



URI COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES (CELS) OUTREACH CENTER

3 East Alumni Avenue
Kingston, Rhode Island 02881

For more information:

Call:

In RI: URI MGA Hotline
1-800-448-1011
Mon.-Thurs. 9:00 a.m.—2:00 p.m.

In MA and CT: 401-874-2900

Outside New England please contact Cooperative Extension in your county.

Websites:

URI Master Gardener Association
www.urimga.org

CELS Outreach Center
www.uri.edu/cels/ceo

DISEASES OF CUCURBITS

Diseases of cucurbits (i.e., cucumbers, melon, pumpkin, squash, watermelon) include anthracnose, bacterial wilt, powdery mildew, scab, Alternaria blight, downy mildew and Fusarium wilt.

Anthracnose

Anthracnose, caused by the fungus *Colletotrichum lagenarium*, is a destructive disease of cucurbits occurring during warm and moist seasons. Significant damage can occur to cucumber, muskmelon, and watermelon unless resistant varieties are grown. All aboveground plant parts can be infected. Symptoms vary among the three principal cucurbits infected. Leaf lesions begin as water-soaked and then become yellowish circular spots. On watermelon foliage the spots are irregular and turn dark brown or black. On cucumber and muskmelon the spots turn brown and can enlarge considerably.

Cultural control methods include:

- Use commercially produced, disease-free seed.
- Rotate vine crops with unrelated crops in a three-year rotation.
- Practice good sanitation by plowing under fruits and vines at the end of the season.
- Choose anthracnose-resistant varieties if at all possible. No anthracnose-resistant muskmelon varieties are available for the Northeast. Apply approved fungicides to the crop at regular intervals, more often if frequent rains occur.

Bacterial Wilt

After vine crops begin to run, gardeners often notice individual leaves with severe wilt symptoms on sunny days. Within a week or two the condition spreads to entire vines which do not recover from the wilt. This disease, called bacterial wilt, is especially common in cantaloupes and cucumbers. Squash and pumpkins may not wilt as rapidly, but may be dwarfed with extensive blossoming and branching. Watermelons are rarely affected.

The bacterium that causes this disease (*Erwinia tracheiphila*) overwinters in cucumber beetles. In spring, beetles emerge from the ground and feed on young plants, introducing bacteria into the leaves or stems. Wilting of individual leaves or vines of the

PESTICIDES ARE POISONOUS!! Read and follow all safety precautions on labels. Handle carefully and store in original containers out of reach of children, pets, or livestock. Dispose of empty containers immediately, in a safe manner and place. Pesticides should never be stored with foods or in areas where people eat.

When trade names are used for identification, no product endorsement is implied, nor is discrimination intended against similar materials. Be sure that the pesticide that you wish to use is registered in the state of use.

The user of this information assumes all risk for personal injury or property damage.

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Note: The Hotline is open Monday—Thursday, 9:00 a.m.—2:00 p.m. from March 1 to November 1.

plant is the characteristic symptom; one or more leaves wilt and become dull green. The disease spreads from the leaves downward into the stem until the entire plant wilts and dies. Vine borers or soil-borne fungal pathogens may also cause cucurbits to wilt. A helpful test in diagnosis of bacterial wilt is to cut off an affected stem near the ground; if the sap is milky in appearance or sticky and stringy, the wilting is likely to be a result of bacterial wilt.

Management of this disease is only possible through preventing the feeding of cucumber beetles on susceptible hosts.

Powdery Mildew

The powdery mildew fungus (*Erysiphe cichoracearum*) attacks muskmelons, squash, cucumbers, gourds, and pumpkins. It is evident as a superficial, powdery, grayish-white growth on upper leaf surfaces, petioles, and even main stems of infected plants. Affected areas turn yellow then brown and die. In dry seasons, powdery mildew can cause premature leaf drop and premature fruit ripening. Warm, dry weather conditions favor the development of powdery mildew. Powdery mildew may be controlled by prompt application of recommended fungicides.

Scab

This disease is caused by the fungus *Cladosporium cucumerinum*. It is more severe on cucumbers and muskmelons than on other cucurbits. Scab first appears as water-soaked areas on the foliage. As the disease progresses, affected tissues turn brown, then white, and finally die. Dead tissue may tear away giving the leaf a ragged appearance. Most of the damage from this disease is on the fruit. Initially, infected fruits develop small, sunken, circular spots from which a sticky substance is exuded. Spots enlarge and blacken with age. The fungus survives in infected plant debris and on the seed. Fungal spores are spread by wind, insects, people, etc. Cool, wet weather favors disease development. Scab may be controlled by planting resistant cultivars, using disease-free seed, rotating with unrelated crops, and applying recommended fungicides.

Alternaria Blight

This disease is caused by the fungus *Alternaria cucumerina*. It usually occurs on foliage during the middle of the growing season. The disease starts as small, yellow spots which enlarge to form concentric rings on the upper leaf surfaces. Muskmelons are more susceptible than other cucurbits. The pathogen also may cause fruit injury. The fungus may be carried in and on seed and can also overwinter in diseased plant debris or cucurbit weeds. Spores are spread by wind, rain, people, tools, etc. Plants weakened by lack of proper fertilizer or poor soils are more likely to be attacked than young, vigorously growing plants. Warm, wet weather favors development of *Alternaria* blight. To control the disease plant disease-free seed in fertile, well-drained soil, practice crop rotation with unrelated crops, destroy cucurbit weeds, and use recommended fungicides.

Downy Mildew

Downy mildew is caused by the fungus *Pseudoperonospora cubensis* and occurs on cucumbers, squash, muskmelons, and pumpkins and less frequently on watermelons. Spots occur on the upper leaf surface and they are angular because they are restricted by leaf veins. When leaves are wet, a downy, white-gray-light blue fungus growth can be seen on the underside of individual lesions. Spores are readily spread by the wind. Rainy, humid weather favors the development of downy mildew. Downy mildew may be controlled through the use of resistant cultivars and recommended fungicides.

Fusarium Wilt

Fusarium wilt of watermelon is caused by the fungus *Fusarium oxysporum* f. *niveum* and Fusarium wilt of muskmelon by *Fusarium oxysporum* f. *melonis*. Although Fusarium wilt appears to be most serious on watermelons, similar symptoms occur on all cucurbits. If young plants are infected, they will damp-off at the soil line and eventually die. Older plants temporarily wilt in the middle of the day but eventually leaf tips turn brown and the plant dies. The fungus overwinters in plant debris and infested soil. During periods of warm, dry weather, both the incidence and severity of the disease increases. The best means of controlling Fusarium wilt of watermelons is by planting resistant cultivars. Other control options include long-term rotation with unrelated crops, removal of plant debris, and soil fumigation.

Adapted from: Ohio State University, 2000; Vegetable MD Online, Cornell University Cooperative Extension; Iowa State University Extension, 1993, 1997