

# Pine Wilt Disease

## TREE DOCTOR TIPS

### Pine Wilt Disease (*Bursaphelenchus xylophilus*)

#### DESCRIPTION:

Pine wilt disease is caused by tiny worms called pine wood nematodes and beetles called sawyers that work together resulting in a disease that rapidly discolors and kills pine trees.

#### HOSTS:

Pine wilt disease impacts mostly non-native pines, including Austrian, Japanese black, Japanese red, and Scots pines. While native pines such as loblolly, spruce and fir are not susceptible, some can become infected, especially if they are damaged by drought stress. However, native pines are rarely killed by the disease.

#### BIOLOGY AND SYMPTOMS:

Nematodes carried by adult sawyer beetles start the infestation inside pine tree branches through spring feeding activities. After introduction, the nematodes rapidly reproduce into tremendous numbers, eventually clogging the tree's vascular system. This disrupts the plant's water flow, and stops branches from producing resin, a substance trees produce in response to injury. By mid-summer, needles will have turned brown and the entire tree eventually becomes brittle and dies. As the tree declines, sawyer beetle pupae inside the declining trees become infected with nematodes. After overwintering inside the tree, the pupae produce nematode infected adults in the spring that spread the disease to new trees.

#### MANAGEMENT:

The wood of infected branches must be tested to ensure pine wilt disease is the cause of tree decline. Consult a professional arborist for information on testing procedures. Trees with a confirmed pine wilt infection should be removed and destroyed with chipping, burning or de-barking to prevent the disease

from spreading to other plants. It is important to remove trees in winter or early spring before sawyers emerge and threaten spread of the disease. Once the tree has been removed, an arborist can recommend non-susceptible trees to plant in its place. Be sure to provide new and existing pine trees with adequate water and fertilizer to help improve their vitality against a potential infection.

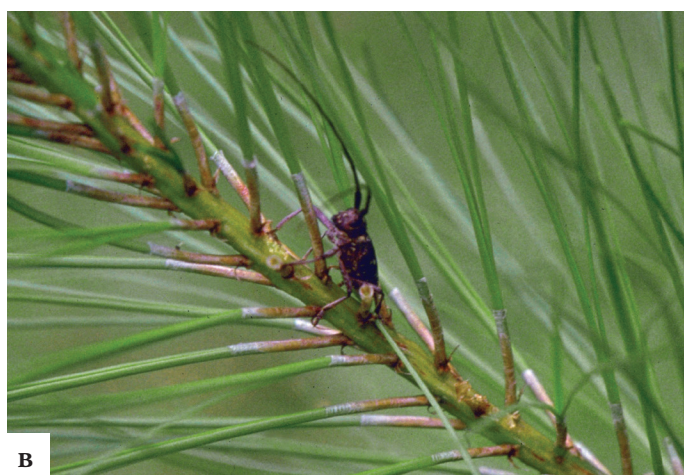


FIGURE A. PINE INFESTED WITH NEMATODES, BRITTLE AND BROWN  
FIGURE B. ADULT SAWYER BEETLE FEEDING ON PINE SHOOTS  
(Photo credit: L.D. Dwinell, USDA Forest Service, Bugwood.org)

*The scientists at **The Davey Institute** laboratory and research facility support our arborists and technicians in diagnosing and prescribing based on the latest arboricultural science. For specific treatment and application details, your arborist may consult *The Davey Institute* PHC Handbook.*

