

PROBLEM SOLVERS

By Balakrishna Rao, Ph.D

Silent killer

Problem: Three years ago we bought a house on a lovely treed site. Of course we paid more because of the beautiful trees. Now nearly all of the trees within sight of the house are dying or dead. I've had several tree companies tell me it's "construction damage." What do they mean and what can we do to save the few trees that haven't died? (Wisconsin)

Solution: Your situation, unfortunately, is not uncommon. Construction damage occurs primarily because of site development practices, which are expedient but also are death to trees. Most of the tree problems boil down to root loss and wounding. Trees and tree roots need water, nutrients, and air (oxygen) to live and grow. When the grade is lowered, roots are severed, wounded, and otherwise destroyed.

When the grade is raised, as by fill, the root system is buried and the roots do not get enough oxygen. The soil on building sites is usually compacted by heavy equipment run over and building materials piled on top of it. Compacted soil contains smaller openings (pores) than undisturbed soils. Rainfall runs off rather than into the soil.

An important function of roots that requires air is movement of soil-borne nutrients into the tree. Frequently the upper layer of soil (topsoil) is stripped away leaving behind the heavier subsoil. Topsoil is the soil layer (horizon) of highest organic content. Bacteria, fungi, and other organisms living in the topsoil convert mineral nutrients to forms the tree can use. Subsoil retards plant growth because it is heavier (denser) than topsoil, has less organic matter and because it lacks or contains fewer beneficial microorganisms, i.e., mycorrhizae. The tree, because its root system has been impaired, is not getting enough water and nutrients to sustain itself much less increase in size. In many cases the construction damaged tree is barely alive. It is well known to tree experts (arborists) that stressed trees are more likely to become diseased or attacked by insects. Because the trees resistance is down, they often succumb to secondary agents such as borers and decay fungi.

It can take as long as three to seven years after construction before the damage is obvious above ground. Dead and dying trees are the end result. Less obvious are the following dieback and decline symptoms which precede death and indicate that the tree is in trouble. Individual branches die from the ends back toward the trunk (tip dieback). The entire tree dies progressively from the outside inward and/or from the top down. The leaves are off-color, often yellow (chlorotic), and undersized (stunted). Leaf margins and areas between the veins may turn brown (scorch). Other features indicative of construction damage, particularly a change in grade, are trunks with no flare or taper.

Trees do not enter the soil like telephone poles. Tree trunks are normally wider near the soil line. Some trees have buttress roots which flare out from the trunk. Wounds provide openings for decay fungi.

The presence of conchs, bracks, and mushrooms on the trunk and branches or arising from roots are signs that decay organisms are present. What can be done for the tree once these signs and symptoms are present? Basically three things:

- 1 fertilize
- 2 aerate, and
- 3 water

Fertilizer will stimulate root and shoot growth. Fertilizer invigorates the tree, making it more resistant to pests. Aeration permits air to reach the roots and increases oxygen levels within the root zone. Root growth is improved, and more roots can move more nutrients and water into the tree. Trees with damaged root systems cannot tolerate droughts and must be watered during rainless periods.

Supplemental watering, usually the homeowners responsibility, must not be overlooked.

Pesticides are needed to protect the trees from additional stresses. Even with proper remedial treatment full recovery or 100 percent survival rarely, if ever, occurs. A better approach is to change site development practices. If at all possible,

- 1 Don't strip or permit removal of the topsoil.
- 2 Don't disturb or change grades within the root zone.
- 3 Don't pile anything on top of the existing soil around a tree.
- 4 Keep construction equipment, trucks, and other machines away from the trees.

In other words, do not do anything which would adversely affect the roots. Sad experiences such as yours affirm that it is better to treat the trees properly before the damage occurs than to try to save them after the damage has been done.

Tall fescue is stubborn

Problem: Is there any chemical which can be used on Kentucky bluegrass lawns to selectively remove tall fescues? (Michigan)

Solution: At the present time there are no chemicals on the market registered for selective removal of tall fescues from Kentucky bluegrass lawns or other turfgrass lawns. However, reports from South Dakota suggest that Hoelon, a herbicide manufactured by American Hoechst Corporation, is showing good results in controlling tall fescues in Kentucky bluegrass lawns.

Hopefully, we will see this product labelled for turf use in the near future.

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Questions should be mailed to Problem Solver, Weeds Trees & Turf, 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Please allow 2-3 months for an answer to appear in the magazine.