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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

Tilia

Linden

Tilia is a genus of of mostly large, deciduous trees native to Europe, Asia and North America. Known as linden or basswood in North America, they are popular ornamental shade trees with attractive dense foliage and fragrant flowers. Some species are quite tolerant of pollution and are a common choice for city street trees.

Potential insect pests include Japanese beetles, scales, spider mites and aphids. Diseases are rarely a problem for lindens but may include anthracnose, canker, and powdery mildew.

INSECTS

Linden Aphid, *Eucallipterus tiliae*, feeds only on *Tilia* spp. and is a potential pest wherever they are grown (8). Aphids feed on the undersides of leaves which may cause some leaf and shoot distortion if populations are high (11). Aphids also secrete honeydew, a sticky liquid that can be a messy nuisance in urban and suburban areas. Certain fungi may colonize the honeydew resulting in sooty mold growing on leaf or other surfaces. Species with fuzzy leaf undersides tend to be less affected by aphids (2, 5).

LINDEN APHID		
Species/Hybrids	Reference	
	Resistant	Susceptible
Tilia americana		4
Tilia cordata		2
Tilia x *euchlora*	2	
Tilia x *europaea*		2
Tilia maximowicziana	2	
Tilia mongolica	2, 3	
Tilia petiolaris	2	
Tilia platyphyllos		2

Japanese Beetle, *Popillia japonica*, is a common foliage feeder of many landscape plants. *Tilia* spp. are preferred hosts (7). Leaf pubescence appears be a factor in feeding preference, with generally higher beetle populations reported on smooth-leaved species than on pubescent ones (9). Relative susceptibility of lindens to Japanese beetle has been evaluated in laboratory and field experiments.

JAPANESE BEETLE				
Species/Hybrids	Cultivar	Reference		
		Resistant	Intermediate	Susceptible
Tilia americana			9	4, 6, 13
Tilia americana	American Sentry™	3		
	Legend**		10	
	Redmond			10
Tilia caroliniana			9	
Tilia chinensis			9	
Tilia cordata			6	
Tilia cordata	Chancellor			10
	Glenleven			10
	Greenspire			10
	Olympic			10
Tilia x *euchlora*				10
Tilia x *europaea*				13
Tilia heterophylla			9	
Tilia japonica			9	
Tilia oliveri			9	
Tilia petiolaris			6, 9	
Tilia tomentosa			6, 8, 9	
Tilia tomentosa	Erecta		9	
	Sterling*, **	3	10	

*Also resistant to gypsy moth (3).

**All lindens in this study were severely damaged in years with heavy beetle populations, but cultivars 'Legend' and 'Sterling' were less damaged than others in years with moderate beetle pressure (10).

DISEASES

Anthracnose is a common fungal disease of lindens and other shade trees in landscapes and nursery production favored by prolonged wet periods. Symptoms vary by host and pathogen, but generally appear as irregularly-shaped lesions on leaves. European lindens (*T.* x *europaea*) are occasionally affected, but it is typically not a serious disease (1).

Leaf Spot caused by *Cercospora microsora* is occasionally a problem in nurseries. Brown spots on leaves coalesce into large blotches, and severe infections may result in defoliation. All *Tilia* species are susceptible – there are no resistant cultivars (1).

Nectria Canker caused by *Nectria cinnabarina* occurs on plants in more than 90 genera (12). Cankers often appear as sunken areas associated with wounds and may girdle twigs and branches resulting in dieback. It is the most common fungal canker disease of *Tilia* and all species are susceptible (1).

Powdery Mildew is a fungal disease favored by warm temperatures, high humidity, shade and poor air circulation. The most common symptom is powdery white growth on leaf surfaces. All *Tilia* species are susceptible but are rarely damaged by it (1).

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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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