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Vegetable Diseases

Anthracnose of Cucumber, Muskmelon, and Watermelon

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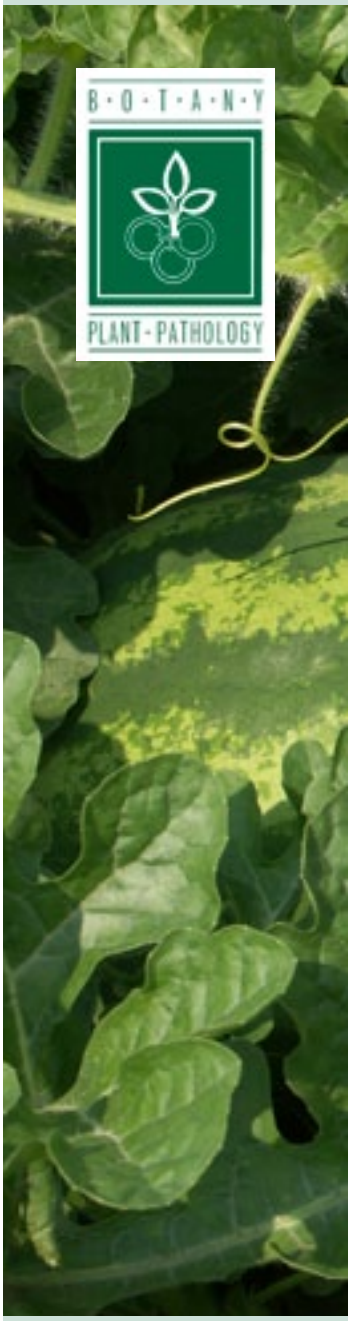

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Anthracnose of cucumber, muskmelon, and watermelon affects all the aboveground parts of these crops. In cases where infection is high and lesions on the leaves are numerous, vine defoliation may occur and result in yield loss or lower quality fruit. Direct infection of the fruit also can result in loss of marketability.

This publication describes the disease cycle and symptoms of anthracnose and offers management recommendations.

Disease Cycle and Symptoms

In Indiana, symptoms typically are much more common on watermelon than on cucumber or muskmelon. On leaves, the lesions are typically irregular and jagged in appearance. The centers of larger, older leaf lesions may fall out, which gives the leaf a "shot-hole" appearance (Figures 1, 3). On cucumber and muskmelon, leaf lesions are less angular than those on watermelon leaves (Figures 2, 3).

Stem lesions are light brown and appear spindle-shaped (Figure 4). Muskmelon and watermelon fruit also may have anthracnose lesions that appear sunken and round, and may be orange or salmon-colored (Figure 5). Such lesions often start on the lower surface of the fruit where moisture accumulates.

Figure 1. Jagged, irregular-shaped, angular lesions are typical of anthracnose of watermelon.

Figure 2. Anthracnose lesions on muskmelon leaves are lighter in color and not as angular as those on watermelon.

Figure 3. Cucumber leaves with light brown lesions and a "shot-hole" appearance.

Figure 4. Anthracnose lesions on watermelon stems tend to be light brown and spindle shaped, often with water soaking around the margins.

Warm, wet weather is favorable for anthracnose infection and spread. Moisture is needed for infection to take place and rain helps disperse the fungal spores from plant to plant. Symptoms often become severe when the plant canopy has developed sufficiently to provide a favorable environment for the fungus to infect.

Two races of the anthracnose fungus (*Colletotrichum orbiculare*) are common on cucurbit crops. Race 1 causes lesions on cucumber. Race 2 (the most common form of the anthracnose fungus in Indiana) is responsible for lesions on watermelon. Muskmelon is generally more susceptible to race 1 than to race 2.

Many watermelon cultivars are marketed as having resistance to anthracnose race 1, however there are currently no commercial watermelon cultivars that have resistance to race 2 of the anthracnose pathogen.

Figure 5. Watermelon fruit in areas that experience severe foliar symptoms often have round, sunken, salmon-colored anthracnose lesions.

Figure 6. Anthracnose lesions on watermelon seedlings include angular lesions on true leaves (as in Figure 1) as well as the water-soaked lesions shown here.

Timing	Management Measures
Fall/Winter	Fall tillage and crop rotations of at least three years without a cucurbit crop will help reduce crop residue and thus help manage anthracnose. Host resistance exists in some cucumber varieties to anthracnose.
Greenhouse	Anthracnose may be transmitted on seed. Growers should inspect transplant seedlings carefully for this disease upon delivery. Greenhouse-grown transplants should be inspected regularly for anthracnose symptoms. Poor sanitation can lead to the survival of the anthracnose fungus from year to year in a greenhouse.
Vine Touch (at or before the time when vines begin to touch within a row)	The preventative application of contact and/or systemic fungicides is usually necessary for successfully managing anthracnose of muskmelon and watermelon. Contact fungicides effective against anthracnose include chlorothalonil (Bravo®, Echo®, Equus®) and mancozeb (Dithane®, Manzate®, Penncozeb®). Several formulations of systemic strobilurin fungicides (including, Cabrio®, Pristine®, and Quadris®), as well as Topsin® and Inspire Super®, are effective. Apply fungicides every 7 to 14 days or use the Purdue Extension MELCAST system to determine optimum timing of applications. MELCAST is a weather-based disease forecasting system that helps growers to apply fungicides when the weather is most conducive to disease development (see Purdue Extension publication BP-67, *Foliar Disease Control Using MELCAST).*
Harvest	Fungicide applications generally are not necessary within two to three weeks of the final harvest. Do not save seed from fields where anthracnose has been observed. Inspect fruit for anthracnose lesions before shipment.

Find Out More

For more information about treating Anthracnose, see Purdue Extension publication ID-56, the *Midwest Vegetable Production Guide for Commercial Growers*, available from the Purdue Extension Education Store (www.the-education-store.com) or at www.btny.purdue.edu/pubs/ID/ID-56.

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