Pine Wilt Nematode

What is Pine Wilt Nematode?

Pine wilt is a fatal disease of pine caused by the nematode, *Bursaphelenchus xylophilus*. Nematodes are microscopic, worm-like organisms that grow inside the tree’s water conducting tissue causing rapid death. As a native to North America, pine wilt nematode is primarily a pathogen of non-native, 2-3 needle pines. The disease is transferred from infected trees to healthy trees by pine sawyer beetles (*Monochamus spp.*) as they feed on the bark and foliage of susceptible pines.

The disease does not affect our native pine species but can be devastating to popular landscape introductions such as Scots pine, Austrian pine, and others.

Susceptible Trees

Susceptible pine species (listed most to least susceptible): Scots, Austrian/black, aleppo, Japanese black, Japanese red, mugo, pitch, Swiss stone, shortleaf, Virginia, lodgepole, jack, red, loblolly, and Monterey.

Signs and Symptoms

Diagnosis can be difficult due to the rapid death of infected trees. Trees begin to die in midsummer and can die within weeks of the initial infection leaving brown, dead needles still attached to the branches. The disease affects healthy and stressed trees equally, regardless of tree size.

- Fading green color.
- Reduced vigor.
- Yellow needles turning brown in a few weeks.
- Random distribution in the landscape.
- Rapid death.

Distinguish from Look-alikes

- Herbicides or mechanical injury are other agents that kill as quickly.
- Salt damage will cause needles to die from the tip back. Pine wilt nematode kills whole needle quickly.
- Needlecast diseases display symptoms either on newly formed needles or on older needles and will cause needle loss and decline over several years. Pine wilt nematode usually kills pines in one season.
Treatment Strategies

Pine wilt nematode is an aggressive disease that kills susceptible pine trees regardless of health. Cultural practices will not help prevent this disease. However, placing a 3 inch deep ring of mulch and watering properly during droughty periods are always recommended to help protect from opportunistic diseases and insects and to keep your trees healthy.

The disease is transmitted from sick trees to healthy trees via the sawyer beetle, so it is very important to remove and burn or dispose of any symptomatic trees.

When replacing pine trees infected with pine wilt nematode, plant resistant native pines and 5 needle pines.

The treatment strategy for pine wilt nematode is to protect healthy trees that are near those that are infected.

Treatment with Pinetect™ is effective at protecting healthy pine trees that are in the vicinity of infected pines. Pinetect™ is recommended as a preventative or for slightly infected trees. Application is made in the spring of the year before July 1, using the Pine Infuser System.

The Pine Infuser System is a simple to use injection system that requires a drill. Holes are drilled into the trunk as directed and the infuser is placed on the tree. Pinetect™ is added, and the tube is pressurized. This system is designed for pine injections as higher pressures are required to inject pine trees as compared to deciduous trees.

One treatment lasts for 2 years. Retreatment is important every 2 years to maintain protection.

**DIY Shopping List**

**Option 1:**

Application Type – Pine infusion

DIY Product/Equipment Needed

- Pinetect™
- Pine Infuser System
- Drill
- Gloves/safety glasses