

Vegetable Diseases

Gummy Stem Blight of Muskmelon and Watermelon

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Gummy stem blight (also called black rot) is one of the most serious foliar diseases of muskmelon and watermelon in Indiana. Gummy stem blight causes lesions on stems and leaves. Fruit is rarely affected, but loss of foliage may affect yield and fruit quality.

This publication describes the cycle and symptoms of gummy stem blight and offers management recommendations.

Disease Cycle and Symptoms

The fungus that causes gummy stem blight (*Didymella bryoniae*) favors warm, rainy weather. The fungus requires rain to disperse, and wet leaves provide favorable conditions where new infections can occur. The spores of the gummy stem blight fungus survive on crop residue.

The earliest symptom of gummy stem blight is often an indefinite-shaped lesion on the leaf or stem (Figure 1). Often, these lesions are first observed on the vines or on leaf parts that are shaded or that accumulate moisture for long periods.



Figure 1. This watermelon leaf has a gummy stem blight lesion. Note that gummy stem blight lesions may have minute ridges as a result of their growth over time. Severe infections may rapidly cover entire leaves with lesions.





Figure 2. Gummy stem blight lesions on watermelon leaves tend to be chocolate brown.



Figure 4. A watermelon transplant with a water-soaked stem (hypocotyl) is a symptom of gummy stem blight.



Figure 3. Gummy stem blight lesions on muskmelon leaves are a lighter brown than those found on watermelon. Note the chlorosis surrounding the lesion.

Lesions on watermelon leaves tend to be a chocolate brown (Figure 2), while lesions on muskmelon are a lighter brown (Figure 3). Gummy stem blight lesions may be surrounded by areas of chlorosis (yellow tissue). The lesions also may have minute ridges that appear as a result of the lesion's growth over time.

Gummy stem blight may become established in the transplant greenhouse from contaminated seed or transplants, or from poor sanitation. Growers should learn to recognize gummy stem blight symptoms on seedlings. These symptoms include watermelon transplants that have water-soaked stems (hypocotyls) (Figure 4).



Figure 5. This muskmelon seedling is covered with dark fungal structures (pycnidia), which are characteristic of gummy stem blight.

In the final stage of infection, the plant tissue may appear woody. Closely inspecting the lesions at this time with a 10X hand lens may reveal the dark fungal structures (pycnidia) that are characteristic of this disease (Figure 5).

Disease Management and Timeline

Because the fungus survives in crop residue, any cultural practice that reduces crop residue will help to manage this disease. Preventative applications of contact or systemic fungicides are typically required to successfully manage the disease.

The table below provides a timeline for gummy stem blight management.

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 help manage gummy stem blight.
Greenhouse	Gummy stem blight may be seedborne. Upon delivery, growers should inspect transplant seedlings for disease. Regularly inspect greenhouses for gummy stem blight symptoms. Poor sanitation can lead to the survival of the gummy stem blight fungus from year to year. Always check fungicide labels for information about greenhouse use.
Vine Touch (at or before the time when vines begin to touch within a row)	<p>Apply fungicides in a preventative manner.</p> <p>Contact fungicides effective against gummy stem blight include chlorothalonil (Bravo[®], Echo[®], Equus[®]) and mancozeb (Dithane[®], Manzate[®], Penncozeb[®]).</p> <p>Effective systemic fungicides include Folicur[®]/Monsoon[®], Inspire Super[®], and Switch[®].</p> <p>Some strains of the fungus that cause gummy stem blight may be resistant to systemic fungicides in FRAC groups 7 and 11 (Amistar[®]/Quadris[®], Cabrio[®], and Pristine[®]). Do not use these fungicides to manage gummy stem blight in Indiana unless tank mixed with one of the contact fungicides listed above.</p> <p>Apply contact or systemic fungicides at 7-14-day intervals, or according to MELCAST recommendations (see Purdue University publication BP-67, <i>Foliar Disease Control using MELCAST</i>, www.extension.purdue.edu/extmedia/BP/BP-67.pdf).</p> <p>Apply contact or systemic fungicides at 7-14-day intervals, or according to MELCAST recommendations (see Purdue University publication BP-67, <i>Foliar Disease Control using MELCAST</i>, www.extension.purdue.edu/extmedia/BP/BP-67.pdf).</p> <p>Working in watermelon fields that are wet from rain or dew may spread gummy stem blight.</p>
Harvest	Fungicide applications are not necessary within two to three weeks of the final harvest. Do not save seed from fields where gummy stem blight has been observed.

Find Out More

For more information about treating gummy stem blight, 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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