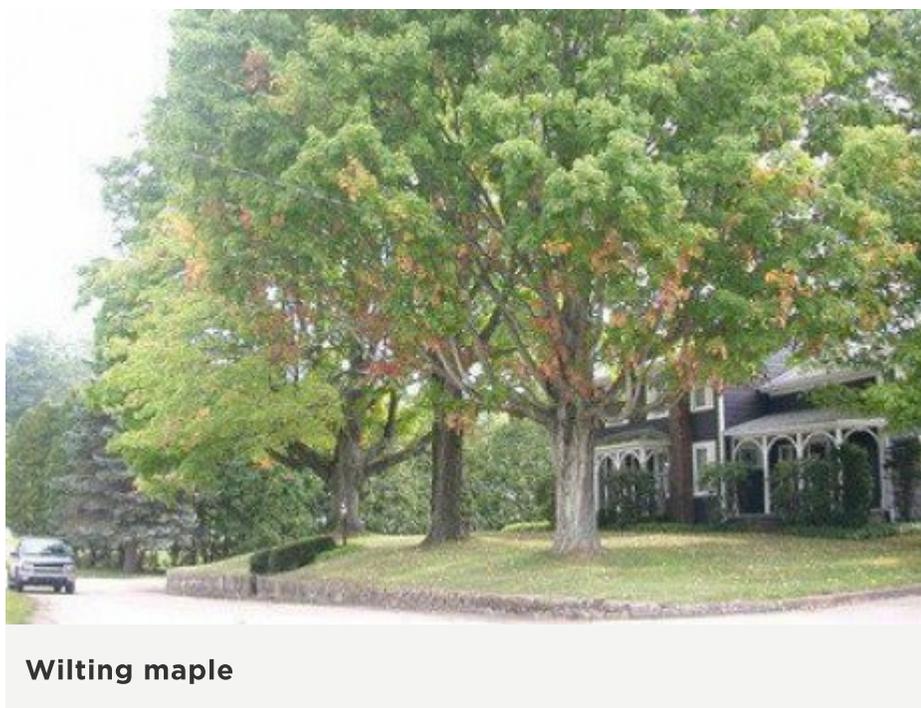




## Verticillium Wilt of Woody Ornamentals

Most deciduous trees and shrubs are susceptible to a disease called Verticillium wilt caused by the fungus Verticillium. Conifers do not appear to be susceptible.

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Wilting maple

### Symptoms

Early indications that a tree has Verticillium wilt include heavy seed production, leaves that are smaller than normal, and the browning of the margins of leaves. Frequently, the foliage on only one side of a tree wilts. The wood under the bark of wilting branches is discolored in streaks. The discoloration is green to black in maples, brown in

elms, and brown to black in black locust and other trees. The smallest branches may not exhibit the discoloration.

### Life History

The fungus is dormant when free in the soil. It enters wounds in the roots or the tree buttress and remains primarily in the current years growth. The fungus plugs the water conducting vessels thus restricting flow to branches and leaves. The tree responds to infection by plugging some water conducting vessels with gums and other materials which further restricts water flow. While large trees may survive for

years with minor symptoms, it is not unusual for an infected tree to be killed within 2 to 3 years.

## Management

Do not replant susceptible species where a specimen was killed by *Verticillium*. When a tree exhibits mild symptoms, prune out affected limbs and water and fertilize to maintain tree vigor.

An infested soil area can be fumigated by a licensed pesticide applicator to greatly reduce the amount of *Verticillium* in the soil. It will not be totally eliminated however.

Never use wood chips taken from a *Verticillium* - infected tree as mulch or as a potting medium, even after composting because of the possible survival of the fungus in the chips.

Research has shown that different populations of the fungus vary greatly in their sensitivity to benzimidazole fungicide when injected into trees. While some populations of *Verticillium* are readily killed, others found in nature could tolerate concentrations of the fungicide higher than what it would be exposed to in a benzimidazole treated tree. Therefore, whether benzimidazole tree injection will protect a tree cannot be predicted. (McHugh, J. B. and L. R. Schreiber. 1984. Tolerance of *Verticillium dahliae* to benzimidazoles. *Plant Disease* 68:424-427.)

### The Following Plants Appear To Be Resistant To Verticillium Wilt Under Pennsylvania Conditions

yews and conifers	mt. ash ( <i>Sorbus</i> )
birch ( <i>Betula</i> )	honey locust ( <i>Gleditsia</i> )
Katsura tree ( <i>Cercidophyllum</i> )	sweetgum ( <i>Liquidambar</i> )
hornbeam ( <i>Carpinus</i> )	crabapple ( <i>Malus</i> )
dogwood ( <i>Cornus</i> )	Sycamore ( <i>Platanus</i> )
hawthorn ( <i>Crataegus</i> )	firethorn ( <i>Pyracantha</i> )
ginkgo ( <i>Ginkgo</i> )	willow ( <i>Salix</i> )
Mulberry ( <i>Morus</i> )	

The following are reported to be resistant by C. C. Powell and J. A. Quinn in Ohio (1980-Know and control plant diseases, Verticillium wilt of landscape trees and shrubs, Department of Plant Pathology, The Ohio State University, 1735 Neil Avenue, Columbus, OH 43210).

beech (Fagus)	white and burr oaks (Quercus)
boxwood (Buxus)	pear (Pyrus)
hickory (Carya)	walnut (Juglans)
holly (Ilex)	juniper (Juniperus)
larch (Larix)	



Wilting catalpa





Discoloration of the vascular tissue.

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