VEGETATION MANAGEMENT

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

Q: *Why do trees in waterlogged soils show signs of wilting as if they are not getting enough water?*
A: Excess water replaces oxygen in the soil and the resultant poor aeration impedes water absorption by roots. It also reduces photosynthesis.

Many trees produce adventitious roots until they reach maturity, which may help explain why older trees are more apt to die back in waterlogged, compacted or construction-altered soils.

Q: *For the past two years the pine trees we had planted along a highway were severely injured by salt applied in the winter. Could you recommend some evergreen trees that would not be injured? (Michigan)*
A: All trees are probably injured, but some are more tolerant than others. Evergreen trees listed as salt-tolerant include Austrian pine, Japanese black pine and pitch pine. Evergreen trees listed as salt-intolerant that should *not* be planted, include Eastern white pine, hemlock and red pine.

Q: *What would you recommend for lawns that are growing in high sodium soils?*
A: Aside from the possible effects of excess salts which impair the absorption of water and nutrients, a high sodium content causes deaggregation of soil particles, resulting in compaction and a severe reduction in soil aeration and water infiltration. In addition, the availability of certain nutrients such as iron and manganese may be limited, whereas other micronutrients such as boron may become available in concentrations high enough to be toxic.

Sodic soils are usually corrected by amending with sulfur or gypsum (calcium sulfate) which replaces the exchangeable sodium on soil colloids. However, these materials are relatively slow-acting and repeated applications over a period of years may be necessary.

Ideally, the soil should be drenched prior to adding the soil amendment unless the soil is waterlogged and does not drain properly. If the materials are not incorporated, the soil should be watered after the application to move the materials downward into the root zone. After a period of several months, the soil should again be drenched to leach the soluble sodium salts.

Core cultivation will improve the exchange of air and water between the atmosphere and soil and improve the penetration of fertilizers, pesticides and materials being used for the correction of sodic soils. The net effect is to encourage deeper, more extensive rooting less susceptible to environmental stresses.

Until the sodium problem is corrected, particular attention should be given to fertilization since many of the nutrients will be "fixed" as a result of the high sodium content. Soil tests and field plot studies will help determine the special requirements of turf growing in sodic soils.

Q: *What can you tell me about the rust disease that is affecting ash trees in the Philadelphia area?*
A: Ash leaf rust is caused by the fungus *Puccinia peridermiospora*. The fungus overwinters on the leaves of salt marsh and cord grasses. In midspring, wind-borne spores are carried as far as 100 miles to ash trees and infect leaves, petioles and shoots. Symptoms of ash leaf rust appear in late spring as yellow-orange spots on the upper surface of ash leaves and on petioles and shoots. After about two weeks, yellow-orange cups appear beneath the spots on the under surface of leaves and on other infected tissue. Heavy infestations cause leaf distortion and girdling of petioles and shoots. Early leaf drop is common, often resulting in complete defoliation by midsummer on severely infected trees.

Ash rust is seldom destructive enough to warrant either prevention or control measures. Sulfur sprays are sometimes recommended when trees have been infected for successive years or to protect ash for aesthetic reasons. Contact your local extension service to determine the status of sulfur sprays in your area.

Send your questions or comments to: Vegetation Management c/o WEEDS TREES & TURF, 757 Third Avenue, New York, NY 10017. Leave at least two months for Roger Funk's response in this column.