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## Coleus: *Impatiens Necrotic Spot Virus (INSV)*

While visiting a grower, a wilting coleus plant was observed. Upon further inspection, sunken necrotic tissue was found on the stem. On coleus, this is a typical symptom of a virus infection. Upon inspection of other coleus plants, necrotic tissue and ringspots were observed on the leaves. A series of photos provided by this Alert will aid in you identifying this infection.

Coleus can be a favorite plant to keep as a pet plant or as a stock plant. One needs to be careful to make sure that there are no disease issues with overwintered plants.

During a visit to a grower, we were asked to look at why a coleus plant was wilting (Fig. 1). Most of the time, a wilted plant will turn out to be root rot (Pythium, etc.). For a vigorous plant like coleus, root rots are uncommon. A closer inspection of the stem revealed blackened tissue at the base. In addition there was sunken black lesions further up the stem (Fig. 2). Stem lesions are a common symptom of a virus in plants such as nemesia (e-GRO Alert 6.03), torenia (e-GRO Alert 2.04), fuchsia and angelonia.

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Figure 1. Coleus plant wilting in the pot.

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## e-GRO Alert

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The remaining crop of coleus plants was also scouted. On those plants, necrotic leaf bands (Fig. 3) and ringspots (Figs. 4 to 6) were observed. It is sometimes easier to see ringspots on coleus leaves by having backlight (Fig. 7). Both of these symptoms are common with a virus.

A plant was tested for impatiens necrotic spot virus (INSV) and it was confirmed with an enzyme-linked immunosorbent assay (ELISA) test (Fig. 8).

Luckily, no western flower thrips were found on the plants to spread the disease. Although in the case here, the virus was spread during propagation when cuttings were taken from non-patented coleus stock plants. If you suspect a virus problem, have the plants tested by a diagnostic clinic. You can also conduct in-house testing with ELISA kits from Agdia (<http://www.agdia.com/>). It is important to sample multiple leaves from the same plant.

## Management

Once a plant has INSV or tomato spotted wilt virus (TSWV), it cannot be removed. Discarding infected plants is the only option, and this will help prevent the virus from spreading further. It is important to note that some



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Figure 2. Sunken black lesions on the stem of coleus that is indicative of a virus infection.

plants may be asymptomatic, but still have INSV or TSWV. Since the primary method of spreading these viruses is via Western Flower thrips (*Frankliniella occidentalis*) feeding, it is critical to keep them under control. See e-GRO Alert 4.18 for management options.



Figure 3. Necrotic bands on the leaf as a result of an Impatiens necrotic spot virus (INSV) infection.

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Figure 4. Ringspot symptoms associated with *Impatiens* necrotic spot virus (INSV) infection.



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Figure 5. Close up view of ringspots associated with *Impatiens* necrotic spot virus (INSV) infection.



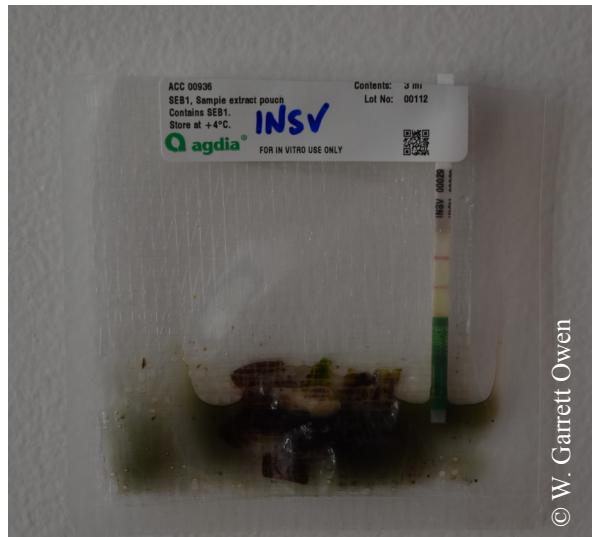
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Figure 6. Ringspots on a second coleus cultivar.



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Figure 7. Backlighting makes it easier to see ringspots on dark colored leaves.



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Figure 8. A confirmed INSV infection with an enzyme-linked immunosorbent assay (ELISA) test. Note, the double lines indicate a positive infection after testing a small portion from multiple leaves of the same stock plant.