Striped and spotted cucumber beetles as pests of cucurbits in Michigan

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Striped and spotted cucumber beetles attack a variety of cucurbit crops, including winter and summer squash, cucumber, and watermelon. While cucumber beetle larvae feed on cucurbit roots, adult beetles cause more economically important damage. Striped cucumber beetles are specialists on cucurbits, while spotted cucumber beetles will feed on other plants in addition to cucurbits.

Appearance:
Striped cucumber beetle adults are roughly 1/4 inch long, yellow with three black lines and a black abdomen (Fig 1). *Spotted cucumber beetle* adults are slightly larger, yellow or yellowish-green with 12 black spots, a black head, and a yellow abdomen (Fig 2). Larvae of both species are pale with dark heads and a dark-colored abdomen tip, but are rarely seen because they are found in the soil.

Similar species:
Striped cucumber beetles may appear similar to the western corn rootworm, but can be distinguished by abdomen color: only striped cucumber beetles have a black abdomen. Western corn rootworm is not a pest of cucurbits.

Life cycle: Striped cucumber beetles overwinter as adults in field debris or wooded areas, emerging in April to feed and mate. Spotted cucumber beetles do not overwinter in Michigan. Adults migrate from the southern US, arriving in late June. Both species lay eggs at the base of cucurbit plants, which hatch after 5-8 days. Larvae feed on crop roots for 2-3 weeks then pupate underground. Striped cucumber beetles have 2 generations per year in Michigan.

Figure 1. Adult striped cucumber beetles have distinct black and yellow stripes, and a black abdomen. Photo credit: W.R. Morrison III.

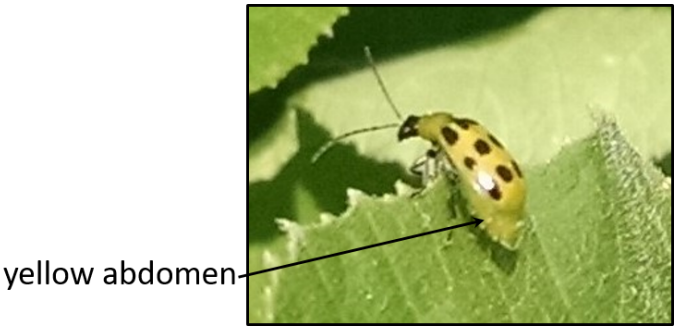

Figure 2. Adult spotted cucumber beetles can be yellow or yellow-green, have black spots, and a yellow abdomen. Photo credit: A.L. Buchanan.

Damage: While cucumber beetle larvae feed on cucurbit roots, adult feeding is more damaging to the crop. Adults defoliate and stunt plant growth (Fig 3). Feeding on flowers can reduce fruit production, and direct feeding on fruits causes scars and pock marks, which decrease marketability of fruits (Fig 4).

The primary economic impact occurs when beetles vector bacterial wilt disease (*Erwinia tracheiphila)* among cucurbit plants. Plants suffering from this disease wilt in a patchy fashion as the disease spreads, with some leaves looking healthy while others wilt (Fig 5). There is no cure for the disease. Management relies on control of the beetle.

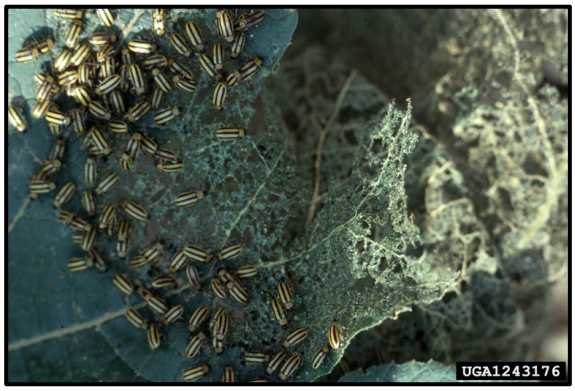

Figure 3. Cucumber beetles skeletonize cucurbit leaves, which can stunt plant growth. Photo credit: W. Cranshaw, Bugwood.org.

Figure 4. Cucumber beetles chew the outer tissue of cucurbit fruit, which makes them unmarketable. Photo credit: W. Cranshaw, Bugwood.org.

Figure 5. The beginnings of bacterial wilt causes some leaves to wilt, while others remain healthy on the same cucumber plant. Photo credit: C. Welty, OSU.

Management: In Michigan, scouting for adults in June-August using yellow sticky cards or visual sampling.

Insecticide thresholds for cucumber beetles are **one adult cucumber beetle per plant** for cucurbit seedlings and **5 adults per plant** for mature plants.

Cultural controls for cucumber beetles include removing field debris after harvest to reduce overwintering habitat, and rotating crops so that cucurbit crops are not planted directly into soils containing overwintering populations. Transplanting young plants rather than direct seeding can protect vulnerable seedlings from damage. Planting trap crops (cucurbit varieties highly attractive to cucumber beetles) at the perimeter of the harvested crop can keep cucumber beetles from migrating into the harvested crop.

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Other resources

Enviroweather – up to date soil temps and degree days: http://enviroweather.msu.edu/homeMap.php

MSU vegetable entomology website: http://vegetable.ent.msu.edu/