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 unthriftly 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 cases.
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/exten-
sion/clinic/).

If you suspect a virus problem,  
have the plants tested by a dia-
gnostic clinic.  You can also con-
duct 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 di-
agnosis techniques (http://www.  
gpnmag.com/improving-insv-di-
agnosis).
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/floriculture/fact-sheets/impatiens-necrotic-spot-virus-and-tomato-spotted-wilt-virus

University of Connecticut
http://www.hort.uconn.edu/ipm/greenhs/htms/tospov.htm

Fig. 3. Leaf mottling and necrotic spots of torenia.
Fig. 4. Advanced leaf mottling and necrotic spots of torenia.

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