

Bacterial Leaf Scorch

Xylella fastidiosa



Introduction

Bacterial leaf scorch is a deadly disease caused by a bacterium that grows in the xylem of the tree, limiting water transport. While this disease primarily affects shade trees, other types of plants are also susceptible.

Host Plants

- Dogwood
- Elm
- Hackberry
- Mulberry
- Pin oak
- Red maple
- Red oak
- Shingle oak
- Sugar maple
- Sweetgum
- Sycamore
- Many others



Monitoring

Monitor during periods of heat and moisture stress. This disease can be confused with other vascular wilt diseases or abiotic problems. A yellow margin or halo is often present between the dead leaf margins and the green leaf tissue. This characteristic often distinguishes bacterial leaf scorch from scorch symptoms caused by drought stress or other vascular wilt diseases. A positive diagnosis can be determined only by lab analysis.

Pathogen and Disease Cycle

The pathogen is spread by leafhoppers, spittlebugs and other xylem-feeding insects. Spread to adjacent trees is typically slow. Development of this disease usually occurs during mid to late summer when temperatures are high and rainfall is low. Symptoms appear in late summer to early fall, and infected trees will leaf out normally the following year and then develop symptoms again. This cycle can continue over a period of years with the symptoms spreading more and more each year, progressively weakening the tree.

Symptoms



Leaf scorch is one of the first noticeable symptoms. Leaf scorch is a browning of the margins, or edges, of the leaves. The center of the leaf remains green. Initially, trees will re-leaf and appear normal in the spring, but scorch symptoms will appear annually by late summer. Premature leaf browning and defoliation are other common symptoms. Trees decline gradually over the years as branches die from continual premature defoliation.



Integrated Pest Management

CULTURAL CONTROL

Plant a variety of trees from different genera. Infected trees should be removed and replaced when decline is extensive enough to compromise safety and/or their utility in the landscape is diminished. There is no cure. A replacement tree can be planted before removal of the infected tree to preserve the landscape. Pruning infected branches as well as mulching and watering during drought periods can delay some symptoms and preserve the aesthetics of the trees.

CHEMICAL CONTROL

Currently none. Please refer to http://eppserver.ag.utk.edu/redbook/sections/trees_flowers.htm for the most up-to-date recommendations.

Resources

Photo credits: Amy Fulcher, University of Tennessee
John Hartman, University of Kentucky

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