e-GRO Alert

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New Guinea Impatiens:
Impatiens Necrotic Spot Virus (INSV)

Stunted plants and distorted leaves with dark green to black blotches, dark streaks, and necrotic concentric rings were observed on New Guinea impatiens (Impatiens hawkeri). This Alert describes and provides photos of Impatiens Necrotic Spot Virus (INSV) on New Guinea impatiens. To confirm INSV, submit plant samples to your preferred diagnostics lab.

New Guinea impatiens (*Impatiens hawkeri*) are popular spring bedding plants started from unrooted cuttings or seed and grown in various sizes of containers and hanging baskets for their copious floral display and sometimes, variegated foliage. During recent greenhouse visits, multiple crops of New Guinea impatiens were inspected because of stunted and distorted growth. Upon closer inspection of the stunted New Guinea impatiens plants (Fig. 1) with distorted leaves (Fig. 2), dark green to black blotches (Fig. 3–5), dark streaks, and necrotic spotting (Fig. 6–7) and concentric rings (Fig. 8–9) were observed.

Figure 1. Stunted New Guinea impatiens (*Impatiens hawkeri*) plants exhibiting symptomology and signs of a virus infection. Plants tested positive for Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

The magnitude of severity varied among New Guinea impatiens crops. Multiple plants exhibiting different symptomology and signs of a virus infection (concentric rings or spots) was submitted to Michigan State University's Diagnostic Services lab for testing. Plants were tested with an enzyme-linked immunosorbent assay (ELISA) test. The plants tested positive for Impatiens Necrotic Spot Virus (INSV).

Impatiens necrotic Spot Virus (INSV)

Impatiens necrotic spot virus is the most common tospovirus found in greenhouses and is related to tomato spotted wilt virus (TSWV). Both viruses have a wide host range which includes many greenhouse crops such as bedding impatiens (*Impatiens walleriana*), New Guinea impatiens, coleus (*Plectranthus scutellarioides*), cyclamen (*Cyclamen persicum*), cineraria (*Pericallis ×hybrida*), echinacea (*Echinacea* sp.), gloxinia (*Sinningia speciose*), lobelia (*Lobelia erinus*), nemesia (*Nemesia fruticans*), penstemon (*Penstemon barbatus*), torenia (*Torenia fournieri*), as well as many other annual bedding plants and herbaceous perennials not listed here. Vegetable transplants, such as tomato and pepper may become infected too. Drs. Nora Catlin and Margery Daughtrey, Cornell Cooperative Extension – Suffolk County, prepared the previous e-GRO Alert, A Pictorial Guide to Common Symptoms of INSV in Greenhouse Crops.

Management

Once a plant is infected with INSV or TSWV, it cannot be successfully treated, therefore one should remove and discard all symptomatic plants. This will help prevent the virus from spreading further. It is important to note that some plants

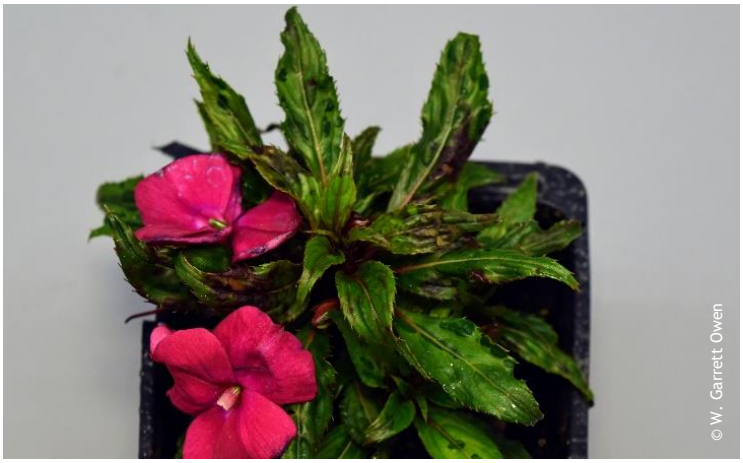


Figure 2. New Guinea impatiens (*Impatiens hawkeri*) exhibiting distorted leaves and tested positive for Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

Figure 3. Dark green blotches on distorted leaves of stunted New Guinea impatiens (*Impatiens hawkeri*) is indicative of a virus infection and tested positive for Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

