

Torenia: INSV

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On my last trip visiting greenhouses, took notice of some non-patented torenia (*Torenia fournieri*) stock plants. The plants generally looked unthrifty and the leaves were a little off-colored, so I decided to inspect the plants further.

These plants had recently been harvested for cutting, so the leaf and stem growth was limited. A few leaves had yellow mottling and necrotic spots. One plant had what I was looking for, necrotic stems (Figures 1 and 2).

I always look at torenia as being unique when it comes to signs of impatiens necrotic spot virus (INSV). Leaf mottling (Figure 3) and necrosis (Figure 4) can be indistinct or non-existent until the disease is advanced. Stem necrosis, or more likely what one first notices is stem wilt and death, seems to be the first sign of the disease. (Stem necrosis may also be the first signs of

INSV with chrysanthemums and snapdragons.) Western flower thrips were present in the greenhouse, but at low levels feeding mainly on the chartreuse ipomea. [Note: low fertilization rates will result in discolored (light green to pinkish-colored), older leaves,

which ultimately become necrotic (Figure 5).]

Because the stock plants had been recently harvested for cuttings, they were not very photogenic. The photographs used in this article came from earlier cas-



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Fig. 1. Stem necrosis of torenia.



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Fig. 2. Advanced stem necrosis of torenia.

es of INSV on torenia. INSV was confirmed with an enzyme-linked immunosorbent assay (ELISA) test by Mike Munster of the NC State University Plant Disease and Insect Clinic (<http://www.cals.ncsu.edu/plantpath/extension/clinic/>).

If you suspect a virus problem, have the plants tested by a diag-

nostic clinic. You can also conduct in-house testing with ELISA kits from Agdia (<http://www.agdia.com/>). If you choose to test in-house, Stephen Nameth of Ohio State University wrote a great article about improving INSV diagnosis techniques (<http://www.gpnmag.com/improving-insv-diagnosis>).



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Management.

Once a plant has INSV, it cannot be cured. So discarding infected plants is the only option. Note some plants may be asymptomatic but still have INSV. Thus with the primary method of spreading INSV is by Western Flower thrips (*Frankliniella occidentalis*) feeding, it is critical to keep them under control.

Additional Resources.

There are additional online resources with details about the disease, host range, and how it is spread. Below is a listing of a few which pertain to greenhouse crops.

NC State University

<http://www.ces.ncsu.edu/depts/ent/notes/O&T/production/note120.html>

<http://www.ces.ncsu.edu/depts/ent/notes/O&T/flowers/ort072e/ort072e.htm>

<http://ncsupdicblog.blogspot.com/2012/01/sample-of-week-insv-on-cyclamen.html>

Penn State University

<http://extension.psu.edu/plant-disease-factsheets/all-factsheets/impatiens-necrotic-spot-virus>

University of Massachusetts

<http://extension.umass.edu/floreiculture/fact-sheets/impatiens-necrotic-spot-virus-and-tomato-spotted-wilt-virus>

University of Connecticut

<http://www.hort.uconn.edu/ipm/greenhs/htms/tospov.htm>



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Fig. 3. Leaf mottling and necrotic spots of torenia.



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Fig. 4. Advanced leaf mottling and necrotic spots of torenia.



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Fig. 5. Leaf yellowing and pinkish-cast caused by low EC of torenia.