

Asiatic Garden Beetle, A New Pest of Corn, Potato, and Alfalfa in SW Michigan

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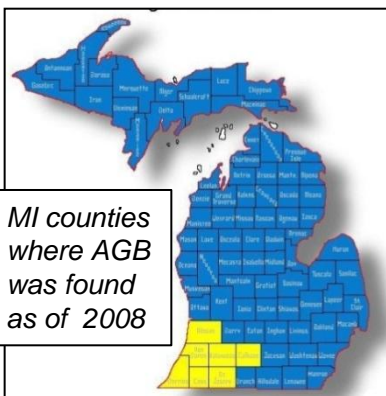
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Picture credits: C. DiFonzo - AGB adults; J. Obermeyer (Purdue) - AGB grub; K. Ritchie (Walther Farms) damaged potato; B. Mackellar, corn fields and trap.

Asiatic Garden Beetle (AGB) is an invasive species that was first found in Michigan in significant numbers in 2007. This represents the latest westward expansion of its range from the northeastern US, where it was first found in the 1920's. Adult Asiatic Garden Beetles are similar in shape to June beetles, but are smaller, barrel-shaped, and iridescent cinnamon in color (below, left). Larvae (grubs) are easily identified by their distinctive bulbous stipe, part of the mouthpart (below, right). The bulging structure makes it appear that AGB grubs have large 'cheeks'. AGB grubs are also very aggressive and bite when handled, while other grub species remain curled up when disturbed. The last evaluation of AGB infestation in Michigan was conducted in the summer of 2008. At that time, AGB was found in Berrien, Cass, St. Joseph, Calhoun, Kalamazoo, and Allegan Counties



AGB pupae and adults are smaller than June beetles, and barrel-shaped



MI counties where AGB was found as of 2008



AGB grubs are easily identified by the bulbous stipe, part of their jaws.

AGB adults were attracted to lights on this building in St. Joseph County. The beetles gathered on the walls and shrubs to mate.



Asiatic Garden Beetles lay eggs in lush canopied fields of soybean, potato, and alfalfa. The eggs hatch, and the larvae begin to feed on roots and tubers. The time frame for larval feeding on potato in southwest Michigan is early September, when tubers are still in the ground. Once soil temperatures cool, the larvae move down in the soil profile and overwinter in the field. When soils warm in the spring, these larvae move up and begin to feed on roots. Larvae can often be found in mid to late May near the soil surface, often associated with the roots of chickweed, purple deadnettle and henbit. The roots of corn seedlings and alfalfa are injured at this time.

Adult beetles are active at night, and strongly attracted to lights. They can be monitored on brightly lit ornamental plantings or in the canopies of gas stations in July. Increased adult activity could indicate a potential AGB grub problem later in the season.

Damage to crops

CORN: AGB can cause extensive root feeding damage to corn seedlings. Symptoms of infestation are declining stand height and less population uniformity, which can lead to significant population losses (A). Growers often notice the damage when applying side-dress nitrogen applications at the V6-V8 stage corn. Symptoms are sometimes mistaken for sandhill crane feeding damage. However, plants will show root pruning (B), and numerous emergence holes may be visible in the soil (C). Fields or parts of fields with sandier soil are at greater risk from AGB damage.



Research conducted in 2008 in St. Joseph County showed that soil insecticide applications or Poncho 250 / 1250 seed treatment reduced stand loss and protected yields compared to a non-treated control. Adult AGB numbers declined after the 2008 growing season, perhaps due to the seed corn industry standard practice of treating all corn seed with insecticide. However, in 2010 at least one field near Sturgis, MI suffered significant stand loss despite being seed-treated. Unfortunately, there are no Bt options or rescue treatments for white grub infestations in corn. You must know that the beetles were active in your area during the previous season to make a decision about using a soil insecticide or seed insecticide treatment at planting.

POTATO: Growers reported an unusual number of white grubs (later identified as AGB) on belts of potato harvest trucks in 2007 and 2008. AGB grub feeding on potatoes typically results in round to oblong pock marks on the surface of tubers (picture, right), about 1/4 - 3/8 of an inch deep. The damage impacts frying quality in chipping potatoes, causing a darkening near the feeding site. To date, there is no control recommendation to deal with AGB infestation in potato.



WHEAT: AGB damage to winter wheat (stand thinning) was confirmed in spring 2011. As in potato, there is no control recommendation, other than to avoid planting in the fall into infested fields.



ALFALFA: AGB damage to alfalfa occurs in fields with sandier soil, resulting in poor or weedy stands (left). Grubs feed in the root mass (right) and cause stand loss or thinning. Rescue treatments are not available, and the only option is to establish a new seeding in a grub-free field, and maintain it for optimal root growth and plant health.

