interior of the field is needed.



Figure 1. The section of the field with little residue (top) had no stink bug damage and produced normal corn ears while the section of the field with wheat stubble (bottom) showed signs of stink bug damage and produced abnormal corn ears with reduced yield potential.

**Corn.** Scout for stink bugs during the two weeks following corn emergence to protect plant stands. Scout for stink bugs as you would for other seedling pests. Walk a zig zag pattern through the field looking for gaps between plants where seedlings did not emerge, and for plants that are wilted, discolored, or show signs of foliage feeding. Plants showing symptoms should be dug up to identify any pests that may be present and to document feeding injury to the seed, growing point, or roots.

Continue scouting for stink bugs through pollination to protect the developing ear. Look for stink bugs on the stalk, especially in the area where the ear is beginning to form. Note the extent of damage and count numbers of stink bugs (large nymphs and adults) per plant as economic thresholds will be based on these parameters. Closely monitor fields with a history of stink bug injury, and corn crops following a cover crop, with residue cover, and after a mild winter.

**Soybean.** Stink bug populations generally do not exceed economic thresholds on soybean in the vegetative growth stages through flowering (R2). Weekly scouting should begin at early pod development (R3). Sampling for stink bugs can be done with sweep nets in narrow row

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soybean plantings; however, the brown marmorated stink bug is often hard to sample in this manner and may require inspections of individual plants to count insects per foot of row.

## Management Options

Economic thresholds have been established in southern and eastern regions of the U.S. where stink bugs have been a significant economic pest and researchers have been studying their impact for many years. Thresholds are still being developed in many northern states where stink bugs have only recently (past 15 years) become a significant problem. Many of these northern regions have adopted thresholds used by the neighboring states to the south until region-specific thresholds are established. Check with local university extension for economic threshold recommendations in your area.

To protect corn stands, insecticidal rescue treatments may be necessary when stink bug populations reach economic thresholds during the seedling stage. It is also critical to protect corn from stink bug feeding during the pre-tassel stage when the ear is forming, as feeding during this time can be very damaging and result in severely deformed ears (Figure 2). To protect soybean yield and quality, pod establishment and elongation (R3-R4) through seed fill (R5.5) are the critical stages for considering insecticide treatments if stink bug populations have reached economic thresholds (Figure 3).

Damage to crops may be most severe near tree lines, and field perimeter treatments may temporarily stop a stink bug invasion; however, such treatments may be effective for only a short time as adult stink bugs are strong fliers and can move in and out of fields as well as move farther into the field. Many insecticides are effective against stink bugs; however, differences in control are often observed between brown stink bugs and green stink bugs, with some insecticides, such as pyrethroids, being more effective on green stink bugs. Check with local university extension for products approved and recommended for stink bugs in your region.

For effective control of stink bugs, insecticides must be delivered into the crop canopy at high volumes to reach the insects hiding within the foliage. Aerial insecticide applications are not as effective as ground applications when crops have full canopies unless appropriate water volumes are used to sufficiently penetrate the canopy. Ground applications are more effective because they generally use higher volumes which provide better spray coverage and better canopy penetration.

Seed treatments may provide some stink bug protection for a short time after emergence. Early burndown of a cover crop can help reduce stink bug populations. Removal of the food source several weeks before planting will help drive away the stink bugs that may have overwintered in the cover crop.

For information on identification and damage caused by stink bugs, see the Spotlight **Stink Bugs in Corn and Soybean**.



Figure 2. Varying degrees of stink bug damage to corn ears.



Figure 3. Stink bug damage to soybean pods and seeds. Photo Courtesy of Ric Bessin, University of Kentucky.

## Sources

<sup>1</sup> Roberson, R. Stink bugs threaten Southeast corn crop. 20 May 2010. Southeast Farm Press. <http://southeastfarmpress.com>; <sup>2</sup> Townsend, L. and Bessin, R. Stink bug damage to corn. University of Kentucky. <http://www2.ca.uky.edu>; <sup>3</sup> Akin, S. A guide for scouting insects of field corn in the mid-southern U.S. Arkansas Corn and Grain Sorghum Board; <sup>4</sup> Reisig, D. 2014. Stink bugs in corn. North Carolina State University Extension. <https://entomology.ces.ncsu.edu/2014/07/stink-bugs-in-corn/>; <sup>5</sup> Hooks, C.R.R. 2011. Stink bugs and their soybean obsession. University of Maryland. Agronomy News. Vol. 2, Issue 9; <sup>6</sup> Hunt, T., Wright, B. and Jarvi, K. Stink bugs reported in corn and soybeans. CropWatch. University of Nebraska-Lincoln Extension; <sup>7</sup> Michel, A., Bansal, R. and Hammond, R.B. 2015. Stink bugs on soybeans and other field crops. Ohioline. Ohio State University Extension. Web sources verified 7/5/16. 140205080250

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