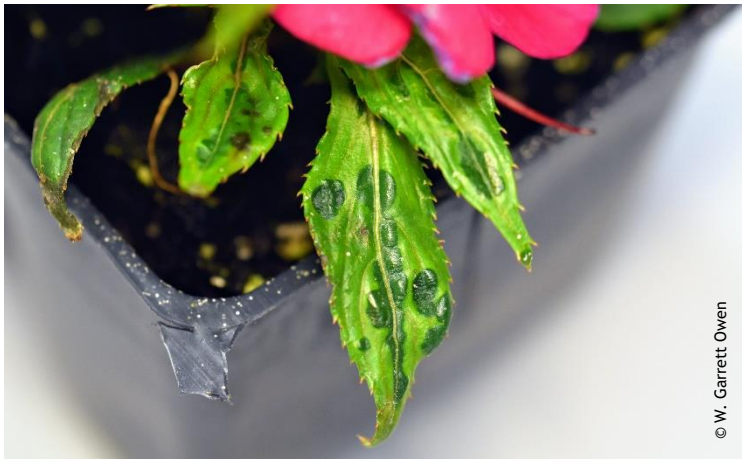


Figure 4. Close up of dark green blotches on distorted leaves of stunted New Guinea impatiens (*Impatiens hawkeri*) is indicative of a virus infection. Plants were tested positive for Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

Figure 5. Close up of black blotches on distorted leaves of stunted New Guinea impatiens (*Impatiens hawkeri*) is indicative of a virus infection and tested positive for Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

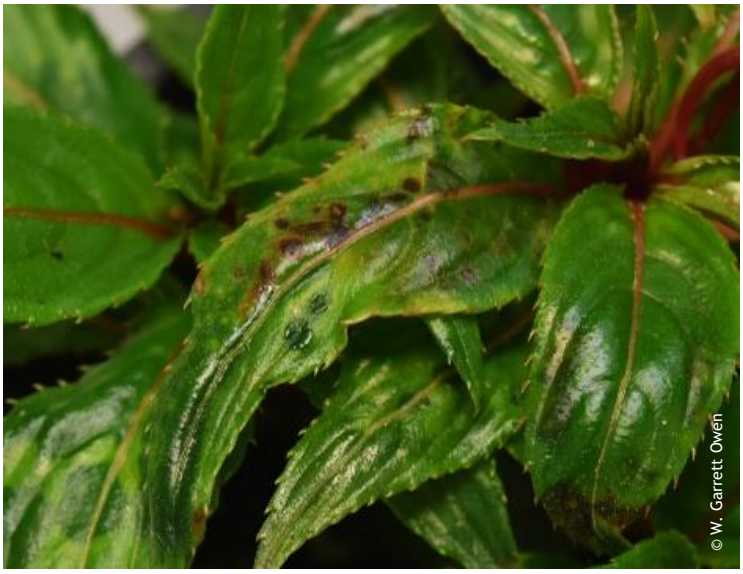


Figure 6. Dark necrotic spotting on leaves of New Guinea impatiens (*Impatiens hawkeri*) which were tested positive for Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

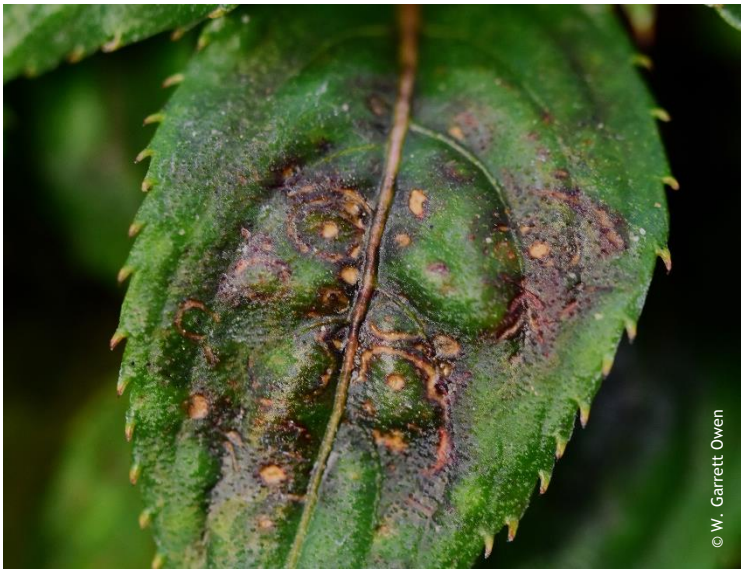


Figure 7. Necrotic spotting of New Guinea impatiens (*Impatiens hawkeri*) is indicative of a virus infection and tested positive for Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

Figure 8. New Guinea impatiens (*Impatiens hawkeri*) leaves exhibiting a faint concentric ring caused by Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

