



Nematode-caused Diseases On Woody Ornamentals

Nematodes are soil-dwelling non-segmented roundworms, usually less than 0.5 mm (0.02 in.) long.

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Nematode eggs.

Those that feed on plants have a hollow spear-like mouth part (stylet) that is pushed into the plant cell. The worm forces enzymes through the hollow stylet into the cell where cell components are digested and then drawn back into the nematode's digestive system through the stylet.

The life histories and longevity of plant parasitic nematodes vary greatly from species to species. While some live inside host tissue

and produce two or more generations per year, some others live outside the plant feeding on outer cell layers and others may have only one generation per year. Certain species lay hundreds of eggs in a season while others lay very few.

Nematodes belonging to the genera *Meloidogyne* (root knot), *Criconemella* (ring), *Pratylenchus* (lesion), *Tylenchorhynchus* (stunt), *Paratrichodorus* (stubby-root), *Rotylenchus* (reniform), and *Xiphinema* (dagger) can cause damage on woody ornamentals. Often more than one species is found associated with a plant's roots. The effects of mixed populations of nematode species on woody ornamentals are largely unknown.

First determine if the problem is due to nematode activity. Many factors unrelated to nematode feeding can cause symptoms similar to nematode feeding.

Symptoms

- Plant decline occurs over several seasons.
- Chlorosis similar to iron deficiency
- Foliage bronzing (characteristic of boxwood).
- Foliage may die and fall.
- Branch dieback
- Root systems are small with necrotic or galled areas.
- Plants stunted.

In nurseries, plants with some of the above symptoms characteristically occur in scattered clumps. Nematodes may already be present in the nursery soil and be spread by tilling, soil movement, and run-off. Nematodes can be brought into a previously uninfested nursery on rooted plants.

Management In Nursery

Field

Fumigate planting area with a material listed below before planting. Plant nematode-free material.

Containers

Use sterile potting mix. Avoid contaminating potting mix with untreated soil. Plant nematode-free material.

Management In Home Or Commercial Plantings

- Plant nematode-free material.
- Areas known to be infested can be fumigated before planting.
- Post-plant chemical treatments by homeowners are not recommended. Remove severely affected plants. Plants not severely affected should be watered, fertilized and protected from other stresses.



Xiphinema, dagger nematode, stylet or mouth part protruding from the worm. Note the new stylet forming below the protruding stylet. When the nematode molts, it loses the stylet and must replace it.

The following information is from R. K. Jones, D. M. Benson, and K. R. Barker. 1982. Nematodes and their control in woody ornamentals in the landscape. Plant Path. Info. Note #63. Dept. of Plant Pathology, North Carolina State University, Raleigh.

HS = Plants highly susceptible; S = Plants susceptible (some stunting but plants will grow satisfactorily); T = Plants will grow satisfactorily; ? = Have not been tested

Host Plant	Nematode Reaction			
	Root Knot	Stunt	Lesion	Ring
Azalea	T	S	?	T
Aucuba japonica	HS	S	?	T
Buxus microphylla (Japan. Boxwood)	HS	T	?	?
Buxus sempervirens (Am. Boxwood)	?	T	?	?

Host Plant	Nematode Reaction			
<i>Buxus sempervirens</i> (Eng. Boxwood)	?	?	HS	?
<i>Camellia Japonica</i>	T	T	?	?
<i>Camellia sasanqua</i>	T	T	?	?
<i>Gardenia jasminoides</i>	S	T	T	T
<i>Gardenia radicans</i>	HS	T	T	T
<i>Ilex cornuta</i> (Chinese holly)				
cv. <i>Burfordi</i>	T	T	?	T
cv. <i>Rotunda</i>	S	S	?	S
<i>Ilex crenata</i> (Japanese holly)				
cv. <i>Compacta</i>	HS	T	T	S
cv. <i>Convexa</i>	HS	T	?	S
cv. <i>Helleri</i>	HS	S	?	S
cv. <i>Rotundifolia</i>	HS	S	?	S
<i>Ilex vomitoria nana</i> (Yaupon holly)	T	T	?	T
<i>Juniper</i> sp.				
cv. <i>Blue Rug</i>	T	T	HS	T
cv. <i>Shore juniper</i>	T	T	?	T
cv. <i>Spiney Greek</i>	T	T	S	T
<i>Ligustrum</i> (Privet)	T	T	?	T
<i>Nandina domestica</i>	T	T	T	T
<i>Photinia fraseri</i> (Red tip)	T	T	?	T
Rose	S	S	S	T

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