e-GRO Alert


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Begonias Gone Viral

The host range for both impatiens necrotic spot virus (INSV) and tomato spotted wilt virus (TSWV) is vast. Just as the possible hosts vary, so do the typical signs of the virus. This Alert focuses on wax, dragonwing and non-stop begonias and illustrates the wide variation of how the disease displays itself in these three related species.

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When on thinks of a virus infection of a plant, distorted growth, stunting, mottling, and necrotic spotting come to mind. These are the typical signs we use to describe a viral disease. But looking closer across species, there can be distinctive differences. Wax begonias (*Begonia semperflorens-cultorum*), dragonwing begonias (*Begonia interspecific*) and non-stop begonias (*Begonia x tuberhybrida*) are all related and one should expect that an INSV or TSWV infection would lead to similar leaf signs for each virus. But this is not the case, and each species can have unique characteristics. These three species are highlighted and the similarities and differences amongst them of how they develop symptoms of INSV are presented.

Impatiens necrotic spot virus (INSV) signs on nonstop begonia. (Photo: Brian Whipker)

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Virus Testing. INSV was confirmed in all of the begonia species. We confirmed the presence of INSV with an enzyme-linked immunosorbent assay (ELISA) test. You also can conduct in-house testing with ELISA kits [Agdia http://www.agdia.com/]. It is important to test multiple leaves from the same plant that is exhibiting symptoms. The total leaf

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area tested should be around 1 square cm. It is important to note that some plants may be asymptomatic, but still have INSV. Unless there is sufficient viral load in the plant, an ELISA test may not detect a positive response. So make sure you sample plants with signs of the virus. Otherwise, if you suspect a virus problem, have the plants tested by a diagnostic clinic.

The primary method of spreading INSV is via Western Flower thrips (*Frankliniella occidentallis*) feeding, therefore it is critical to keep them under control. Once INSV is inside a plant, there are no economical treatment options to remove the virus. Discarding infected plants is the only option, and this will help prevent the virus from spreading further.

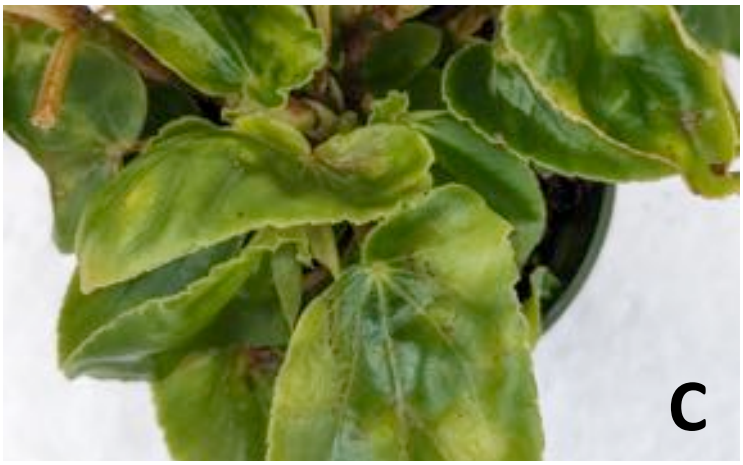
All three begonia species tested positive for INSV with an ELISA test kit. (Photos: Brian Whipker)

Wax Begonia INSV

Stunted growth (A) occurred with INSV infected plants. Upon further inspection, leaves were mottled with light colored blotches (B, C). The characteristic ringspots of a viral infection were not present with these plants. Infected plants also developed a pronounced "woody" stem appearance (D). (Photos: Brian Whipker)

Dragonwing Begonias INSV

Stunted plants with mottled spots that developed into ringspots were observed on dragonwing begonia (A, B). Necrotic ringspots were observed to aid in the identification of the viral problem (C, D). (Photos: Brian Whipker)



Non-Stop Begonias INSV

Signs of INSV were more unique on nonstop begonias. Banded-starshaped, ringspots developed over time (A, B). Other leaves developed a mottled mosaic pattern (C, D, E, F). Discoloration of the flower also occurred with faint loss of pigment and browning (G). Stem cankers also developed on some plants (H). (Photos: Brian Whipker)

Non-Stop Begonias INSV, continued

(Photos: Brian Whipker)

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