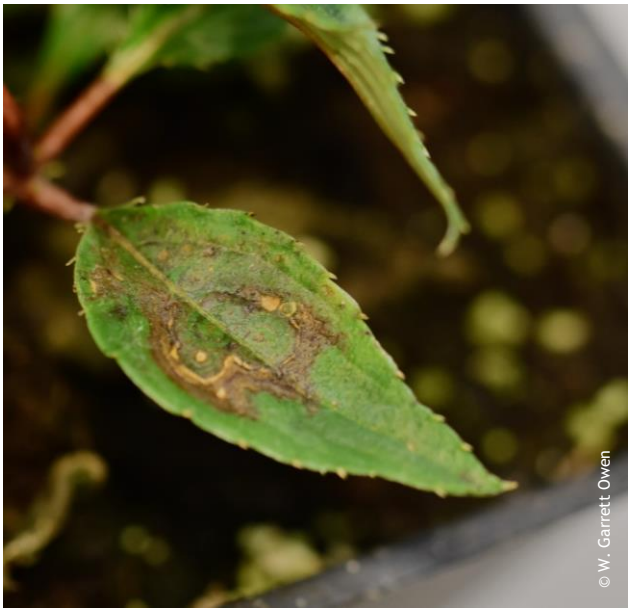
may be asymptomatic, but still have INSV or TSWV.

All incoming plant material should be carefully inspected. If plant material appears "abnormal," one should submit a plant sample to their preferred diagnostics lab and quarantined the plant material until test results are available. One may choose to use in-house test kits to screen plant material, however these kits are often pathogen-specific.

Infection and spreading of INSV and TSWV is primarily the result of Western Flower

thrips (*Frankliniella occidentallis*) feeding, therefore it is critical to keep them under control. See e-GRO Alert 4.18 and Michigan State University Extension 2018 Greenhouse Pest Management Recommendations for management and control options. For more information and an identification guide to insect and mite pests of floriculture crops, download the iBook here (Note: This book can only be viewed using iBooks 2 on an iPad. iOS 5 is required.)

One must also control weeds in the greenhouse because they can harbor thrips and the viruses (Fig. 10). When Western Flower thrips feed on virus infected plant material and then on susceptible greenhouse crops, the virus is transmitted. Therefore, it is recommended to remove all weeds from the greenhouse, high tunnel, or cold frame. Furthermore, over-wintering perennials may also harbor viruses, therefore they should be inspected for pest and diseases prior to or weeks after forcing begins.



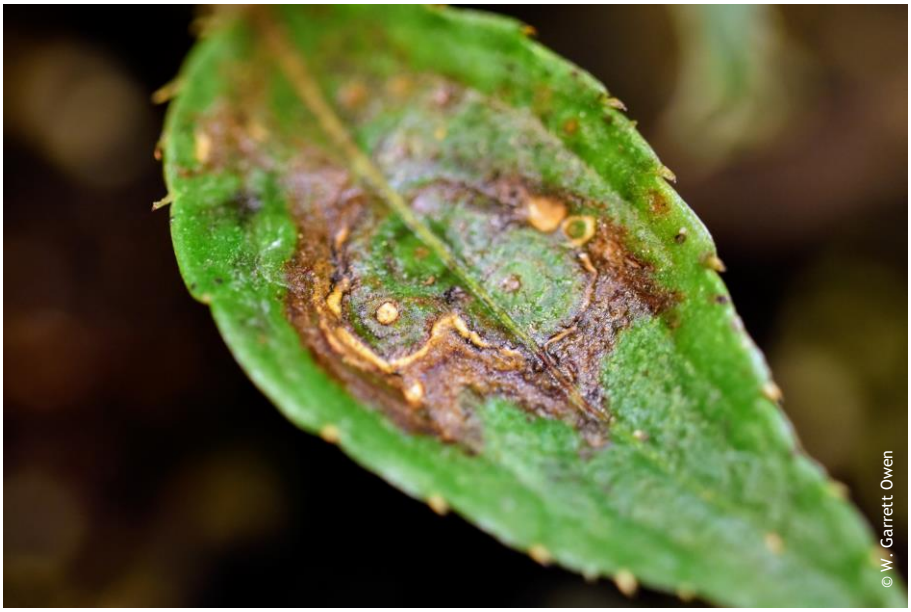


Figure 9. Close up of New Guinea impatiens (*Impatiens hawkeri*) leaves exhibiting concentric rings caused by Impatiens Necrotic Spot Virus (INSV). Photo by W. Garrett Owen.

Figure 10. Weeds in our around the greenhouse can harbor viruses which can be vectored by for example, Western Flower thrips (*Frankliniella occidentallis*) and transmitted to greenhouse crops. Photo by Brian E. Whipker.

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In cooperation with our local and state greenhouse organizations

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