

Bug Encyclopedia

Information on Garden Pests

Cucumber Beetles (*Acalymma vittatum* and *Diabrotica undecimpunctata howardi*)



(http://vegetablemdonline.ppath.cornell.edu/factsheets/Cucurbit_Beetles.htm)

Life Cycle:

There are two different cucumber beetles that attack cucurbits; the striped cucumber beetle and the spotted cucumber beetle. They both cause damage to cucurbits

The striped beetle is 1/3 inch long with stripes of black and yellow on its back. They overwinter in nearby woods or under garden debris and emerge when the weather warms. During the 2011 growing season, they were first noticed in the Lafayette Organic Garden on July 11th. They mate and the females can lay from 200-1200 eggs in small clusters in the soil near the cucurbit plants. (Alston, 2008) The eggs are oval and light yellow or orange in color and hatch 5-8 days later. (Lyon and Smith, 1991) Larvae hatch from the eggs and spend 2-4 weeks feeding on the roots and then pupate in the soil. (Hoffmann and Zitter, 1994) These beetles feed on cucurbit plants and fruits and then overwinter when cold weather comes.

The spotted cucumber beetle differs from the striped beetle. It is slightly larger and has 12 black spots on a yellow body. It appears after the striped beetle is seen in the garden. In the Lafayette Organic Garden, it was first seen a few days after the striped beetle. They mostly do not overwinter nearby, but instead migrate every summer. (Hoffmann and Zitter, 1994) Other than that, they have a similar life cycle to the striped beetle.

Identifying Plant Damage:

The beetles feed on leaves, stems, blossoms and fruit of cucurbit plants. Too much feeding can hurt the plants and lead to a reduced yield. (Hoffmann and Zitter, 1994) Cucurbits with smooth skins, like watermelon and honeydew are especially prone to damage by feeding. Injury can be the worst on the underside of fruits where it is not noticed unless the fruit is picked off the ground. (Alston, 2008) The adults feed on the leaves and can cause them to die. The beetle larva feed on the roots which can stunt growth. However, they do not do this while the adults are feeding on the leaves or fruits generally. (Alston, 2008)

Cucumber beetles are dangerous not only because they feed on plants, but because they spread diseases. They carry bacterial wilt and squash mosaic virus and can spread it from plant to plant due to their feeding. In the plant, the bacterium multiply in the vascular system and produce substances that block the plant from getting water and nutrients. The plant soon wilts. There is no control for these diseases once they take over a plant. To determine if a plant has bacterial wilt, cut of a stem of a leaf and squeeze both cut ends so a sticky sap comes out. Put the two ends back together for a few seconds and slowly move them apart. The sap will form into strings between the ends. This sticky sap contains million of bacteria. (Bessin, 2003)

Squash Bugs (*Anasa tristis*)



Eggs



Nymphs



Adult

(<http://ipmnews.msu.edu/vegetable/Portals/vegetable/images/vegImages09/9-09SquashBug.jpg>)

Life Cycle:

Squash bugs are about 5/8 inches long with a dark gray body and 3 pairs of black legs and antennae. They have a flattened body with wings covering most of their abdomen. They stink when they are crushed.

Squash bugs overwinter under garden debris until the spring. When they emerge they go to nearby cucurbits to eat, mate and lay eggs. The eggs are small and range in color from bronze to red. (Schellman, 2009) They are laid on the undersides of leaves in clusters of 7 to 20 eggs in the "V" pattern of intersecting leaf veins. (Cook and Weinzierl, 2004) During the summer of 2011, squash bug eggs were first identified on July 11th in the Lafayette Organic Student Garden. Eggs hatch to nymphs in about a week. Newly hatched nymphs that were seen in the student garden had blue oval bodies, 3 pairs of black legs and antennae. They grow and reach the size of a mature squash bug in 5-6 weeks. (Cook and Weinzierl, 2004) As they mature, they change color to look more and more like an adult. The adult bugs feed on cucurbit plants and vegetables.

When the fall approaches, the unmated adults find shelter in the woods or under debris in the garden. They stay there for the winter and emerge

Identifying Plant Damage:

Squash bugs feed on cucurbits, with preference to squash and pumpkins. (Pavuk, 2009) They feed by sucking the sap from cucurbit leaves and vines. This empties the leaves of water and nutrients causing them to become speckled from feeding and then turn yellow and brown and soon die. (Schellman, 2009) If the plant has been attacked enough, it will wilt. Small plants can die from this while larger plants might only lose some vines. This wilting is similar to the bacteria wilt spread by cucumber beetles. The wilt from squash bugs can be halted and some of the plant saved if the bug population is controlled and they stop feeding on it. However, the wilt spread by cucumber beetle feeding is a disease so cannot be stopped. (Cook and Weinzierl, 2004) Squash bugs also feed on the cucurbit fruits. A little feeding will only scar the fruit, but a lot of feeding could suck out a significant amount of water and nutrients causing the fruit to die. (Schellman, 2009)

Squash Vine Borers (*Melittia satyriniformis*)



Eggs



Larva



Adult

(<http://www.bearmountainbooks.com/images/misc/2008/06/borereggs-300x225.jpg>)

(<http://www.ca.uky.edu/entomology/entfacts/ef314.asp>)

(<http://www.aces.edu/counties/Tallapoosa/Images/623squash-vine-borer1.jpg>)

Life Cycle:

These bugs live as larvae or pupae in the soil during the winter. Adults emerge when the weather warms. The adult moth has translucent wings with an expanse of about 1.5 inches. (Adam,

2006) The body is orange with black marks. They are unique from many other moths because they fly during the day rather than the night. When they fly, they look and sound similar to wasps.

The adult moths lay their small, brown and flat eggs on the leaf stalks and vines of the squash plant. The eggs hatch about a week later. (Hahn & Burkness, 2011) The larvae are white with brown heads. When they hatch, they burrow through the plant stems eating and causing destruction along the way. Frass, excrement from the larva which resembles moist sawdust, shows the larva's point of entry. The larva will feed for four to six weeks and grow to about an inch long. The invaded plants become wilted and soon die. The larvae then burrow into the soil to pupate and emerge next summer. (Adam, 2006)

Identifying Plant Damage:

Their preferred crops are winter squash, summer squash and pumpkins but can also attack cucumbers, melons and other cucurbits. (Hahn & Burkness, 2011) Wilting is a sign that a plant has been affected by a squash borer attack. This shows that the squash borer larvae have been feeding on the tissue in the stem of the cucurbit. (Adam, 2006) Infected plants exhibit holes near the base of the plant filled with frass. Frass is a moist, greenish sawdust-like material left behind as waste from the hungry invading larva. This can cause the base of the plant to rot away.

It is important to monitor squash plants to determine if there are squash vine borers in the garden. In addition to how they look, the borers are unique from many other moths because they fly during the day rather than the night. In flight, they look like wasps and produce a noticeable buzzing sound. (Hahn & Burkness, 2011) A good way to detect the moths is by setting up yellow trap pans in the garden. This is simply a yellow bowl filled with some water. The moths are attracted to the yellow and then get stuck in the water.

Squash vine borers are more likely to attack small cucurbit plantings in gardens than larger plantings in farms. (Cornell Crop Management Practices)

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