

## Pine wilt disease killing trees across Oklahoma.

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Published: July 12, 2010

### **Q: What is killing the pine trees across central Oklahoma?**

**A:** We discussed this topic a few months back, but I feel the need to re-address pine wilt disease due the devastating effects we are seeing caused by this disease. In some areas in Oklahoma City, we are seeing a mortality rate above 90 percent.

Pines have earned a secure niche in America's urban landscape thanks to their diversity, adaptability and beauty. Over the past few years, however, a disease called pine wilt has killed so many Austrian pines in the area that it is becoming difficult to recommend this once-popular species as a landscape tree.

The first case of pine wilt in the United States was confirmed in Columbia, Mo., in 1979. Just as recently as 10 or 11 years ago, it was considered a rarity in central Oklahoma.

Over the past few years, there have been tens of thousands of pines that have succumbed to this disease. While the Scots pine seems the most susceptible, we are seeing more and more instances in Austrian, Mugho and Japanese black.

Slash and white pine seem to be somewhat resistant.

Pine wilt is caused by the pinewood nematode. These microscopic-size, wormlike animals feed on the living plant cells surrounding the resin canals, or water-conducting passages, of pines. They also feed on the blue-stain fungi that live in the wood of dead and dying pines.

Nematodes are unable to move very far without the help of an insect vector. The life cycle of the pine sawyer beetle is closely intertwined to the pinewood nematode. Female pine sawyer beetles lay eggs under the bark of dead or dying pines in summer.

The eggs hatch and complete their life-cycle as a round-headed borer in the dead tree and emerge the next spring as an adult pine sawyer beetle. Before the new beetle

emerges, large numbers of the pinewood nematodes move into the breathing tubes of the new adult beetle. When the sawyer beetle tunnels to the surface and flies away, it carries up to tens of thousands of hitchhiking nematodes.

Pine sawyer beetles are strong fliers and can travel several miles. To mature and breed, the beetles need to feed on healthy pine trees. This feeding does little damage to the tree, but the feeding wound creates an entry point for nematodes to enter the tree.

During warm periods, the nematodes can multiply rapidly and spread throughout the tree as they feed and the resin tubes are destroyed and water movement slows, then stops. At this time, the wilt symptoms develop, and the tree dies. Scattered branches on a tree may be affected initially, but the problem soon spreads to the remaining branches. In other situations, however, the entire tree turns brown at once.

There is no cure once a pine tree has the nematodes. There are some preventive products that have been developed, but due to the high cost of these products, they are not feasible at this time.

The best management practices today are largely unchanged from when the disease was discovered. The starting point is containment of the disease through sanitation. Dead pine trees can become beetle reservoirs, so they should be burned, buried or chipped. If you spot a dead tree in fall, you can wait until early spring to remove it because the beetles will not emerge until the weather warms in spring. Avoid saving the wilt-killed pines as firewood, because beetles can continue to emerge from the logs.

Ray Ridlen is an agriculture and horticulture educator for the Oklahoma County Extension Service. His column addresses frequently asked horticulture questions. For more information, call 713-1125.



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