



## Asiatic Garden Beetle

### Pest Facts

#### Distribution

- Asiatic garden beetle (*Maladera castanea*) is a non-native species in North America that was introduced to the northeast U.S. from Japan in the 1920s.
- Following its initial introduction, populations have spread through the Northeastern U.S. and parts of Eastern Canada, westward – as far as Kansas and Missouri, and southward – as far as Georgia and Alabama (Skelley, 2013).

#### Host Range

- Asiatic garden beetle has a wide host range – over 100 hosts are known, consisting primarily of perennial ornamentals.
- It has historically been a pest of ornamentals and turf grass but can also damage vegetables and row crops, including corn, soybeans, and wheat.
- Asiatic garden beetle is also known to feed on several common weed species, including marestail, giant ragweed, chickweed, purple deadnettle, pokeweed, and Virginia creeper (DiFonzo, 2018; Pekarčík, 2018).

#### Natural Enemies

- Although there are naturally occurring diseases and nematodes that affect Asiatic garden beetle, there are no major native enemies of this imported pest.



**Figure 1.** Asiatic garden beetle feeding may be scattered across a field, but the most severe damage is often concentrated in areas of intensive egg laying or better survival of larvae, commonly in sandy spots. Damage may be compounded by other factors affecting plant vigor.

#### Pest Status

- Asiatic garden beetle has historically been a sporadic pest of field crops.
- In recent years, however; it has become a more frequent pest of corn in Indiana, Michigan, and Ohio.

### Identification

#### Larvae in the soil

- Larvae are up to ½ inch long and can be identified most easily by the enlarged maxillary palps just behind the mouth parts. These are light-colored fleshy appendages that appear to be in constant motion (Figure 2).
- Asiatic garden beetle larvae also have a characteristic anal slit and semi-circular raster pattern under the tail.

#### Adults in soil or on foliage

- Adults are scarab-shaped, tan- or cinnamon-brown-colored beetles with a slight iridescent sheen. They are slightly smaller than Japanese beetles (about 5/16 to 3/8 inch in length).



**Figure 2.** Asiatic garden beetle larva (left) with arrow indicating the enlarged maxillary palps, and adults (right). (Beetle photo: David Shetlar, Ohio State University.)

### Injury Symptoms and Impact on Crop

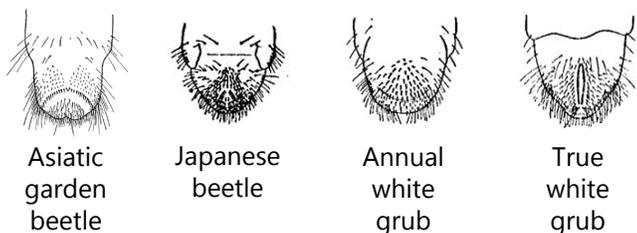
- Crop injury symptoms are primarily the result of larval root feeding. Symptoms closely resemble root feeding by other grub pests including annual and biennial white grubs and Japanese beetles in the spring.
- Larval feeding removes root hairs and may damage the mesocotyl between the seed and the main root system. This reduces early vigor until the affected plants can regrow an adequate root system.
- Root damage can cause stunting and discoloration of plants and can kill plants if severe enough. Stand losses of over 40% due to larval feeding have been observed (Pekarčík, 2018).
- Aboveground symptoms are often not visible until feeding has already been underway for several days.
- Heavy infestations are most common in sandy soils.
- Adult feeding is rarely a problem in row crops, but may be noticeable on nearby vegetable or ornamental foliage as feeding on the leaves (especially at night and particularly around the leaf edges).



**Figure 3.** Root damage on corn and soybean seedlings caused by Asiatic garden beetle feeding in Indiana in 2018. (Photos by Lance Shepherd, Pioneer Field Agronomist.)

