

## **Mystery of the Browning Pine Needles: Part 2**

Pine tree needles turning brown? Don't panic. As we learned from last month's newsletter, all pine trees drop needles in autumn as part of their natural life cycle. The shedding process can take 2 to 3 months to complete. If browning needles occur in other seasons, though, it's a good indication that something is not right. Let's take a look at some other issues that might be causing the problem.

Environmental stress often causes browning needles, especially on non-native pines since they are not well adapted to the extremes of Oklahoma weather. But even native pines can suffer drought stress during our hot, dry summers and cold, dry winters. As with the leaves of other trees, pine needles lose water through normal, daily functions. If their roots aren't able to replenish the lost moisture, the needles turn brown from the tips downward in a condition referred to as **scorch**. Scorch won't usually kill a tree but in long periods without water, winter or summer, the tree can become weakened and susceptible to diseases which can be much more harmful.

The most deadly of those diseases is **pine wilt** which was discussed in last month's newsletter.

Another serious disease of pines in Oklahoma is a needle blight that causes premature needle drop. Dothistroma needle blight is a fungal disease that, if left uncontrolled, can cause trees to substantially weaken and eventually die. Austrian pine and Ponderosa pine (*Pinus nigra*, *P. ponderosa*) are highly susceptible. Mugo pine (*P. mugo*) can also be infected. Scotch pine and White pine (*P. sylvestris*, *P. strobus*) are considered resistant.



**Dothistroma Needle Blight.** Note the red bands of infected needles

While the fungal infection happens in spring, the disease doesn't present itself until fall when needles develop yellow and tan spots. The spots then enlarge to red bands. The base of the infected needles may still remain green for several months.

In the spring, fungal spores develop in black bumps (fruiting structures) on infected needles. The green base turns brown, and the needles are shed throughout spring and summer. Spores are spread by wind and splashing rain and the infection cycle continues.

A copper containing fungicide spray can be used for control. Ideally, two applications serve best - one in mid-May followed by one in mid-June. All needles should be covered thoroughly. Don't get impatient as it may take many years to bring the disease under control. On larger trees, it may be necessary to hire a professional applicator. Safety first! And remember good sanitation - always collect and remove diseased needles from the ground.



**Premature defoliation,  
Dothistroma Needle Blight**

Another serious blight of pines affects the tips of new growth (candles). It's a heartbreaking disease, Diplodia tip blight, since it's most common on mature trees, 15 years and older. Symptoms begin in spring when new needles are killed as they emerge and begin to elongate. Stunted needles turn yellow, then brown. Damage usually starts in lower branches and works its way up over several years.



Tip blight spore structures on pine cone scales

Most often affecting Austrian, ponderosa, Scotch and mugo pines, the disease can also act as a canker and invade older plant tissue, causing extensive branch dieback. In late summer to early fall, spores are produced in fruiting structures at the base of brown needles and are even more evident on pine cones. On the cones, this appears as if pepper had been shaken all over them.

Proper care of the tree including irrigation during drought and maintaining good soil fertility reduces the likelihood of infection. Once contracted, the disease can sometimes be controlled with pruning and sanitation. Pruning in dry weather helps prevent spread of tip blight.

Discard cuttings in the trash, not in the compost pile. And, use a bleach solution to sterilize pruners between each and every cut. No shortcuts between cuts!

Severe infections may require a fungicide containing copper hydroxide in early spring as the buds open. An additional application when the needles begin to elongate is also helpful. Depending on the tree size, a professional applicator may be necessary.

Pines are so grand and gracious. Don't hesitate to plant one. Do keep a close eye to make sure your tree stays healthy and grows vigorously. If it does seem a bit out of sorts at times, don't hesitate to call or e-mail the Tulsa Master Gardeners. They are always available to help with your concerns or provide needed reassurance.

Check the following resources for more information about issues your pine tree might be having:

[Dothistroma Needle Blight, OSU Extension fact sheet EPP-7331](#)

[Diplodia Tip Blight, OSU Extension fact sheet EPP-7330](#)

[Leaf Scorch, The Morton Arboretum](#)

[Pine Tree Diseases, Kansas State University Extension fact sheet L722](#)