

## Pine Wilt Disease

Pine trees are a staple in rural and urban landscapes due to their hardiness, beauty and diversity, but hundreds are dying each year in southeast Nebraska from pine wilt. The disease, which was first spotted in Nebraska in 1980, mostly kills Scots (also known as Scotch) pines, but Austrian pines and other species also are susceptible. The first noticeable symptoms of pine wilt are the change in needle color from green to grayish green then straw brown in color.

### Cause

Pine wilt is caused by the pinewood nematode, *Bursaphelenchus xylophilus*, a microscopic (one mm long), worm-like animal, which is moved from infested to non-infested pine trees by the pine sawyer beetle (*Monochamus* spp.)

### Symptoms

Pine wilt typically kills Scots pines within a few weeks to a few months after the pine sawyer introduces the nematode to the pine. The needles initially turn grayish green,

then tan, then brown. Resin flow from the wood ceases as the tree declines and the wood may appear dry when it is cut. Needles remain on the dead tree for a year or more. Scattered branches of the crown may be affected initially, but the symptoms soon spread to the remaining branches. The entire tree may turn brown all at once. In the Midwest, over 90 percent of the trees killed by pine wilt have been Scots pine. Other pine species are occasionally killed by pine wilt and display a similar pattern of symptoms. The disease appears occasionally in Austrian (*Pinus nigra*), jack (*P. banksiana*) and mugo (*P. mugo*) pines and rarely in white pine (*P. strobus*). Ponderosa pine (*P. ponderosa*) is usually not susceptible to pine wilt.

As pines age, susceptibility to pine wilt increases. Almost all cases of the disease have appeared in trees over 10 years old. Pine wilt has not had a major impact on Christmas tree plantations of Scots pine, since most of these trees are harvested before they reach a susceptible age.

### Management

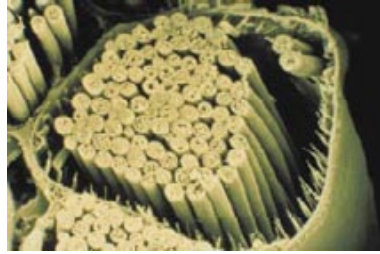
Sanitation is the most important management practice to prevent or slow the spread of pine wilt. To limit the spread of pine wilt to nearby healthy trees, diseased trees must be removed and destroyed before the beetles emerge from the wood. From May 1 to Oct. 1, dead and dying pines should be cut down promptly and burned, buried or chipped. Do not hold the wood for firewood. Pine sawyers are inactive in the winter, so if you find dead trees after Oct. 1, they do not need immediate removal, but they must be removed and destroyed by May 1.

High value trees can be protected from pine wilt with a trunk injection of abamectin. Contact a certified arborist for more information.

Sources: *Pine Wilt in Nebraska, Extension NebFact 00-448; Fatal Pine Disease Continues to Affect Trees in Nebraska, IANR News service; and Pine Wilt, Nebraska Forest Service Publication FH 06-02.*



(Above) Highly magnified view of a pinewood nematode. (Left) Cross-section of trachea (breathing tube) in the thorax of a pine sawyer beetle. The spaghetti-like strands are pinewood nematodes.



### How to Sample for Pinewood Nematode

When a pine dies suddenly, especially a Scots pine, pine wilt is a leading suspect. It is important to check suspected pines for the pinewood nematode because the nematode is easily spread to healthy trees by pine sawyer beetles, and entire windbreaks or plantings may be lost to pine wilt within a few years.

To confirm the presence of pinewood nematode in a dying or dead pine, it is necessary to extract the nematode from the wood. A wedge-shaped sample of wood should be taken from the lower trunk or the base of large lower limbs. Alternatively, a disk of wood, one-inch thick can be taken from a branch three-inches or greater in diameter near the trunk.

Samples should be placed in a plastic bag, kept cool, and quickly shipped or delivered to the University of Nebraska–Lincoln Plant and Pest Diagnostic Clinic for diagnosis. Each sample should include the appropriate fee (check or money order) made out to UNL P&PDC. The charge for a pine wilt assay is \$10. Send to: University of Nebraska–Lincoln, Plant and Pest Diagnostic Clinic, 448 Plant Science Hall, P.O. Box 830722, Lincoln, NE 68583. For more information about the Plant and Pest Diagnostic Clinic, go to <http://plantpath.unl.edu/ppathdiagnostic.htm> or call 472-2559.

### Pine Species to Avoid Planting

Scots pine should not be planted in parts of Nebraska where pine wilt is a major threat. This includes Lancaster County. Austrian pine also can be killed by pine wilt and is extremely susceptible to two fungal diseases: Sphaeropsis tip blight (formerly known as Diplodia tip blight) and Dothistroma needle blight. Spruces, firs, red cedars, junipers, white and ponderosa pines face little threat from pine wilt.



Cross section of pine tree showing tunnel bored by pine sawyer beetle larva, also pictured.



Adult pine sawyer beetle emerges from a dead pine and prepares to fly to a healthy pine.

## Pesticide Container Recycling Program

For 14 years, University of Nebraska–Lincoln Extension has been coordinating a recycling program for plastic agricultural pesticide containers. All containers must be inspected to make sure that they have been properly rinsed, with the caps and labels removed before they can be placed in our trailer. (Paper labels one layer thick may remain on the containers.) We will accept all sizes of agricultural pesticide containers, including 30 gallon plastic drums.



Containers may be brought to the UNL Extension in Lancaster County office, 444 Cherrycreek Road, Lincoln, during business hours 8 a.m. to 4:30 p.m. Monday–Friday, EXCEPT for the weeks of July 2, July 16 and July 23. Please call ahead at 441-7180 to ensure someone will be available to inspect and accept the containers before you come.

Two remote collection dates have been arranged in cooperation with Farmers Cooperative Company. **Our semi-trailer will be manned on Friday, June 29, 9 a.m.–Noon in Waverly at the east elevator on 148th Street and on Friday, Aug. 10, 9 a.m.–Noon in Bennett at the Co-op headquarters.**

The material is currently being recycled into plastic posts, industrial pallets, field drain tiles, speed bumps, railroad ties and parking lot tire stops.



## Scrap Tire Collection Sept. 29 & 30

9 a.m.–9 p.m.

South parking lot, Shoemakers Truckstop  
NW 48 & West O Streets, Lincoln, NE

**Will accept tires of all shapes and sizes  
with no limit, free of charge!**

*We cannot accept tires from dealers, outside the state or with rims.*

For more information, call 476-3590

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