## Related or Often Misidentified Grubs

- Manure scarabs – generally smaller size, found associated with pastures or manure.
- Annual, biennial grubs and Japanese beetle – generally above ½ inch in length with a different raster pattern and no maxillary palps. Asiatic garden beetle grubs are smaller and generally more active than these other common grubs.



**Figure 4.** Raster patterns of Asiatic garden beetle and other grubs common to field crops.

## Management Considerations

### Trapping

- Limited success of identifying elevated grub numbers prior to planting has been made with wireworm bait stations.
- Adult populations have also been monitored with immersion-type western bean cutworm traps.

### Scouting

- Scouting for Asiatic garden beetle larvae prior to planting to identify fields at risk of damage provides the only real opportunity to protect the crop by including an insecticide at planting (MacKellar and DiFonzo, 2018).
  - Prior to spring tillage, dig around any alternate weed hosts that are present in the field such as marestalk or giant ragweed to look for larvae.
  - Check freshly tilled soil during tillage operations for larvae, particularly if there are a lot of birds feeding in the tilled soil.
- Scout for Asiatic garden beetle larvae in corn by digging around plants in the field during the early vegetative growth stages to look for signs of root feeding or presence of larvae.

- Focus scouting on plants that appear to be suffering some sort of stress. Damaged plants often appear stunted and purplish.
- Asiatic garden beetle is most prevalent in fields with sandy soil and damage often occurs in irregular patches.
- Root feeding ceases when larvae enter the pupal stage, typically around the end of May. Later-planted fields generally have a lower risk of root feeding damage.

- Asiatic garden beetle adults are active from June through September. They are nocturnal and attracted to outdoor lights and feed on nearby foliage. Monitor these locations to get a sense of relative population levels in an area.

### Winter Survival

- Soil disturbance may promote larval mortality and predation to a low degree; thus, no-till may be conducive to higher survival.
- Dry soils that promote desiccation are least conducive to winter survival.

### Weed Management

- Asiatic garden beetles appear to have a preference for several common weed species such as giant ragweed and marestalk.
- Managing weed populations can help prevent them from acting as an attractant for egg-laying adults later in the growing season.
- Grubs feeding on weeds early in the season appear to continue feeding on the weeds even after a corn crop is established. Controlling these weeds with a herbicide application will force the feeding grubs to shift their feeding to the corn plants, which can cause a rapid escalation in damage to the corn crop.

### Insecticides

- Data on insecticide efficacy for Asiatic garden beetle control in corn are limited. Insecticides labeled for corn rootworm control may provide suppression of Asiatic garden beetle. Check insecticide product labels for specific guidelines.
- Preliminary investigations suggest that high-rate insecticide seed treatments can provide protection against low to moderate feeding pressure, but further research is needed.
- Rescue treatments applied in a growing corn crop after damage has been detected are not likely to be effective.

### References

- DiFonzo, C. 2018. Attack of the Asiatic garden beetles in field crops. Michigan State Univ. Extension Field Crops. <https://www.canr.msu.edu/news/attack-of-the-asiatic-garden-beetles-in-field-crops>
- MacKellar, B. and C. DiFonzo. 2018. Asiatic garden beetles may cause corn yield losses. Morning Ag Clips. <https://www.morningagclips.com/asiatic-garden-beetles-may-cause-corn-yield-losses/>
- Pekarcik, A. 2018. Asiatic Garden Beetle: A Continuing Problem in Northern Ohio. Ohio State Univ. C.O.R.N. Newsletter. <https://agcrops.osu.edu/newsletter/corn-newsletter/2018-15/asiatic-garden-beetle-continuing-problem-northern-ohio>
- Skelley, P.E. 2013. Featured Creatures: The Asiatic Garden Beetle. Univ. of Florida Entomology and Nematology. [http://entnemdept.ufl.edu/creatures/ORN/TURF/asiatic\\_garden\\_beetle.htm](http://entnemdept.ufl.edu/creatures/ORN/TURF/asiatic_garden_beetle.htm)

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