

Plant Pathology Fact Sheet

Yellow Vine Decline of Cucurbits

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Importance

Yellow vine decline was first reported in several South Central states in the late 1980s. Since that time, it has been confirmed in Kentucky (2002) and additional states in the South, Midwest, and Northeast. Disease incidence may be spotty to non-existent during some production years; however, yellow vine decline is capable of causing heavy losses in other years. Yellow vine decline can affect squash, pumpkin, watermelon, and muskmelon (cantaloupe).

Symptoms

Symptoms of yellow vine decline begin to appear approximately 2 weeks before fruit maturity. The disease may appear initially as stunting of plants and/or intense yellowing of foliage, followed by a slow decline in plant health (FIGURES 1 and 2). In some cases, a sudden collapse of vines may occur with no other symptoms. Vascular tissue (phloem) from crowns of affected plants is often discolored, appearing light brown rather than a healthy translucent green.



FIGURE 1. YELLOWING AND PLANT COLLAPSE OF SQUASH DUE TO YELLOW VINE DECLINE.

Because yellow vine decline symptoms can be variable due to differences in plant species and age of plant at the time of infection, diagnosis can be difficult. Additionally, yellow vine decline may be confused with other diseases, such as bacterial wilt or *Fusarium* wilt. Secondary invasion of roots and lower stems by other microbes can further complicate field diagnostic efforts. Growers needing assistance in verifying this disease should submit plants in the yellowing stage



FIGURE 2. EARLY YELLOW VINE DECLINE SYMPTOMS ON WATERMELON.

(with roots and vines still attached) through their local County Extension office, where they will be forwarded to the appropriate Plant Disease Diagnostic Laboratory.

Cause and Disease Development

Yellow vine decline is caused by a bacterium (*Serratia marcescens*) and vectored by the squash bug (*Anasa tristis*).

The pathogen

S. marcescens survives the winter in overwintering adult squash bugs. The pathogen is then spread to young cucurbits in the spring when the adults begin to feed. As the squash bug sucks sap from the plant's phloem, the bacterium is introduced. Once the bacterium invades the phloem, it multiplies and colonizes the vascular tissue.

The vector

Adult squash bugs, which are brown and about an inch in length (FIGURE 3), move into fields in late May and early June. The adults may feed on the base of the stem near the soil of newly set plants. These bugs can cause feeding damage (leaves wilt and collapse) in addition to depositing the yellow vine decline bacterium. Bronze eggs, which are the shape of footballs (FIGURE 4), are laid in groups of 12 or more and hatch in 1 to

2 weeks. Initially the nymphs are dark with a light green abdomen. Older nymphs are light gray in color with black legs (FIGURE 5). Young nymphs feed together in groups and require 5 to 6 weeks to mature into adults. While all of the cucurbit crops can be attacked, squash bugs show a preference for squashes and pumpkins.

Disease Management

Effective control of yellow vine decline is completely dependent on early management of squash bugs, beginning at emergence or transplanting. Timing is the key to successful squash bug control and eliminating squash bugs is the key to yellow vine decline management.

Use insecticides to control squash bug as soon as the plants are set or seedlings emerge in the field. Early insecticide sprays should target overwintering adults on young plants. Multiple foliar sprays are needed for extended periods of control. Systemic insecticides used for cucumber beetle control will provide up to 3 weeks of squash bug suppression. Foliar sprays targeting newly hatched nymphs are more effective



FIGURE 3

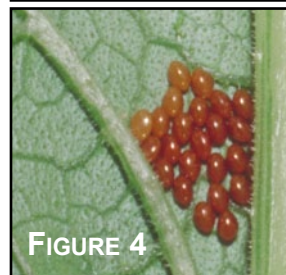


FIGURE 4



FIGURE 5

FIGURE 3. ADULT SQUASH BUG. **FIGURE 4.** SQUASH BUG EGGS. **FIGURE 5.** SQUASH BUG NYMPHS.

than sprays used against larger stages. Multiple foliar sprays are often needed for extended periods of control. Treat with a recommended insecticide listed in *Vegetable Production Guide for Commercial Growers* (ID-36). Squash bug can be very difficult to control in mid- and late summer if populations are allowed to build up.

Additional Resources

Disease management and crop production advice can be found in the following University of Kentucky publications available at County Extension offices, as well as on the Internet.

- Home Vegetable Gardening in Kentucky, ID-128
<http://www.ca.uky.edu/agc/pubs/id/id128/id128.pdf>
- IPM Scouting Guide for Common Problems of Cucurbit Crops in Kentucky, ID-91 (2009)
<http://www.ca.uky.edu/agc/pubs/id/id91/id91.pdf>
- Management Tips for Disease Control in Commercial Vegetables in Kentucky, PPFS-VG-05 (1994)
http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-VG-5.pdf
- Squash Vine Borer and Squash Bug (ENTFACT-314)
<http://www.ca.uky.edu/entomology/entfacts/ef314.asp>
- Vegetable Production Guide for Commercial Growers, ID-36
<http://www.ca.uky.edu/agc/pubs/id/id36/id36.htm>

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