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Squash vine borers

Quick facts about squash vine borers

The squash vine borer (*Melitta curcurbitae*) is a common clearwing moth in home gardens in Minnesota.

- It is a serious pest of vine crops, commonly attacking summer squash, winter squash and pumpkins.
- Cucumbers and melons are less frequently affected.
- It is active mid-June through July.
- In home gardens, entire crops may be lost in a year of high borer populations.
- Feeding by larvae causes yellowing of leaves and wilting.

How to identify squash vine borers

The adult borer resembles a wasp.

- It is about 1/2 inch long with an orange abdomen with black dots.
- The first pair of wings is metallic green while the back pair of wings is clear.
- The back wing are folded when they are at rest, and may not be seen clearly.
- Eggs are flat, brown, and about 1/25 inch long.
- The larvae are white or cream-colored with brown heads, growing to almost an inch in length.

Squash vine borer adults

Life cycle of squash vine borers

Squash vine borer adults emerge in late June or early July, from cocoons in the ground.

Squash vine borer adults are good fliers. These moths are unusual because they fly during the day while nearly all other moths fly at night.

- After emerging, squash vine borers lay eggs one at a time at the base of susceptible plants.
- The eggs hatch in about one week and the resulting larvae bore into stems to feed.
- The larvae feed through the center of the stems, blocking the flow of water to the rest of the plant.
- The larvae feed for four to six weeks, then exit the stems and burrow about one to two inches into the soil to pupate.
- They remain there until the following summer.
- There is one generation per year.

Squash vine borer larva with frass on the stem

Damage caused by squash vine borers

The first symptom of a borer attack is wilting of affected plants.

Wilting may occur only in strong sun at first, but if the problem is left unchecked, the plants eventually collapse and die.

When you look at a wilting plant closely, you might notice holes near the base of the plant.

- These holes are filled with moist greenish or orange sawdust-like material called frass.
- Over time, the base may become mushy or rot away altogether.
- Several borer larvae may attack a single plant.

Wilting plant

How to protect your garden from squash vine borers

Squash vine borers are challenging to prevent or manage. Once the larvae invade the stem, it is difficult to treat squash vine borers.

Check your squash for the presence of adult borers starting the last week of June.

There are two methods for detecting squash vine borer adults.

1. Watch for their activity in the garden. These moths are easily noticed as well as heard (buzzing noise) when they fly.
2. Use a container (e.g. pan, pail, bowl) colored yellow and filled with water. Squash vine borer adults are attracted to yellow. They will fly to the container and be trapped when they fall into the water.
    - Place traps by late June, checking your traps at least once a day.

Once the presence of squash vine borers is confirmed, pick one of the methods to control their population.

Plan your planting schedule carefully

- Plant vine crops that are usually not attacked by squash vine borers, such as butternut squash, cucumbers, melons and watermelons.
- Plant a second planting of summer squash in early July. These plants will mature after adult borers have finished laying eggs and will not suffer any damage.
- Promptly pull and destroy any plants killed by squash vine borers.

Using a physical barrier

Place floating row covers over your vine crops when they start to vine (or for non-vining varieties, starting late June or early July) or when you first detect squash vine borer adults.

- Keep the barriers in place for about two weeks after the first adult borer has been seen.
- Secure the row covers in a way that prevents adults from moving underneath it.
- Don't use row covers if cucurbits were planted in the same area the previous year.

This is because squash vine borers spend the winter in the soil near their host plants. When the adults emerge the following summer, they may be trapped under the row cover instead of being kept out.

- Practice rotation to minimize this issue by planting cucurbits in different areas of your garden (if possible) or alternate seasons when you grow cucurbits.

Caution: Do not use floating row covers anytime crops are flowering. This prevents bees from pollinating your vegetables.

Using pesticides

If pesticides are needed, spray or dust the stems at their base.

- Start treatments when vines begin to run (or the last week of June or early July for non-vining varieties) or when the first adult borers are detected.
- Repeat in 7-10 days.
- Two applications help manage most squash vine borer adults.

For more thorough coverage, continue treatments at 7-10 day intervals until the end of July. Common names of active ingredients effective against squash vine borers are: carbaryl, permethrin, bifenthrin and esfenvalerate.

If your crop is still successfully attacked by borers, you can try to kill the borer inside the vine. Keep in mind that you may not be able to save the plant.

- As soon as wilting is noticed, use a sharp knife to cut a slit in the affected stem.
- Slice carefully up the vine until you locate the borer (or borers).

Once you have killed any borers with the tip of the knife, mound moist soil over the cut area and keep this spot well watered. New roots may grow along the cut stem, allowing the plant to survive.

CAUTION: Mention of a pesticide or use of a pesticide label is for educational purposes only. Always follow the pesticide label directions attached to the pesticide container you are using. Remember, the label is the law.

Be sure that the fruit/vegetable you wish to treat is listed on the label of the pesticide you intend to use. Also be sure to observe the number of days between pesticide application and when you can harvest your crop.

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