



Bacterial Leaf Scorch of Landscape Shade Trees (*Xylella fastidiosa*)

Overview

Bacterial leaf scorch (BLS) is a disease caused by the bacterium *Xylella fastidiosa*, a microscopic organism that grows in the vascular system of trees and blocks water transport within the xylem tissue. It most commonly occurs in oak species, with those in the red oak family (particularly pin oak) being the most afflicted. BLS has also been detected in numerous other hosts, including elm, sycamore, maples, and sweetgum. It is spread by insect vectors such as spittlebugs and treehopper/sharpshooters which feed on xylem tissue.

Life Cycle

During spring and summer months, nymphs and adult spittlebugs, sharpshooters, or other tree hoppers feed on infected tree tissue and pick up the bacterium. They can then spread it to the same tree or fly to a healthy one and feed on the xylem tissue there, successfully transferring the bacterium to a new host. Once the bacterium colonizes in the tissue, it can freely move throughout the tree at a slow rate, leading to irregular leaf-margin necrosis or scorch symptoms with a distinct yellow band or halo separating the brown margin and live green tissue.



Symptoms

Bacterial leaf scorch symptoms, which include premature browning of leaves and leaf drop, usually begin scattered throughout the tree and concentrated on affected tree branches, generally appearing on older leaves first. As the disease slowly progresses in the tree, branch decline and individual branch-death occur. This usually begins in the upper canopy but can occur on any infected limb or branch anywhere in the crown. Although commonly mistaken for drought scorch injury which affects the entire tree crown, BLS symptoms start out in sporadic locations and progression can be followed along branches as it spreads. Trees infected with BLS to any degree are predisposed to other secondary pest and disease issues.

Management Strategies

Early monitoring and identification of symptomatic trees in areas with large oak tree populations are key to saving high-value specimens. Leaf-tissue sampling and



lab analysis is required for positive identification of bacterial infection, though a vast majority of symptomatic red oaks are infected with *Xylella*, particularly those over 40 years old. A comprehensive management strategy focusing on improving overall tree health and vigor through fertilization, mulching, watering and dead branch removal are recommended for those trees in the early stages of disease infection and development.

Managing the insect vector is usually not feasible or cost-effective and often leads to harming non-target insects, beneficial predators, and pollinators. Chemical control strategies used for bacterial leaf scorch management focus on antibiotic treatment and periodic application of growth regulators. Annual stem injections with antibiotics have shown promise in slowing the spread of the bacterium if done with other cultural practices, and use of plant growth regulators on a 3-year cycle have shown promise in reducing overall tree stress and suppression of disease symptoms.

Removal of trees under heavy decline from the disease can reduce inoculum levels in growing areas. If replacing diseased trees, selecting more resistant tree species or varieties is highly recommended.



The foundation of [integrated pest management](#) is a program of periodic inspections, during which all plants are assessed in terms of insect, disease, nutritional, and physiological health. After inspection by one of our tree care professionals, plants are treated as needed with the most advanced biological, chemical, and cultural management tools, and the findings of each visit are summarized and reported to you in writing. At [Burkholder Plant Health Care](#), our approach is to put our training and experience to work for you, ensuring that your landscape gets the attention and tailored management that it deserves.