Bacterial Leaf Scorch

Noticed leaf-browning and scorch-like symptoms on oak this summer? Bacterial leaf scorch may be the culprit. The disease bacterial leaf scorch is caused by *Xylella fastidiosa,* a xylem-inhabiting bacterium that affects water and nutrient transport into leaves and shoots. Oak, maple, hackberry, dogwood, elm, mulberry, and sycamore are among the long list of hosts. Pierce's disease of grape is caused by a different subspecies of the pathogen.

During the infection process, bacteria are transported from host to host by leaf hoppers, spittle bugs, and sharp shooter insects. Once infected, bacteria move down branches; details of this transport through vascular tissue are not fully understood. Once bacteria reach xylem (vascular) vessels, they multiply and are carried throughout the plant fairly quickly.

Symptom development occurs in urban trees during the summer and fall. Leaves emerge and develop normally in spring. However, during mid to late summer, when water or heat stress is highest, water-stressed leaves begin to turn brown at the margins. Yellow or purple margins may be visible in some hosts, as opposed to typical browning. Leaves become increasingly more necrotic and fall prematurely from trees as summer progresses. Each season, symptoms worsen, and disease spreads to additional branches. This gradual decline is a distinct symptom of bacterial leaf scorch. Typically, it may be 5 to 10 years after symptoms are reported that trees must be removed.

There is no cure for bacterial leaf scorch, as bactericides and injection treatments have proven inconsistent and overall unreliable long-term solutions. In landscapes, newly symptomatic branches can be pruned to remove bacterium-infected limbs. This method may help extend tree life, but will not completely eradicate the disease or pathogen. Additionally, watering and preventing tree stress, especially during hot dry seasons, may help prolong tree life. As soon as bacterial leaf scorch is confirmed, replace trees with non-susceptible hosts such as ash, beech, or tulip poplar. Plant new trees early, so they will have time to mature before diseased trees are removed. Refer to publication PPFS-OR-W-12 for a list of resistant and susceptible trees and contact your local UK Extension agent for assistance.

Nicole Ward
University of Kentucky
Assistant Professor of Extension
Department of Plant Pathology
201 Plant Science Building
Lexington, KY 40546
Office: 859.218.0720
Mobile: 859.797.3333
nicole.ward@uky.edu

Join us on Facebook and Twitter.