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Fusarium on Hiemalis (Rieger) Begonia

Fusarium on hiemalis begonia can cause discolored leaves, basal stem cankers and rot, and plant collapse.



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A *Fusarium* was isolated in diagnostic laboratories from a few recent samples of hiemalis begonias showing symptoms of discolored leaves and plant collapse. While the exact species of *Fusarium* hasn't yet been pinned down, there are two *Fusarium* species reported to affect these begonias - *Fusarium foetens* and *Fusarium begoniae*.

F. begoniae is reported to cause flower and leaf blight, as well as dry rot stem cankers. *F. foetens* causes a destructive wilt, with early symptoms that can include stunt, pale discoloration of the foliage, water-soaked leaf lesions, and vein yellowing or discoloration. Both of these *Fusarium* diseases can cause significant losses in the greenhouse.

The samples showed discolored foliage, cankers and rot at the bases of stems, and on some samples

a large amount of pale pink sporulation was observed on infected stems. *F. foetens* is suspected in at least



Foliar discoloration and vein yellowing symptoms of Fusarium on hiemalis begonia. Photo courtesy of Margery Daughtrey.

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Foliar discoloration symptoms of Fusarium on hiemalis begonia.
Photo courtesy of Margery Daughtrey.

one sample, but species identification is pending.

Infected transplants are the most likely avenues for long distance spread. Once in a greenhouse, *F. foetens* can rapidly spread through flood irrigation systems; it is likely that spores can also be spread via splashing water. Fungus gnats can also spread this pathogen.

Scout your plants for the early symptoms of reduced growth and discolored foliage as well as the more advanced symptoms of stem cankers, plant collapse, and sporulation on the stem tissue. Catching this disease early, before the fungus sporulates, will help with management.

Both *F. begoniae* and *F. foetens* have been reported to occur on hiemalis begonias. In research trials, wax begonias, angel wing begonias, and tuberous begonias exposed to *F. foetens* did not show any symptoms of infection, however a couple of cultivars of Rex begonias showed stunt symptoms. (Elmer, W. 2008. Crop Protection. 27:1078-1083). Thus, hiemalis begonias should be your primary concern, but also keep an eye out for stunted Rex begonias.

When *Fusarium* is identified in your operation, immediately step up your sanitation practices. You should remove infected plants and discard the plants

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and potting media. Clean plant and soil debris and sanitize walkways, benches, trays, and wherever infected plants were found. Cleaning flood benches or floors is especially important, and treating re-circulated irrigation water and systems should also be a concern.

In research trials with *F. foetens*, bleach, hydrogen peroxide materials, and quaternary ammonium products were all effective sanitizing agents (Elmer, W. 2008. Crop Protection. 27:1078-1083). Know that many of these sanitizing products can be phytotoxic to begonia and should not come in contact with the plant material; always carefully read the product

labels and follow all label directions and precautions. Some hydrogen peroxide materials are labeled for use in irrigation systems.

Fungicides with activity for *Fusarium* can be used, but be sure to read your pesticide labels carefully; some fungicides with activity for *Fusarium* are known to cause flower damage to hiemalis begonias. If you are uncertain about plant safety, treat only a few plants and watch for phytotoxicity symptoms for before treating the rest of your crop.

Additionally, make sure to control fungus gnats as these insects can spread *Fusarium* (as well as other pathogens).



Foliar discoloration and stem rot symptoms of *Fusarium* on hiemalis begonia.
Photo courtesy of Margery Daughtrey.



Plant collapse, stem cankers and rot, and heavy sporulation of Fusarium.



Basal stem cankers and rot, leaf and vein discoloration, and heavy sporulation of Fusarium.

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