

TIPS FOR IMPROVING TREE HEALTH CARE

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At the 53rd Annual Michigan Turfgrass Conference, I talked about insects on trees and shrubs and how golf course superintendents can implement a tree health care program on their golf course (see the Proceedings, Volume 12). In an article entitled, "A Tree Health Care Program for the Golf Course," I explained a conceptual model of how such a program works and explained its various submodels or subcomponents. In the model, the three assumed center stage because it and its vitality are the central issue, not pest control. In this article I will explain more about cultural tactics that can be used on your course to improve tree vitality, thereby minimizing their susceptibility to damage from insects and diseases.

Several cultural practices should be practiced routinely to optimize tree vitality, including mulching, pruning, fertilizing, watering, and aerification. Some of these tactics are interrelated. All of them should be routinely implemented for all key trees and foundation shrubs at your golf course.

Maintenance equipment used near the base of a tree may be the most important long-term threat to a tree's longevity and utility. Mechanical injury at the root-trunk interface may provide access to pathogenic and rot-causing organisms and insect borers. This kind of injury can be prevented most easily by placing even a narrow band of mulch at the base of all key trees on your course. When practical, the band width should extend to or beyond the tree's dripline.

In Michigan and other states in the north central region of the United States, hardwood bark is readily available and relatively cheap. Composted or one-year-old bark should be used to prevent build-up of bacteria in the mulch that may eventually invade the soil and compete with the tree for nitrogen. A thin layer (1 1/2-2 inches) of bark "dust" is best and should last 2-3 years before it needs replenishing.

Pruning is one of the simplest and most important cultural tactics for optimizing tree beauty and longevity. However, it must be done by a person familiar with proper pruning procedures. Improper pruning is more detrimental to a tree's vitality than no pruning at all.

Pruning is done to: (1) remove diseased/infested branches, (2) establish a desirable tree form, including removal of crossing branches, (3) improve air movement and access to sunlight, and (4) promote tree vitality. Most deciduous hardwoods (e.g. ash, oak, maple, etc.) should be pruned when dormant; evergreens can also be pruned then to change canopy form. However, pines must be sheared in early summer; spruces and firs in late fall.

All pruning cuts should be made at a branching point just distal to the branch bark ridge. Flush cuts should never be made. Dr. Alex Shigo, Principal Plant Pathologist, USDA, Forest Service, Durham, NH, can be contacted for state-of-the-art procedures for pruning trees.

Many folks believe that most trees, especially large ones, do not require maintenance irrigation during periods of drought. After all, the tree's survival indicates that it has overcome more than one drought, among other stresses, so it can probably withstand another. However, this is faulty thinking.

Even large trees, especially those that are growing in key locations on the course should be watered at least weekly during summer and fall drought. Watering should be done slowly, applying not more than one inch of water during one hour on moderately well drained soils. More water can be delivered in a shorter time on sandy soil; less water during a longer time on heavy soils. You'll need to observe infiltration rates on various parts of your course to determine the best delivery rate for watering your trees.

Oxygen is often the limiting factor in tree vitality because it is critical to root growth. Anything that adversely affects roots reduces a tree's ability to survive and thrive. Aerification is a well-established practice for managing turfgrass and is equally important for trees, especially those growing in high traffic areas. Compacted soil should be aerified. Traffic should be directed away from the area beneath a tree's dripline. If that is not possible, then the area should be aerified and then covered with two inches of mulch.

Aerification of compacted soil is best achieved with a power auger. But, plug-pullers commonly used on turfgrass may be helpful if done two or three times each year, followed by top-dressing with heavy sand.

Although we can't feed trees, technically, we can provide them with elements needed for their growth and development. Forest trees do not require fertilization because nutrients are continually provided by decomposition of fallen leaves and other plant parts in the woodland. However, in landscapes, including golf courses, most plant refuse is removed annually, and grass roots commonly compete with trees for nutrients.

Deciduous shrubs and trees should be fertilized with six pounds of actual nitrogen every other year during fall after the first or second hard frost. This will minimize a late flush of grass growth while providing roots with nutrients for late fall and early spring growth. Most landscape managers prefer to use an inorganic product that also contains phosphorous and potassium. When a "complete" fertilizer is used, a 3:1:1 ratio of NPK is desirable.

All of these cultural practices will benefit your trees and improve their ability to withstand attack by pathogens and insect pests. They are key tactics in any tree health care program.