

Hidden Pest Of Perennials

Nematodes may be the cause of problems in landscape perennials.

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Plant-parasitic nematodes are microscopic worms that feed on and damage plants. Most gardeners are familiar with nematodes as problems on vegetables in the garden, but they are important pests of perennial landscape plants as well. Most plant-parasitic nematodes feed on roots. These nematodes can greatly impair the ability of the roots to function properly and take up water and nutrients from soil.

Infestation Symptoms

Woody plants damaged by root-feeding nematodes may drop leaves and have a sparse canopy. Leaves also may be much smaller than normal. The plant may show symptoms of nutrient deficiency even though fertilization has been adequate. Affected plants also may be stunted and not grow. Often nematodes will affect plants in certain areas, while plants nearby remain healthy.

Nematode-damaged woody plants will decline slowly over months or years. So if the plant dies rapidly over days or weeks, nematodes are probably not to blame. When any of these symptoms are present, nematodes are one of several possible causes. Now it's time to take a look at the roots of your plants.

Numerous Nematodes

Root-knot nematodes are the most common nematode problem on many landscape ornamentals. These nematodes



Root-knot nematode galls damaged this passion vine.

are often easy to diagnose because they typically cause galls or knots on roots. Root-knot galls can be small or large, depending on the host plant and root-knot species.

Several root-knot species are found in Florida, and most plants are susceptible to one or more of them. The most commonly affected landscape perennials are ixora, gardenia, hibiscus, boxwood, lantana, pittosporum, bottlebrush, pentas, and ligustrum. However, the number of host plant species reaches into the hundreds.

Other nematodes such as lesion or burrowing nematodes may cause dark sunken lesions or rotting of roots, bulbs, and rhizomes. Sting, awl, and stubby-root nematodes can cause stunted, stubby roots.

Submitting Samples

Because these symptoms can have other causes, the only way to be certain whether or not nematodes are a problem is to have a nematode sample submitted to a nematode diagnostic lab. Nematode sample kits are available at all Cooperative Extension offices in Florida. Nematodes will be extracted from both soil and roots, so make sure to include both soil and roots from affected plants in the sample. It also is important to specify what kind of plant the sample is from. The lab will be able to determine if the plants indicated are at low, moderate, or high risk of



These nematode-infected boxwood exhibit bronzing and dropping of leaves.

damage from the nematodes present in the sample.

Practice Prevention

Once nematodes are present in a landscape, you will not be able to get rid of them. Therefore, make sure to inspect the roots of plants carefully before you plant them. Avoid plants with galled, rotten, or otherwise unhealthy looking roots. Nematode spread is especially prevalent in plants that are propagated from rhizomes, bulbs, or division.

Nematodes and other pathogens can be moved in soil adhering to digging equipment. After digging around or removing sick or dead plants, clean shovels and other equipment carefully to avoid spreading nematodes or pathogens to healthy plants.

Some plants, such as 'Evergreen Giant' liriopse, are tolerant hosts for root-knot nematodes. These are plants that harbor the nematodes but are not damaged by them. If root-knot infested liriopse are planted near susceptible plants, they can spread the nematodes to them.

Perennial Picks

When nematodes are diagnosed as a problem, often the best course of action is to remove the affected plants. The next question is, "What do I replace them with?" Some perennial ornamentals that have been found to be resistant to several species of root-knot nematodes in University of Florida (UF) research are firespike (*Odontonema cuspidatum*), 'Gold Dust' croton (*Codiaeum variegatum*), 'Oakleaf' hydrangea (*Hydrangea quercifolia*), anis (*Illicium parviflorum*), sweet pepper bush (*Clethra alnifolia*), Walter's viburnum (*Viburnum obovatum*), dwarf Virginia sweetspire (*Itea virginica*), sweet pepper bush (*Clethra alnifolia*), and azalea (*Rhododendron* spp.). These plants would be good choices for root-knot infested landscapes.

Ongoing Research

Currently, there are no synthetic nematicides labeled for use on ornamentals in landscapes. However, there are several botanical extracts, biological organisms, and soil amendments sold for residential use that make claims to reduce damage from plant-parasitic

nematodes. Researchers at UF have evaluated many, but not all, of these and have yet to identify any that consistently reduce nematode populations.

Ongoing UF research projects include the use of nematode parasitic bacteria, and fungi that feed on nematode eggs that could be used to control nematodes in residential landscapes. Scientists also are looking at new nematicides that are much safer than

those used in the past. These could potentially be used on landscape ornamentals with little or no risk to humans and the environment. Efforts continue to identify more nematode tolerant and resistant ornamental plant species. Hopefully, there will soon be more tactics to employ against these invisible landscape pests. ■

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