

# VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Horticultural Institute, Kent, Ohio

## TREE

**Q:** *In planting trees in urban areas, what effect does soil incompatibility have on root development, overall vigor, and winter hardiness? The tree ball is one texture, soil backfill is another, and native soil is a third.*

**A:** Water and dissolved nutrients do not properly penetrate the interface developed between two distinctly different soil types. You did not mention the soil textures involved in your situation, but, in general, water penetration from a coarse soil to a fine-textured soil is so slow that if the layers are horizontally stratified, an artificial water table can develop above the fine-textured soil resulting in a water-logged condition.

Water penetration from a fine soil to a coarse soil is less restricted, but water will usually accumulate to nearly saturate the fine-textured soil before it moves across the interface.

The movement of water is necessary for the distribution of nutrients and for gaseous exchange, including the availability of oxygen for root respiration and the elimination of carbon dioxide. Any factor that affects the ratio of water and air in the soil and the availability and distribution of nutrients will have an influence on tree growth and vigor. And, of course, root development and tree vigor affects winter hardiness.

**Q:** *Numerous heavy snows this winter have taken their toll on trees and shrubs in my area. I am considering providing potential customers with some general repair information in my spring promotion. How would you summarize winter damage?*

**A:** Perhaps the single most destructive weather force on trees and shrubs is physical stress from glaze ice and heavy, wet snow.

Proper pruning, bolting, cabling and bracing are all important in preventing tree damage or repairing damage that has occurred. Multiple-stemmed evergreens such as boxwood, junipers and yews tend to spread apart and break under a heavy snow or ice load. Tying the branches together with a strong cord will help prevent or minimize structural damage.

Corrective pruning should begin when a tree is planted. Pruning not only improves appearance but also helps maintain a strong, sturdy tree. Proper pruning includes: the elimination of narrow, weak crotches and poorly located branches; the prevention of multiple leaders; the removal of



crossing and rubbing branches and the removal of dead and diseased branches.

Storm-damaged trees should be repaired as soon as possible after injury occurs. Remove broken and hanging branches that are a safety hazard and may cause additional damage to the tree. Prune ragged stubs and branch ends flush to a main branch, and "trace" any wounds in a vertical, elliptical form. Although the protective benefits of a wound dressing are controversial, they have been shown to reduce the spread of oak wilt, and, also, to aesthetically camouflage the pruning cuts.

Cabling and bracing are essential in the repair of storm-damaged trees. However, their greatest benefits are in prevention rather than correction of damage. Cabling and bracing are particularly applicable in the care of split crotches, V-shaped crotches, inherent weaknesses of species (i.e., maples, hackberry, Siberian elm), or extra heavy fruit and decay. Trees in close proximity to buildings should be given special attention. Inspect cables at least every three years and remove any slack. Also, repair or replace any rusty sections. In trees that have been previously damaged, remove excess suckers and modify the remaining ones so that they will eventually replace the damaged limbs.