

## Prevent Spread of Pine Wilt with Inspection and Disposal

Pine trees are common across much of the Nebraska landscape, but a disease called pine wilt can kill trees in a matter of weeks.

Pine wilt is caused by microscopic organisms called pinewood nematodes. Pine sawyer beetles act as insect vectors and carry the nematodes, spreading the disease from tree to tree.

A typical symptom of pine wilt is fading. Pine needles turn grayish green, then tan and finally, brown. The top of the tree may be affected first. Resin flow from the wood ceases and wood may appear dry when cut. Needles can remain on a dead tree for a year or longer. Once the pine sawyer beetle introduces the nematode, the tree typically dies within a few weeks or months. Some trees will fade during the summer, and more will begin to fade in August and September, continuing through the fall.

Scotch pine makes up the majority of pine wilt cases, but the disease also occurs in Austrian pine. As pines age, their susceptibility to pine wilt increases. Most cases appear in trees more than 10 years old. However, the disease rarely affects other pines or conifers, such as spruces, firs, red cedars, junipers, white or ponderosa pines.

Homeowners and farmers should check yards and wind-



Pine trees in Lincoln killed by pine wilt.

Photos by University of Nebraska - Lincoln Nematology Department

breaks for trees showing signs of pine wilt. Nematodes are not visible to the eye, but can easily

be spread to entire windbreaks or plantings in a few years. Take a 1-inch thick sample from a

branch 3 inches or more in diameter near the trunk or take a wedge-shaped sample of wood from the lower trunk or base of large lower limbs. Keep samples cool and in a plastic bag. Send samples for analyzing to the Plant and Pest Diagnostic Clinic, University of Nebraska-Lincoln, 448 Plant Science Hall, P.O. Box 830722, Lincoln, NE 68583-0722.

Sanitation can prevent or slow the spread of pine wilt, but there are no chemicals that can be sprayed to prevent or cure the disease. The only control method is to cut down infected trees and burn, bury or chip them. The stump should be removed down to the ground, if possible. This should be done as soon as the infection is discovered to prevent pine sawyer beetles from emerging from the tree and carrying the disease to other healthy trees. Do not hold the wood for firewood. If dead trees are discovered after October 1, they do not need immediate removal, but must be removed and destroyed by May 1 the following year.

SOURCE: Laurie Stepanek, forest pest management assistant, Nebraska Forest Service, NU/IANR (DJ)

## Efficient Watering Hints

Water lawn and planting beds according to their needs. Check soil moisture before watering. Insert a six inch screwdriver into the soil; if it can be easily inserted, you don't need to water.

Water at night (midnight - 9 a.m.) but not during the heat of the day or when the wind is blowing. Set your sprinklers to hit the landscape only, not sidewalks, driveways, windows, etc.

Look for footprints. Water when footprints or mower tracks become easily visible on the turf or when large areas of the lawn take on a blush-gray color.

Has it rained? Skip watering on days following a half inch or more of rain. On cool, cloudy days plants use less water and there is less evaporation. This extends the time needed between watering.

Check your sprinkler

system. Check to see how long each zone is scheduled to run and adjust the timer. A shade zone will require less water than a hot, sunny area and the cooler seasons require less water than the hot summer months. Check sprinkler heads frequently to make sure they are functioning properly. Also, if you have an older timer, it may not be able to adjust to a three-day cycle. Learn how to operate your system manually.

Watering with a hose? Use household timers to remind you to move or stop soaker hoses and sprinklers. Check your sprinklers to see how much water they put out. (This is easily done by placing a shallow container like a cat food or tuna fish can in the yard to measure water.) This will help determine how long you should water. (DJ)

## Plant, Divide Peony Tubers this Fall

Don Janssen  
Extension Educator

Now is the time to plant and prepare peonies to produce beautiful spring blooms.

Since peonies are herbaceous perennials, the top parts of the plants die each year. However, the plant parts underground can survive for years. With the proper spacing and regular fertilization, peonies can grow 10 to 15 years. Their growth can be extended by dividing the tubers, which are not bulbs, but underground stems that store food produced by the plant's leaves.

New growth develops from the tuber's buds, or eyes. Tubers with three to five eyes bloom sooner than tubers with less than three eyes.

It is important to pick a well-drained site in full sun. More than two or three hours of daily shade or poor drainage can prevent peonies from blooming. The site should be prepared two to four weeks before planting by spading organic matter into the site and adding a handful of garden fertilizer to the soil.

Holes should be spaced three feet apart and dug 18 inches deep and 18 inches wide. Place the tuber in the hole so the uppermost eye is no more than one inch below the natural soil surface. Planting the tubers too deep can prevent flowering. Gardeners should fill the space around the tuber with soil and add water to help settle the soil before they finish filling the hole. Water as often as necessary to keep the soil damp. This helps the plant establish its root

system.

Consider applying a winter mulch to prevent frost damage to the roots. This mulch also helps conserve summer moisture.

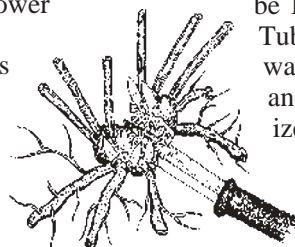
Gardeners also can apply fertilizer to help increase peony flower size. Work a handful of fertilizer into the soil around first-year plants before new shoots emerge. Older plants can be fertilized when flower buds are pea-sized.

Although peonies have few insect problems, they are susceptible to some plant diseases. These diseases can be controlled in the fall by cutting plants off at the ground after the foliage turns brown. It also is important to remove diseased plant parts or dying plants as soon as symp-

toms are noticed.

Older plants, those 10 to 15 years old, should be divided in late summer to prevent overcrowding. Reduced flower size is a good indication division is necessary.

When preparing to divide peonies, gardeners should carefully dig up plants, avoiding damage to taproots, which can be 15 inches long. Tubers should be washed to remove soil and cut using a sterilized knife. The knife can be sterilized in a flame or alcohol. Cut the peony tubers into sections with three to five eyes per section and a taproot. Avoid using tubers with any signs of disease. The divided tubers can be replanted as usual.



### WATERWHEEL

## Drinking Water: Nitrate-Nitrogen



Note: This is part of a series of articles related to rural water issues.

Many people have questions about the impact of nitrate in their drinking water. While nitrogen is essential for all living things, excessive nitrate-nitrogen in drinking water can be hazardous to health, especially for infants, because it may interfere with the blood's ability to carry oxygen.

Nitrate in water is undetectable without testing because it is colorless, odorless and tasteless. EPA requires regular testing of public water supplies and these test results are available from the local utility. If a test indicates the delivered water exceeds the allowed maximum contaminant level of 10 parts per million of nitrate-nitrogen, the public must be notified and treatment must be performed.

A test of a new private water supply to determine the nitrate concentration is needed since nitrate-nitrogen occurs naturally in groundwater. In addition, a test for nitrate is highly recommended for households with infants, pregnant women, nursing mothers or elderly people. These groups are the most at-risk to nitrate.

If a test indicates excessive nitrate-nitrogen in your private water supply, you have two choices, obtain an alternate water supply or treat to remove the contaminant. An alternate supply may be bottled water, especially for infant formula, or a new well. Water treatment options are distillation, reverse osmosis or ion exchange. (DJ)

Cooperative Extension has extensive educational resources on drinking water and private well systems. Stop by the extension office at 444 Cherrycreek Road, Lincoln, or go to [lancaster.unl.edu](http://lancaster.unl.edu).