

Nematodes on Ornamentals

root-knot, root-lesion, and more specialized or exotic forms may cause acute injuries in nursery, greenhouse, and garden

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The root-knot nematodes are a limiting factor in growing ornamental plants—roses, carnations, Shasta daisies, gerbera daisies, and many others. Three species—*Meloidogyne incognita acrita*, *M. javanica javanica*, and *M. hapla*—are commonly found on ornamental plants in California. Steam sterilization of plant beds or preplanting treatments of soil with nematocides have been effective in their control.

The widespread root-lesion nematodes are probably second in importance.

Root-lesion disease of roses—caused by *Pratylenchus vulnus*—has above-ground symptoms of chlorosis, stunting, and dieback, with sparse root growth and a lack of feeder roots. The disease is seen primarily in field-grown and backyard plantings of roses in southern California and in greenhouse roses throughout the state. Recent tests at Riverside show that the symptoms of this disease are more severe in sandy soils and at warmer temperatures.

Preplanting fumigation tests have shown that 1,3-dichloropropene-1,2-dichloropropane—D-D or Telone—is the most economical and effective means of controlling this disease. Treatment with emulsifiable 1,2-dibromo-3-chloropropane—Nemagon or Fumazone—at four gallons of actual material per acre has been effective in controlling nematodes on roses growing in 5-gallon containers.

P. scribneri is the causal organism of root-lesion disease of *Cymbidium* orchids. Symptoms are poor growth, yellowing of the outer leaves, and reduction



Cymbidium plant on right infested with the root-lesion nematode—*Pratylenchus scribneri*; plant on left uninfested.

lowing of the outer leaves, and reduction in flowering. Roots show necrotic lesions or complete rotting, and the pseudobulb of the orchid often has black necrotic lesions. Recent experiments have shown that plants infested with this nematode produce only about half the growth of noninfested plants. All the above symptoms, as seen in nurseries, have been reproduced in greenhouse experiments.

Treatments of infested *Cymbidium* plants with available nematocidal chemicals have not been effective, probably because the habitat of the nematode is deep in the roots and pseudobulb.

Root-lesion nematodes affect many

Injury to hydrangea leaves by the bulb and stem nematode—*Ditylenchus dipsaci*.



other ornamental plants, including trees, bulbs, and many flowering annuals. As with other nematode diseases, preplanting soil fumigation with nematocides is effective. *P. penetrans* is commonly found on lilies in California.

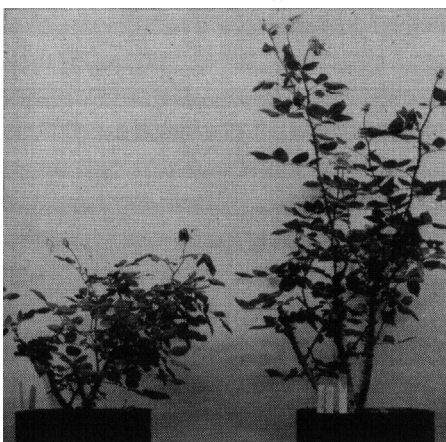
The endoparasitic root-knot and root-lesion nematodes appear at present to be the most important pests of ornamental plants. This may be true only because the importance of the large group of ectoparasitic nematodes has only recently been recognized.

The stunting disease of azaleas—caused by the ectoparasite *Tylenchorhynchus claytoni*—reduces the top growth as well as the root system. Similar symptoms, often with chlorosis, are seen in nurseries and backyard plantings infested with this nematode. Preplanting fumigation of peat moss in which diseased plants have been grown has controlled this nematode and made it possible to grow satisfactory plants. Treatment of azaleas growing in containers with emulsifiable Nemagon at the rate of four gallons of actual material per acre has also resulted in eliminating the nematode and increasing plant growth.

The ectoparasitic ring nematode—*Criconemoides xenoplax*—can cause a stunting of carnation plants and significant decline in flower production. Although roots are markedly reduced in size by the feeding of this nematode, no specific symptoms can be observed as in root-knot or root-lesion diseases.

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Rose plant on right treated with emulsifiable Nemagon. Plant on left untreated, infested with root-lesion nematodes.



Azalea plant at left grown in peat moss infested with the stunting nematode, *Tylenchorhynchus claytoni*. Other pot pretreated with D-D.



