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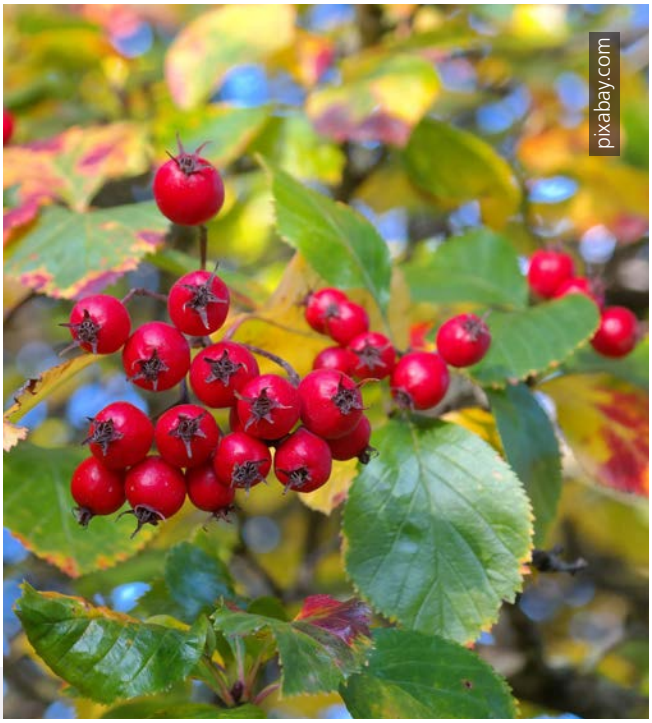
Disease and Insect Resistant Ornamental Plants

Mary Thurn, Elizabeth Lamb, and Brian Eshenaur
New York State Integrated Pest Management Program, Cornell University

Crataegus

Hawthorn



Crataegus is a large genus of shrubs and small trees in the rose family commonly known as hawthorn. This popular ornamental has showy pink or white flowers in spring and colorful berry-like fruit. Some species also have long thorns that provide protection for wildlife but may be a hazard in the landscape–thornless cultivars are available.

Like other rosaceous plants, hawthorns are susceptible to a number of diseases including fire blight, scab, leaf spot and several types of rust. Insect pests include lace bugs and leaf miners.

DISEASES

Cedar Rust diseases on hawthorn, which include hawthorn rust and quince rust, are caused by several fungi in the genus *Gymnosporangium* that spend part of their life cycle on Eastern red cedar (*Juniperus virginiana*) and other susceptible junipers, and another part of their life cycle on plants in the rose family, especially *Malus* and *Crataegus*. Since two hosts are required for these fungi to complete their life cycle, one way to reduce disease problems is to avoid planting alternate hosts near each other.

Hawthorn Rust, caused by *Gymnosporangium globosum*, is a significant concern for *Crataegus* spp. in the Northeast (7). Hawthorns are the main broadleaved host for this rust, and yellow-orange leaf spots are the most common symptom. (8). With severe infections, foliage may turn bright yellow and drop prematurely (15).

HAWTHORN RUST				
Species/Hybrids	Cultivar	Reference		
		Resistant	Intermediate	Susceptible
Crataegus crus-galli		15		3
Crataegus flava		15		
Crataegus laevigata (=*C. oxyacantha**)		16		
Crataegus laevigata	Autumn Glory	15		2
Crataegus x *lavalleei*		2	3	

*USDA Germplasm Resource Information System

HAWTHORN RUST				
Species/Hybrids	Cultivar	Reference		
		Resistant	Intermediate	Susceptible
Crataegus intricata		15		
Crataegus mollis				2
Crataegus monogyna		15		
Crataegus phaenopyrum		15		
Crataegus pruinosa		15		
Crataegus viridis	Winter King	15	2	

Quince Rust, caused by *Gymnosporangium clavipes*, occurs only in North America, most commonly in eastern regions, and is one of the most damaging of the *Gymnosporangium* rusts on rosaceous plants (15). On broadleaved hosts such as hawthorn, the fungus primarily attacks fruit and succulent stem tissue. There are no reports of commercially available hawthorn species or cultivars with resistance to quince rust–*C. crusgalli* var. *inermis* and *C. phaenopyrum* are particularly susceptible (16).

