



How to Identify Scotch Pine

- Needles in pairs
- Slightly twisted
- 1 1/2 to 3 1/2 inches long



- Branches and trunk have flakey orange bark (especially in the upper crown)

- Mature, open cones are round to egg-shaped
- 1 1/2 to 2 1/2 inches long



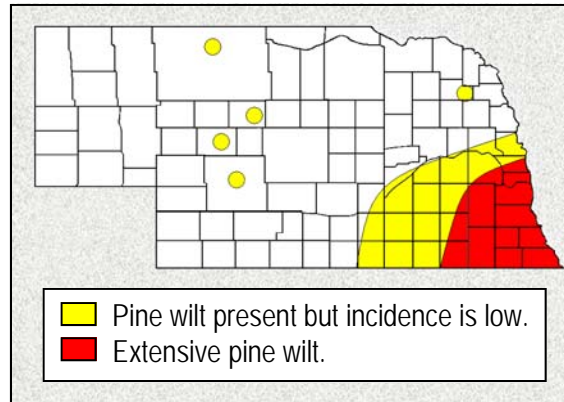
1st year cone

- Immature cones point backward on the stem



2nd year cone

Pine Wilt in Nebraska



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Pine Wilt

A fatal disease of Scotch pine



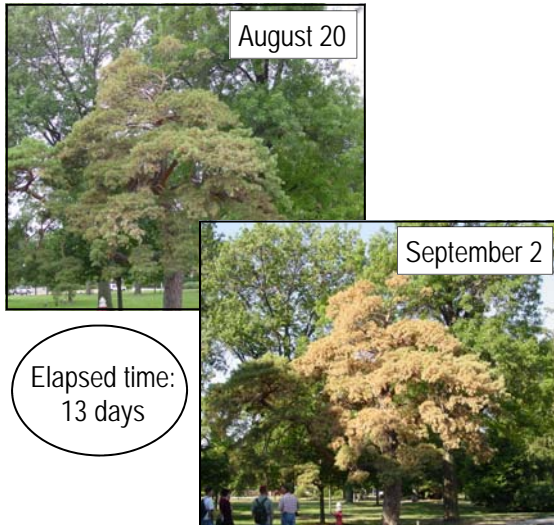
Scotch pine, a popular tree for ornamental plantings, windbreaks and Christmas trees is rapidly disappearing from Nebraska's landscape. The tree is susceptible to pine wilt, a disease that has killed thousands of Scotch pines in the southeastern part of the state since the mid-1990s. This pamphlet discusses pine wilt and how to control the disease.

Symptoms of Pine Wilt

Faded, grey-green needles, followed by browning:



Rapid death of the tree in late summer to late fall:



- Some trees die branch-by-branch, especially from late fall to late spring.
- Dead needles remain on the tree for a year or more.

What Causes Pine Wilt?

Pine wilt is caused by a microscopic worm-like organism called the pinewood nematode (*Bursaphelenchus xylophilus*). The nematode attacks tissues in the wood, causing decreased water flow and death of susceptible trees.



Nematodes extracted from a pine wilt killed tree (*highly magnified*). A specialist must be consulted to identify the pinewood nematode.

Pinewood nematodes are carried from tree to tree by pine sawyer beetles. Immature pine sawyer beetles tunnel in the wood of dying pines, such as those dying from pine wilt. When the beetles mature and emerge from the wood, they may carry thousands of nematodes on their bodies.



Immature and adult pine sawyer beetles

Adult beetles feed on new shoots of healthy pines, creating wounds through which the nematodes infect the tree.

Susceptible Trees

- ✓ Scotch pine is highly susceptible to pine wilt. Austrian pine is moderately susceptible.
- ✓ Native pines such as ponderosa and white pine rarely die of the disease.
- ✓ Spruces, firs, junipers and redcedar are not susceptible to pine wilt.

Control of Pine Wilt

- ✓ Trees with pine wilt cannot be saved.
- ✓ Diseased trees must be destroyed to prevent the pine sawyer beetles from spreading the nematodes to nearby healthy trees.
- ✓ Trees should be **burned, buried or chipped** before the beetles emerge from the wood.
- ✓ Do not save wood for firewood.

Removal Guidelines

If a tree dies May 1 - Oct 1:
Remove and destroy immediately

If a tree dies after Oct 1:
Remove and destroy by April 30

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