HOME AND GARDEN COLUMN

TREE STRESS

Have you ever noticed that when you get sick it is usually when you are tired, run down, or stressed? That is because you are more susceptible to diseases and viruses during those conditions. Trees are very similar. When they are stressed due to environmental conditions or physical injuries, they are less defensive towards insects and diseases. In fact, most trees probably would never have gotten sick if they were not stressed before.

Trees are stressed due to many causes, whether they are natural or man-made. These can include drought, wind, lightening, flood, soil compaction, mechanical injuries, construction damage, and changes in soil levels. Stress in trees is often hard to detect since they may not show any immediate external symptoms. When a tree dies, it is possible that it has been dying internally for many years and just showed external signs of distress before its final days. Therefore, it is very unlikely that the tree died "suddenly".

Trees will experience physiological changes first, such as depleting food reserves and declining root systems. As they deteriorate internally, their ability to fend off insects and diseases is weakened and they are opened for attack. If a tree experiences prolonged stress, it will eventually die. This could take a few days or many years.

The best way to reduce stress on the tree is prevention. Although it is impossible to prevent environmental stress on trees, it is possible to prevent physical injuries. Physical injuries occur from lawn mowers, weedwackers, or construction trucks hitting the tree trunks or limbs, severing roots during excavating, and repeated traffic over the root system (soil compaction). These injuries to the trees are irreversible and will cause them to experience stress. It cannot be determined if the tree will be able to heal itself and survive or if it will succumb to the injury and be infected by pests.

During the early part of this year, the trees in central Florida experienced many months of drought. It also caused many of the physiological functions of the tree to slow down. This is a part of a tree’s defense during dry conditions. Some trees may have not survived this period of stress and were attacked by insects or disease, but some may have been able to fight through it until they were supplied with enough water.

Too much water can also damage trees. When the roots are submerged in water underground, they experience poor aeration and are unable to obtain enough oxygen to survive in the long run. These roots will be more susceptible to the fungi and diseases that are able to tolerate the low oxygen levels. The tree is now forced to initiate shallow roots, creating a shallow root system. This loss of root system through rot and decay will leave the tree prone to drought stress during the next dry season and opened for attack by insects and diseases.

This could be one reason why so many trees have died this past spring. In the hurricane season of 2004, many root systems of trees experienced too much water, even if there was no flood above ground, the soil was still very saturated underground. The trees became stressed as the roots rotted. With the drought situation this spring, many of the once “drowning” trees could not sustain the long period without water because of their damaged roots. With the extreme drought conditions this spring, unfortunately even lawn irrigation systems could not provide the trees with the large quantity of water that they needed to survive.

The potential for the trees to be infested by insects or diseases during the dry and wet times can be reduced with proper cultural practices. Remove dead or infested leaves, branches, or trees in order to reduce the spread of the problem, fertilize to keep trees healthy, irrigate during dry periods, do not irrigate during wet periods, plant the right tree in the right place where it can adapt well, and thin/prune trees during least stressful times.

By using these proper cultural practices and by avoiding physical injury to the tree, the tree will experience less stress and therefore be less susceptible to attacks by insects and diseases.

For more information about trees and stress, the following article is available from the University of Florida/IFAS database, Dispelling Misperceptions About Trees. Please call the Osceola County Master Gardeners at (321) 697-
3000 for a free copy of this publication and for answers to any other gardening questions. They are available to take your calls Monday thru Friday from 10am to 2pm.

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