

Managing Billbugs in Corn

Southern corn billbug (*Sphenophorus callosus*) can cause damage from emergence through 6- to 8-leaf corn growth stages in the southeast United States.¹ This pest damages corn over the entire Coastal Plain of the southern states and up the Mississippi River Valley into the Midwest. Maize billbug (*Sphenophorus maidis* Chittenden) is a related species that can also be a problem in corn.²

Billbug Injury to Corn

Corn seedlings are normally vulnerable to adult billbug damage until seedlings reach the 6- to 8-leaf growth stage. Seedlings damaged by billbug adults will show one or more of the following symptoms:

- Feeding slits on the lower stem
- Wilted leaves in the center of the whorl
- Small seedlings—cut off leaves and plants
- Large seedlings—twisted and suckered
- Leaves with rows of holes in the blades



Figure 1. Maize billbug adult.
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Immature billbugs (grubs) develop within the root crown area and tunnel into the lower stalk. Plants infested with larvae or grubs often show no obvious symptoms but may be more susceptible to drought stress and may die prematurely. Damage by grubs may also result in a reduced ear size of up to 40%, depending on time of infestation and other stress factors.¹

Identifying Billbugs

Southern corn billbug (SCB) adults are weevils that are about ½-inch in length with long snouts. They are generally ash gray or brownish in color and are usually covered with soil dust. Overwintering adults emerge during late spring from litter in fields, ditches, hedgerows, and bordering woods. Adults mainly move by crawling but are capable of flight. Weevils can be found feeding on corn stems near the soil line. Females lay about 200 kidney-shaped, cream-colored eggs in holes chewed at the base of corn stems.¹

Larvae are cream colored, 1/8- to 1/2-inch long, with reddish-brown heads. Eggs hatch in 4 to 15 days and the larvae migrate down the outside of the stem to feed in roots and tunnel into the lower stalk. Normally there is one larva per cornstalk. The larvae develop in 40 to 70 days and pupate in or around corn roots. SCB overwinters as an adult.

Maize billbugs have a similar life history and biology as SCB. The maize billbug is a reddish-brown to black weevil (Figure 1). The adult billbug ranges from 3/8 to 1/2 inch long.² This beetle hides in the soil during the day and is active at night. The maize billbug overwinters as an adult in soil, grasses, or plant litter. Maize billbugs primarily crawl but are known to fly.

Adults feed at the base of corn stalks. Females make holes in the plant stem to lay white to gray kidney-shaped eggs. The holes later appear as a transverse row of punctures in the expanded leaves (Figure 2). Eggs hatch in 4 to 15 days, depending on temperature.

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The small, legless grubs feed and develop for several weeks in the center of stalks at ground level. Grubs move into the soil and feed in or around the roots. Pupation occurs in the stems, roots, or soil. There is one generation per year.

Scouting

Billbugs overwinter in field litter, ditches, and hedgerows. Continuous corn, corn fields planted adjacent to corn from last year, fields with yellow nutsedge, and field edges are the most likely to have billbug problems. Scout seedling corn weekly from emergence until plants are at the 6- to 8-leaf growth stage to assess billbug damage, stand loss, and plant population. Adults are more active in the early morning and evening. They usually hide underneath litter and soil during most of the day. Walk a zig-zag pattern over the field looking for insect damaged plants or poor stands. Dig up several plants to verify insect damage. If confirmed, examine 100 plants in the area and record the number of damaged plants. Sample throughout the field. The economic threshold for billbugs is 5% seedling loss in infested areas. Scouting should focus on field edges (up to 150 to 200 feet), bordering fields planted to corn last season and non-rotated corn fields.¹ Billbugs may also be found on yellow nutsedge.

Management Options

Integrated, preventative management tactics are the most effective means for preventing billbug damage because post-planting rescue treatments are not effective.¹ Practices to help manage billbug infestations include:

- Rotate corn with non-grass crops to help reduce infestations. Billbugs can become a yield-limiting problem after 2 or more years of continuous corn.¹ Most potentially damaging infestations are found within a mile of corn grown the previous season.
- Select corn products with good early-season germination and vigor during cool, moist soil conditions.
- Use seed-applied insecticides or a T-band application of a soil insecticide at the highest labeled rates for billbug control.
- Plant early to help corn seedlings develop sufficient size before billbugs become very active.
- Promote rapid, vigorous corn growth by optimizing soil pH, drainage, use of starter fertilizer, appropriate tillage practices, and other practices to foster rapid corn growth.
- Control nutsedge and plant hosts in and around fields to reduce feeding and reproduction.

Summary

Preventing billbug damage relies on integrated management. Crop rotation and cultural practices that promote rapid, vigorous corn establishment are the most critical elements of the plan. Field selection is particularly important in no-till situations where early corn growth can be slow. Rapid, uniform germination and seedling growth can help reduce the timeframe seedlings spend in the most sensitive growth stages. If corn will be planted in high risk areas, a seed-applied insecticide or T-band application of an insecticide may be necessary.

Sources:

- ¹ Van Dyn, J. 2004. Management of southern corn billbug in field corn. North Carolina State University.
² Purdue Extension Entomology. 2009. Maize billbug - Purdue Fields Crops IPM 2009. Purdue University.
³ Reisig, D. 2015. 6 things to consider about billbug management. North Carolina Cooperative Extension. <http://agfax.com>.
Web sources verified 02/08/18 151009103657



Figure 2. Southern corn billbug feeding damage.
Clemson University - USDA Cooperative Extension Slide Series.
Bugwood.org.

Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

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