



Disease and Insect Resistant Ornamental Plants

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ILEX

Holly

Ilex is a widely-distributed genus of over 400 species of evergreen or deciduous trees, shrubs and climbers.

Holly flowers may be inconspicuous, but their distinctive foliage, colorful fruit and diverse forms provide plenty of ornamental interest.

Insect pests of hollies include leaf miners, scale and spittlebug. Diseases, particularly in nursery production, include black root rot, blights and nematodes.



DISEASES

Thielaviopsis Root Rot, also known as black root rot, is a disease caused by the soil-borne fungus *Thielaviopsis basicola*. Herbaceous plants are most likely to be affected, but some woody plants, including several *Ilex* species, are also susceptible (16). This disease often affects hollies in nurseries and can cause serious damage in container plants resulting in sparse, off-color foliage and dieback (15).

Thielaviopsis Root Rot				
Species/Hybrids	Cultivar	Reference		
		Resistant	Moderate	Susceptible
<i>Ilex aquifolium</i>		7		
<i>Ilex cornuta</i>		7		
<i>Ilex crenata</i>				7, 8, 16
<i>Ilex crenata</i>	Compacta			15
	Convexa			15
	Green Cushion			7
	Helleri			7, 13, 15, 17
	Hetzii			7
	Highlander			15
	Hoogendorn			7
	Microphylla			15

Thielaviopsis Root Rot				
Species/Hybrids	Cultivar	Reference		
		Resistant	Moderate	Susceptible
<i>Ilex crenata</i>	Mobjack Supreme			7
	Nigra			7
	Rotundifolia			15
<i>Ilex glabra</i>				16
<i>Ilex opaca</i>			7	16
<i>Ilex pernyi</i>				13
<i>Ilex vomitoria</i>			7	
<i>Ilex x meserveae</i>				16

Phytophthora Leaf and Twig Blight, caused by *Phytophthora ilicis*, is a common disease in holly production in the Pacific Northwest (9, 15). Symptoms include leaf spots, defoliation and twig cankers which can eventually girdle and kill the twig. *I. aquifolium* is susceptible, while *I. cassine*, *I. ciliospinosa*, *I. cornuta*, *I. crenata*, *I. glabra*, *I. intricata*, *I. latifolia*, *I. perado*, *I. sugeroki* and *I. vomitoria* appear to be resistant (14).

INSECTS

Twolined Spittlebug, *Prosapia bicincta*, is a North American species that is mainly a larval pest of warm-season turfgrasses. The adult can injure some woody plants, including holly, causing leaf distortion, discoloration and defoliation (5, 12).

Researchers in Georgia report *I. cornuta*, *I. glabra*, *I. verticillata* and *I. vomitoria* as generally resistant to feeding and *I. cassine*, *I. opaca*, and *I. x attenuata* hybrids as highly susceptible (5).

Holly Looper, *Thysanopyga intractata*, is found in the eastern US wherever American holly, *I. opaca*, is grown (6). Damage appears as deep notching cuts as the caterpillar feeds along leaf margins. Its primary host is *I. opaca*, but *I. aquifolium*, *I. crenata*, *I. cornuta*, and *I. vomitoria* are also susceptible (7, 9, 12).

Leaf Miners, *Phytomyza* spp., are larval feeders of foliage that create puncture scars and winding or blotched mines. The native holly leaf miner, *P. ilicicola*, is the most common miner of *Ilex*, and American holly (*I. opaca*) is especially susceptible (7, 12). *P. ilicis* feeds only on *I. aquifolium* (12).

Scale insects are mostly parasites that feed on plant sap. Many species are serious pests of crops while others are associated with ornamentals, including holly. Feeding can cause yellow leaves and branch dieback, and in severe infestations, death of the plant.

Researchers at the University of Georgia report *I. buergeri*, *I. crenata*, *I. glabra*, *I. myrtifolia*, *I. verticillata* and *I. vomitoria* have low susceptibility to Florida wax scale, *Ceroplastes floridensis* (11).

Japanese Beetle, *Popillia japonica*, is a common defoliator of many landscape plants. *I. aquifolium*, *I. cornuta*, *I. crenata* and *I. opaca* are reported to be resistant, and occasional feeding has been observed on *I. verticillata* (10).

NEMATODES

Nematodes are microscopic worms that live in many environments, including soil and plants. Beneficial nematode species feed on insects, bacteria or fungi that are harmful to plants and can be an important source of disease control.

There are also plant parasitic species that cause injury such as stunting, chlorosis and defoliation. Nematodes that affect hollies include root-knot (*Meloidogyne arenaria*, *M. incognita*) ring (*Cricone-mella xenoplax*) and stunt (*Tylenchorhynchus claytoni*) (15). Damage from these root-feeding nematodes is more often a concern in southern climates.

Nematodes				
Species/Hybrids	Cultivar	Nematode	Reference	
			Resistant	Susceptible
<i>Ilex cornuta</i>	Carissa	<i>M. incognita</i>	18	
	Burfordi	<i>M. arenaria</i>	3	
	Burfordi	<i>C. xenoplax</i> , <i>M. arenaria</i> , <i>T. claytoni</i>	15	
	Rotunda	<i>C. xenoplax</i> , <i>M. arenaria</i> , <i>T. claytoni</i>		15
	Rotunda	<i>M. arenaria</i> , <i>T. claytoni</i>		3
<i>Ilex crenata</i>				15
<i>Ilex crenata</i>	Compacta	<i>T. claytoni</i>	15	
	Compacta	<i>M. arenaria</i>		4
	Compacta	<i>M. arenaria</i> , <i>M. incognita</i>		18, 19
	Convexa	<i>M. arenaria</i>		2
	Convexa	<i>T. claytoni</i>	15	
	Green Luster	<i>M. arenaria</i> , <i>M. incognita</i>		18, 19
	Helleri	<i>M. arenaria</i>		2
	Helleri	<i>M. arenaria</i> , <i>M. incognita</i>		18,19
	Helleri	<i>C. xenoplax</i> , <i>T. claytoni</i>		1
	Rotundifolia	<i>M. arenaria</i>		2
	Rotundifolia	<i>C. xenoplax</i> , <i>T. claytoni</i>		1
<i>Ilex glabra</i>	Shamrock	<i>M. arenaria</i> , <i>M. incognita</i>	18, 19	
<i>Ilex vomitoria</i>	Nana	<i>C. xenoplax</i> , <i>M. arenaria</i> , <i>T. claytoni</i>	15	
	Schelling's Dwarf	<i>M. arenaria</i> , <i>M. incognita</i>	18,19	
<i>Ilex x</i>	Little Red™	<i>M. arenaria</i> , <i>M. incognita</i>		18, 19

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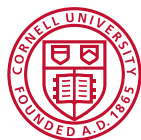
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OTHER RESOURCES

"Missouri Botanical Garden." missouribotanicalgarden.org

"Woody Plants Database." *Urban Horticulture Institute*, Cornell University. woodyplants.cals.cornell.edu/plant/search



Cornell Cooperative Extension

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