Entomosporium Leaf Spot, also known as hawthorn leaf blight, is a fungal disease caused by *Diplocarpon mespili* (conidial state=*Entomosporium mespili*). Symptoms start as small, irregularly-shaped spots on the upper and lower surfaces of leaves which coalesce into larger lesions. Lesions may also develop on twigs and branches. Severe infections cause rapid defoliation, and repeated infections can reduce growth and weaken tree vigor (16).

ENTOMOSPORIUM LEAF SPOT			
Species	Cultivar	Reference	
		Resistant	Susceptible
Crataegus crus-galli	Washington	9, 15	
Crataegus laevigata (=*C. oxyacantha*)			3, 9, 13, 16
Crataegus laevigata	Crimson Cloud	2, 3	13, 16
	Paul's Scarlet		3, 9, 10, 13, 15, 16
Crataegus x *lavalleei*		9	
Crataegus mordenensis	Toba	9	
Crataegus phaenopyrum		9, 15	

Fire Blight is a disease of *Crataegus* and other rosaceous plant species caused by the bacterium *Erwinia amylovora*. Named for the scorched appearance of affected leaves, blossoms and twigs, it can cause severe damage and death in landscape and nursery settings. Fire blight is favored by warm, humid spring weather. Insects and rain can spread the bacteria. Cultural practices that prolong succulent growth such as excess fertilization and heavy pruning can increase disease incidence and severity.

FIRE BLIGHT				
Species	Cultivar	Reference		
		Resistant	Intermediate	Susceptible
Crataegus arkansana				12
Crataegus calvescens		12, 13		
Crataegus canadensis		12, 13		
Crataegus chlorosarca			17	
Crataegus delasi		12, 13		

FIRE BLIGHT				
Species	Cultivar	Reference		
		Resistant	Intermediate	Susceptible
Crataegus x *grignonensis*				12, 17
Crataegus laevigata (=*C. oxyacantha*)				14, 17
Crataegus laevigata	Autumn Glory			2
	Crimson Cloud		17	
	Misekii		17	
	Mutabilis		17	
	Paul's Scarlet		17	12
	Plena		17	
Crataegus x *lavalleei*				17
Crataegus x *lavalleei*	Carrierei			17
Crataegus x *media*	Punicea	17		
Crataegus mollis		12, 13		
Crataegus monogyna				12, 14, 17
Crataegus monogyna	Compacta		17	
	Stricta			2, 17
Crataegus mordenensis	Toba		17	
Crataegus oxyacantha rosea-plena				12
Crataegus persimilis			17	14
Crataegus persimilis	Splendens		17	
Crataegus pinnatifida var. major		17		
Crataegus pinnatifida pyriformis				12
Crataegus pulchra		12, 13		
Crataegus tomentosa pyrifolia				12
Crataegus turkestanica				12
Crataegus viridis arborescens				12

INSECTS

Hawthorn Lace Bug, *Corythucha cydoniae*, is found throughout the United States, southern Canada, and northern Mexico. Many plants in the rose family are susceptible–hawthorn, pyracantha, amelanchier, cotoneaster and quince are favored hosts (11). Although feeding activity takes place on leaf undersides, damage is noticed on upper leaf surfaces which show chlorotic spots known as "stippling". Heavy infestations may result in yellowing and premature leaf drop (6). Lacebug resistance has not been reported in hawthorn.

Hawthorn Sawfly Leaf Miner, *Profenusa canadensis*, affects certain species and cultivars of *Crataegus* and is a primary pest of *C. crus-galli* (1, 4, 11). *C. erecta* and *C. persimilis* are also susceptible (1, 11). Mines created by larval feeding coalesce into larger blotches and turn brown, leading to a scorched appearance of leaves. Injury is unsightly, but seldom causes serious damage to otherwise healthy plants. Resistance is reported for *C. mollis* (11).

Japanese Beetle, *Popillia japonica*, is a foliage feeder of many landscape plants. Moderate resistance is reported for *C. monogyna* and *C. laevigata* (=*C. oxyacantha*) (5).

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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

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