Extension
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Brown Marmorated Stink Bug in Midwest Field Crops

Brown marmorated stink bug (BMSB) is an invasive insect herbivore, native to Asia, that was first discovered in Pennsylvania in 2001. Since then, it has spread to 46 states. This insect species is an extreme generalist, feeding on over 100 different plant species, including field crops, fruits, vegetables, and ornamental plants, creating severe economic injury. In the Midwest, BMSB is currently classified as an agricultural and/or home nuisance pest (Figure 1). As BMSB populations grow in the Midwest, agricultural damage will likely increase.

Figure 1. Current distribution and agricultural risk of brown marmorated stink bug. (www.stopBMSB.org)

- BMSB detected/intercepted
- Nuisance problems only
- Agricultural and nuisance problems
- Severe agricultural and nuisance problems reported

Identification

Brown marmorated stink bug can be distinguished from native species by characteristic white bands on the antennae of both adults and nymphs (Figure 2). Additionally, adults have alternating light and dark banding along abdominal edges.

Figure 2. Adult brown marmorated stink bug. (Ken Childs)

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Figure 3. Brown marmorated stink bug life cycle: (clockwise from top-left) eggs, 1st, 2nd, 3rd, 4th, and 5th instar. (Ian Grettenberger, University of California Davis)

Life cycle

Females lay egg clusters on the underside of leaves that hatch within 3-6 days, and after completing five instars, adults emerge approximately three weeks later (Figure 3). Peak populations occur in late summer/early fall. Adults overwinter in woodlands underneath tree bark and human made shelters, such as homes and sheds. Climate models suggest BMSB have two generations per year throughout most of the Midwest.

Field crop damage

Both adults and nymphs create economic injury. In soybean, feeding creates punctured and scarred seeds as well as flattened pods. Under high BMSB populations, soybean experience delayed senescence, resulting in "stay green syndrome" creating additional losses at harvest. In corn, feeding reduces kernel quality and increases disease susceptibility.

Scouting and management

Brown marmorated stink bug is an "edge species" with higher populations occurring along field borders. Economic thresholds for soybean combine all stink bug species into a single action threshold and chemical control is justified when an average of 3.5 stink bugs are collected in 15 sweep net samples (30" rows). When applied at threshold, a single border insecticide application controls BMSB for the entire growing season. Action thresholds for corn have not been developed. Consult your local extension office for insecticide recommendations.

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