

GROWERTALKS

Paul's Pointers

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Does This Rattle Your Cage?

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Growing plants can be very rewarding. Please correct me if I'm wrong, but selling them is probably even more rewarding than producing them. Doesn't it just rattle your cage when you think you're at the finish line and then you see it ... yep, there it is ... the yellow ring spotting, concentric line patterns and line patterns symbolic of those expressed by plant viruses.

There's certainly a number of plant viruses you've likely come across on perennials over the years, however, I'd like to focus on Tobacco rattle virus (TRV) in this article. TRV occurs quite frequently on various perennials, but is often not recognized by name and is commonly mistaken for other plant viruses.

Although TRV is commonly observed on a few perennials such as dicentra, epimedium and paeonia (peony), it has a fairly wide host range consisting of over 350 plant species. Here are a few other plants tobacco rattle frequently infests: anemone, calendula, daffodil, gladiolus, heuchera, hosta, hyacinth, narcissus, petunia, phlox, tulip and vinca.

TRV is most commonly observed on perennials transplanted from bareroot or bulb crops that were at one time grown in field soil. The connection between these crops and the field soil is the soil-inhabiting nematodes (genera *Paratrichodorus* and *Trichodorus*), which are the primary vector (carrier and transmitter) of the virus. Although, nematodes are the primary vectors of Tobacco rattle virus, TRV can also be vectored mechanically on infected tools.

Like many viruses, TRV can be expressed as a range of symptoms that vary by the plant variety infected. The most common symptoms include yellow ring spotting and concentric line patterns, but may also be observed as brown ring patterns, line patterns, chlorotic mottling, necrotic lesions, ring flecks, mosaics, stunting and distorted growth. It's not uncommon for plants infected with viruses to not exhibit any of the symptoms listed above.

Depending on the host species, the symptoms often appear following some type of stress (environmental and/or cultural) and their appearance can vary seasonally. Symptoms can disappear soon after they appear or persist throughout the growing season.

Plant viruses can be very difficult to identify, but often have a profound effect on crop development and appearance. Identifying virus symptoms can be very challenging, as they often resemble other cultural problems, such as fungal diseases, herbicide injury and nutritional disorders.

Unless experience dictates otherwise, growers shouldn't rely solely on visual symptoms to properly diagnose plant viruses. Symptomatic plants or plant parts should be sent to virus testing laboratories for more accurate testing and identification procedures. These laboratories conduct virus testing using bioassay, serology, nucleic acid analysis, DNA probing and electron microscopy identification procedures (my eyes or a gut feeling can't do these).

Unfortunately, there are currently no controls for treated plants infected with viruses. Once plants are diagnosed with TRV (or any virus), infected plants should be removed promptly out of the growing area and destroyed. I've seen many instances where state inspectors quarantined entire blocks of plants just because they contained a handful of symptomatic plants. If you suspect there's a virus in your crops, remove them from the production blocks, get them tested and throw them away if viruses are confirmed. It hurts a bit, but it's that simple.

The occurrence of TRV and other viruses can be very frustrating, but they don't have to rattle your cage. Be sure to purchase starting materials from reputable suppliers who offer virus-indexed plants to the industry. Inspect all incoming plants for virus symptoms. Scout the crops regularly to detect symptomatic plants early. And remember that once a plant has been diagnosed with a virus, it should be removed from the production area and discarded immediately. **GT**

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