



What You Need to Know *Now* About Impatiens Necrotic Spot Virus (INSV)

By Sandy Skalski

If you are active on social media, or belong to an African violet or gesneriad club, you may have heard talk of people losing their plants to a virus called INSV (Impatiens Necrotic Spot Virus).

What is INSV and how can you protect your collection?

Impatiens Necrotic Spot Virus (INSV) is a common plant virus that infects hundreds of different species of ornamental and food crop plants. It is found in all areas of the world and is responsible for millions of dollars in crop losses every year. Once infected, plants must be destroyed since there is no cure and the infected plants become a source of infection for other plants. Each plant virus has particular ways of spreading from plant to plant. This process is called 'vectoring'. Insects, mites, aphids, nematodes, tools and even your hands can vector specific plant viruses. The main vector for INSV is the Western Flowers Thrips (WFT), *Frankliniella occidentalis*. Several other species of thrips are potential vectors, but WFTs are the most important.

WFTs acquire the virus in one of their two larval stages, when they feed on an infected plant. An uninfected adult cannot acquire the virus even when it feeds on an infected plant and thus cannot transmit it. If a female thrips lays her eggs on an infected plant, the emerging larvae will feed on the plant and become infected. Once the larvae have the virus, it multiplies in their salivatory glands. Each time the new adult thrips feeds, it transmits the virus through their saliva. It takes an adult thrips only five minutes of feeding to transmit INSV. This is why when thrips show up in your collection, you need to act fast to eliminate them.

Experts disagree as to whether INSV can be transferred by infected sap on your hands or on your tools. Thrips feeding deposits virus particles directly into the vascular system of plants, which then spread throughout the plant. Typical grooming of plants with hands or tools tends to crush plant cells, which is not conducive to moving the virus into the plant. The good news is that by following the best practice of sanitizing tools between plants, you can avoid the slim possibility of plant-to-plant transmission via infected sap. I wipe my tools with 91% isopropyl alcohol. You can also use Physan 20 or a 10% bleach solution.

What does INSV look like? Virus symptoms show up as damaged plant tissue and can be easily confused with fungal diseases, poor culture and physical damage. The damage you see is related to the immune response from the plant. Sniffles, cough and fever can mean you have a cold, the flu or Covid 19. Similarly, necrotic spots, ring spots, line patterns, stunted growth, blackened petioles, distorted leaves, mottling, and mosaic patterns are all possible virus symptoms. The question is, which virus?

If you suspect you have a plant infected with a virus and don't have a reason to suspect INSV or another virus in particular, the best course of action is to take or send the plant to your state or local agricultural extension. They can test for all of the 'big four'; INSV, tomato spotted wilt (TSW), cucumber mosaic virus (CMV) and tobacco mosaic virus (TMV). Once you know what virus plagues your plant, you can buy test kits for that particular pathogen from Agdia (www.Agdia.com). Tests are sold in kits of five or twenty-five tests. Be sure to read all of the instructions carefully. If

possible, use symptomatic tissue. The test calls for a one-inch square of tissue. If you use significantly more tissue, you may get inaccurate results. False positives are extremely rare and are usually related to testing red plant tissue. False negatives are more common. Although the virus is all through the plant, it is not evenly distributed. You may have chosen a leaf with a low level of virus or perhaps the plant was recently infected.

There are two main ways INSV can enter your collection. An infected thrips can enter your growing area. INSV is a common virus that infects outdoor plants like basil and tomatoes. It also infects many perennials and weeds like chickweed. WFTs are unlikely to survive in areas with cold winters. However, INSV can survive in weeds or perennials.

The second way you can get INSV is to bring an infected plant into your collection. Most of the time, the new plants you buy or are gifted look strong and healthy. Violets infected with INSV can look perfectly healthy. The virus can stay dormant for many months. Sometimes a change in temperature or stress on the plant can bring on symptoms. If the virus-infected plant enters your collection and you get thrips, the thrips can spread the virus to the rest of your plants. If new plants look sick right out of the box, don't take a chance. It might be shipping stress, but it might be something much more serious. The same goes for any plant infested with pests, especially thrips. Bag any plants with pests and dispose of them.

How can you protect your collection from INSV? First, keep thrips out of your growing area. Thrips can live for more than a month and an infected thrips can transmit the virus its entire life. If they show up in your collection, make eliminating them quickly your Job #1. Second, isolate all new plants and leaves. Consider new plants and leaves quarantined until they prove to be healthy. A six-month isolation is common among seasoned growers. I isolate new plants for one year, in a warm room, far from my main collection. The trash can is your friend. If your new plants are not thriving after an isolation of six to twelve months, there's a good chance they aren't healthy. Don't risk the rest of your collection for these few.

What should you do if you suspect you have a plant or plants infected by a virus? Always remove questionable plants from your growing area and isolate them in another room, preferably in a sealed container or zippy bag. If the plant was not isolated, get a diagnosis via your local agricultural extension or purchase test kits. This is especially important if you've also had a recent thrips problem.

In the next issue, I'll discuss INSV in more detail, and include more photos of symptoms on violets and gesneriads. Plus, I'll share information about three other common viruses that can infect African violets and gesneriads; tomato spotted wilt (TSW), cucumber mosaic virus (CMV) and tobacco mosaic virus (TMV).