

VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Tree Expert Co., Kent, Ohio

Q: *What can you tell me about Pine wilt? It was suggested as a possible cause of the death of a client's red pine, but I have not been able to find any information.*

A: Pine wilt disease was first reported in the United States in Missouri in 1979 and has now been identified in 15 states from Missouri to the East Coast. The disease is caused by the pine wood nematode *Bursaphelenchus lignicolus*. Austrian, red, Scot's, white, slash, Virginia, and Swiss stone pines are particularly susceptible.

The only external symptom is wilting, followed by yellowing, then browning of the needles, starting at their base and extending to the tips. A pine that has been killed will generally retain the needles for a period of time because death is so rapid. When infested trees are cut, the wood, rather than being pitchy, appears dry with little or no resin.

The nematodes are spread by one of the long-horned beetles or roundheaded borers. The adult beetles principally attack freshly cut, dying or recently dead trees, although when the adults first emerge they seek fresh tissues of healthy pines for their first feeding. The boring wound is inoculated with nematodes as the beetles feed. The nematodes multiply to enormous populations, migrate to the vascular system and plug the conducting cells.

Once the disease has been confirmed, remove the dead tree as soon as possible to reduce the source of nematodes. There are no other control procedures at this time.

Q: *Is it true that only the current season's wood conducts water in trees? Would this be the best area to inject chemicals for protection from insects and fungi?*

A: Angiosperms are classified as ring-porous or diffuse-porous. In ring-porous trees, such as oaks, ashes, and elms, the diameters of the xylem vessels formed early in the growing season are much larger in diameter than those formed later. In diffuse-porous trees, such as poplars, maples, and birches, the vessels generally are approximately the same diameter throughout the growing season.

There is considerable difference of opinion concerning how much of the sapwood is actually involved in water conduction. In at least some of the ring-porous trees, most of the water moves in the outermost annual ring, although some movement may occur in the late wood of the preceding year. In diffuse-porous trees and conifers, a considerable number of annual rings usually are involved in water conduction.

Injection of pesticides should be made in the outermost annual rings for best absorption and translocation. The pattern of sap ascent, that is, whether it is a spiral pattern or direct vertical as-

cent, will also affect the distribution of pesticides throughout the crown.

Q: *What cultural practices will help develop a better root system so turfgrass will be less susceptible to damage during hot, dry weather?*

A: Excessive nitrogen, close mowing, frequent light watering, compacted soils, and heavy thatch reduce rooting and/or decrease rooting depth. Any cultural practices which correct these problems will help turfgrass develop a more extensive root system.

Q: *What would make a fruit tree break off at the graft union? The tree was over 10 years old and appeared healthy.*

A: Symptoms of graft incompatibility may range from complete failure of the root stock and scion to graft to vigorous growth the first year followed by slow decline. In some cases, symptoms of incompatibility such as chlorosis and leaf shedding may not be apparent until many years after grafting.

Q: *How safe is Dipel and how effective is it against gypsy moth?*

A: Dipel contains spores and crystalline endotoxin produced by *Bacillus thuringiensis* Berlinger. It is considered harmless to humans and animals and is safe for the environment. At the present time there are no clearcut opinions on its effectiveness.

Q: *After a lawn has been sprayed with fertilizers and pesticides, is it safe to use the grass clippings on my vegetable garden?*

A: Broadleaved weeds are herbaceous dicots, and chemicals which control these weeds will also affect vegetables. Tomatoes, beans, and cucurbits are particularly susceptible. Therefore, it is not safe to apply fresh clippings from a treated lawn to a garden, although it should be safe to use the clippings after they have been composted for a season.

Q: *Can fritted trace elements be used along with fertilizers in a liquid spray system?*

A: Fritted micronutrients are special glasses that are not soluble and are very abrasive. You would not want to spray frits through conventional piston pumps.

Send your question or comments to: Vegetation Management c/o WEEDS TREES & TURF, 9800 Detroit Ave., Cleveland, OH 44102. Leave at least two months for Roger Funk's response in this column.