



VERTICILLIUM WILT OF WOODY ORNAMENTALS

by John Hartman



Figure 1.- Discolored streaks of infected sapwood indicating presence of *Verticillium* wilt disease.

Verticillium wilt is a common problem on maple, catalpa, golden-rain tree, redbud, and tulip poplar trees in Kentucky. In addition, this disease occurs on ash, azalea, barberry, brambles, buckeye, cherry and other stone fruits, Kentucky coffee tree, cork tree, currant, elm, honeysuckle, horse chestnut, lilac, black locust, magnolia, nandina, Russian olive, osage orange, Japanese pagoda tree, persimmon, privet, rose, sassafras, serviceberry, smoke tree, sumac, tree-of-heaven, tupelo, viburnum, weigela, and yellowwood. More than 300 other woody and herbaceous plant species are known to be susceptible to *Verticillium* wilt.

Symptoms

Sudden wilting and dying of leaves characterize the initial symptoms of *Verticillium* wilt. In Kentucky, symptoms usually first occur during periods of drought stress in July and August. Wilt symptoms may involve branches scattered over the entire tree or symptoms may be confined to one side of the tree only. Affected branches may fail to leaf out the following spring. Generally, once infected, death of all or part of the tree results.

This disease causes discoloration of water-conducting tissues in the roots, trunk, and major limbs. An olive green,

brown, or black streaking may be observed in affected branches by peeling away the bark and cutting into the sapwood (Figure 1). Often, however, this discoloration occurs in limbs some distance back from those branches actually showing wilt symptoms.

The above symptoms are not conclusive evidence for diagnosis of *Verticillium* wilt. Positive diagnosis can only be made by isolating the fungus from discolored sapwood. Contact your county Extension office if you want verification of *Verticillium* wilt infection.

Spread

Verticillium wilt is caused by the soil-borne fungus, *Verticillium dahliae*. Infection typically occurs through roots; however, windblown spores entering through wounded tissue above ground can also result in infection. The fungus invades water-conducting tissues and can be transported throughout the tree via the sapstream. *Verticillium* produces tiny durable resting structures (microsclerotia) that can survive in soil for many years.

Control

Trees showing mild wilt symptoms may occasionally be saved, or at least the life of the tree may be prolonged, with proper tree care:

1. Prune out dead and dying twigs and branches.
2. When the disease is detected, apply a fertilizer high in nitrogen to promote tree vigor.
3. Water trees liberally as needed during summer.
4. Trees with severe symptoms cannot be saved. Remove and destroy the affected tree. Replant with a resistant plant species.
5. Plant wilt-resistant species and cultivars. The following is a partial listing of woody plants known to be resistant to *Verticillium* wilt:

Beech, Birch, Chestnut, Flowering Crabapple, Cypress, Dogwood, Fir, Firethorn, Ginkgo, Hawthorn, Hackberry, Hornbeam, Juniper, Larch, Linden, Honey Locust, Mountain Ash, Mulberry, Oak, Pawpaw, Pear, Pecan, Poplar, Pine, Flowering Quince, Rhododendron, Spruce, Sugarberry, Sweetgum,

Sycamore, Walnut, Willow, Yew, Zelkova

Reactions of selected Norway maple cultivars to *Verticillium* wilt are shown in the following table.

Tolerant or Resistant	Intermediate	Susceptible
Columnare compacta	Emerald queen	Cleveland
Jade glen	Schwedleri	Crimson king
Parkway	Silver variegated	Globosum
	Summershade	Greenlace
	Superform	Royal Red

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