

Forest Health Alert

Bacterial Leaf Scorch

(*Xylella fastidiosa*)



What is bacterial leaf scorch (BLS)?

BLS is a disease caused by the bacterium *Xylella fastidiosa*. It affects a number of different trees, particularly the red oaks including northern red, scarlet, black, and pin oaks.

How does BLS hurt oak trees?

The bacteria reside in the xylem, which are the tissues that conduct water from the soil to the leaves, branches, and other parts of the tree. As the bacteria reproduce, they clog and damage the xylem, reducing the amount of water that can get through. The resulting water shortage can injure and kill living tissues.

How do oak trees get BLS?

The disease is transmitted by insects such as leafhoppers. The insects feed on the xylem of plants that are already infected with *Xylella fastidiosa* and bacterial cells colonize the insects' mouthparts. When the same insects later feed on healthy trees, the bacteria are introduced into the trees' xylem.

What are the symptoms of BLS?

In late summer and early fall, leaves show marginal scorching. Specifically, the tip and sometimes the edges of the leaf turn brown, but the bottom of the leaf remains green. Often a yellow band or "halo" will be present between the brown and the green. Typically, the disease will start on one or two branches or one side of the tree. Over the course of several years symptoms will spread throughout the tree and branches will die.

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What will happen to red oak trees that have BLS?

At this time, it appears that BLS will eventually kill many trees that show symptoms. Death can take many years.

Is there any way to prevent the disease?

There is no known prevention for BLS.

Is there any treatment or cure for the disease?

Studies involving antibiotic treatments have shown mixed results. Annual injections of oxytetracycline or other antibiotics sometimes appear to cause symptoms to go into remission. However, this is not a cure, and the expensive injections must be repeated each year. Research into other types of treatments is ongoing in Delaware.

Where is BLS found in Delaware?

Surveys conducted by the Delaware Forest Service in 2006 determined that BLS is widespread in urban areas throughout Delaware. In 2007, surveys in rural woodlots found that BLS is common in non-urban forests in all 3 counties.

What types of oaks are most affected?

In urban areas, northern red oak (*Quercus rubra*) and pin oak (*Quercus palustris*) appear most affected. In rural forests, BLS has been found in northern red, southern red, scarlet and black oaks.

Should I do anything differently now that we know BLS is common in Delaware's towns and cities?

Since pin and northern red oaks are most affected in urban areas, planting other trees is a good idea. Willow oak does not appear to be affected by BLS in Delaware at this time. This tree survives fairly well in urban areas and is an attractive street tree, and could be substituted for pin and northern red oaks.

What can I do for my established trees?

Stress causes many problems in trees and worsens other problems. A primary cause of stress in trees is drought. Water your trees in the summer during periods of drought. Preventing injuries and periodically fertilizing based on soil test recommendations can also reduce stress.

Is BLS dangerous to people?

No, people can not get sick from BLS. However, sick trees can be structurally unsound and therefore pose hazards to people and property. Trees with dying limbs should be inspected and pruned periodically by a qualified arborist to ensure that hazardous conditions do not develop.



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