

I NEED TO SPRAY MY TREE ... OR DO I?

Bugs, fungus, bacteria might not be the culprit – you might be!

By Mark Hughes

Often insects and disease are blamed for tree problems, but there are many non-living – abiotic – causes of plant problems.

Tree problems can be divided into two groups: biotic disease, which is caused by fungi, bacteria, and insects that cause damage and carry diseases; and abiotic disorders, such as iron deficiency. “Abiotic” means without life, and abiotic disorders are by far the most common.

Abiotic disorders do not spread to other plants because they are caused by mechanical, environmental/physical, or chemical factors.

Abiotic disorders often are misdiagnosed and treated as insects, fungus, or bacteria damage. Applying insecticides or fungicides for abiotic problems is a waste of time and money and may lead to further plant damage.

Plant Properly

Many tree problems are from improper planting. Failure to remove ropes and ties around the lower trunk and soil ball often results in girdling of the main trunk and roots several years later.

Girdling roots (roots growing in a circle until they “strangle” the tree trunk in later years) are often caused by trees and shrubs growing in a container too long. Years may pass for a tree to show symptoms. Early



Hail damage on young bark (from University of Minnesota Extension)

detection is important. Small roots visible on the soil surface and circling a tree trunk should be cut and removed. Removal of large, girdling roots (more than 2 inches in diameter) is a more involved process – seek advice from a professional arborist when considering their removal.

Consider Weather-related Events

Evergreens and newly planted deciduous trees may dry out in winter during high winds when soil moisture is low. Thoroughly water both kinds of trees after they go dormant in fall (after deciduous trees drop their leaves) to prevent winter desiccation. Roots are still active and can absorb water until soil temperatures drop below 40 degrees F. When the ground is not frozen, monthly irrigation may be helpful (especially with conifers) during winter in the absence of snow cover or sufficient snowmelt.

Hail can injure the succulent tissues of smaller branches. Hail damage is characterized by a large number of pockmarks on twigs and branches that begin to heal and leave many small, callused scars. Severe callusing can result in a branch becoming partially girdled (sap flow is restricted) and eventually causes dieback.

Cracking on the trunks of young, thin-barked trees (such as birch, maples, and cherries) is called sunscald and most often occurs on the southwest side of tree trunks. In winter, high-intensity sunlight heats up the south and southwest sides of deciduous tree trunks. This causes cells to come out of dormancy and become active. Fluids move into the cells. When the temperature drops below freezing, the water expands into ice crystals and breaks the cell walls.

Commercial tree wraps made of crepe paper can effectively prevent sunscald but should be removed the following April to avoid girdling, heat damage, and possible insect damage. You may need to wrap trees each winter for several years until bark thickens and is less prone to sunscald damage.

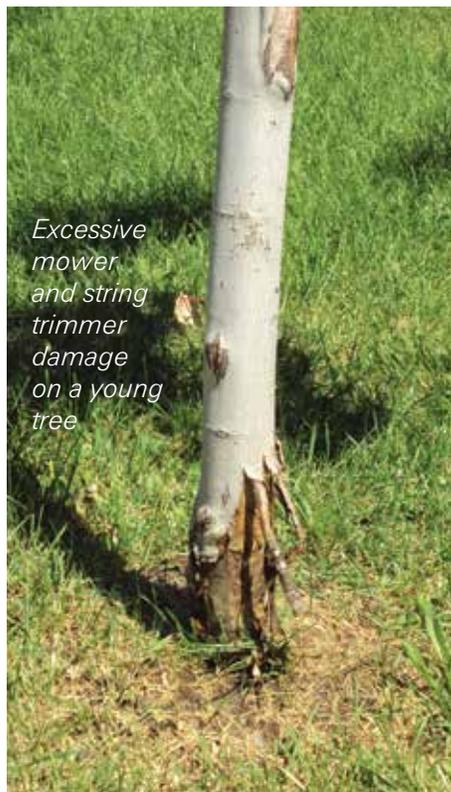
Inspect Trunk for Physical Injury

Damage from lawn grooming equipment is one of the leading causes of serious injury to young

trees. Young plants are particularly susceptible to bumps and scrapes from mowers and weed trimmers. Trees can be killed directly by trunk girdling, which prevents water uptake from the soil, and creates entry points for diseases and insects.

Always keep a 3-foot wide diameter area free of weeds and turf around new trees. This helps prevent mower or weed trimmer damage and reduces competition from grass for water and nutrients. If trunk damage occurs, the best remedy is to reduce further stress on the tree by addressing the initial cause of the damage and providing adequate water to help the tree recover. New bark tissue will form around the wound and eventually close if the damage is not too severe (less than one-fourth the trunk circumference).

Deer cause considerable damage to unprotected landscape plants, but other wildlife can also cause harm. Squirrels strip bark off branches to use as nesting material and even some birds can do harm. The sapsucker is a bird that feeds on tree sap and the insects that get caught in the sap



Excessive mower and string trimmer damage on a young tree

flowing from wounds it makes on the trunk. Do not confuse sapsucker damage with borer (an insect) invasion. Sapsucker feeding damage can be identified by evenly spaced rows of holes on the trunk. Preventing damage caused by sapsuckers is difficult. As with other wildlife damage, the best thing to do is provide proper water to help the tree recover from the wounds.

Ensure Good Health Below Ground

One of the major causes of abiotic plant disorders is improper watering. Too much water can be just as damaging as not enough water. Plants require sufficient moisture to grow but not so much that the roots drown. Water just enough to moisten the soil 8 to 12 inches deep.

Many of trees' fine feeder roots are in the top few inches of soil. Therefore, soil compaction is an issue. Soil compaction by heavy equipment or foot traffic in the plant's root zone reduces the pore space for air in the soil. Percolation of moisture through the root zone is then disrupted so that the desirable air/moisture balance is not maintained. Roots die from a lack of oxygen. Soil with high clay content compacts very easily – especially when wet.

Roots may be severed or otherwise damaged from construction activities or garden cultivation. There is very little that can be done for roots damaged by digging. Fortunately, a minor amount of damage may have no visible effect, but severe damage will cause branch dieback. The best help for root-damaged trees or shrubs is proper watering to encourage new root growth.

In addition to minding his p's and q's, Mark Hughes knows his biotics and abiotics. He is the community forestry coordinator with the Wyoming State Forestry Division. He can be reached at (307) 777-7586 or mark.hughes@wyo.gov.

For more information, contact:

A local University of Wyoming Extension office
– www.uwyo.edu/ces/county

Your county conservation district – www.conservwy.com/DISTRICTS.html

Use Herbicides, Fertilizers, and Other Chemicals Correctly

Herbicides, fertilizers, de-icing salts, and other products can cause chemical injury. Many species of trees and shrubs are sensitive to weed killers such as 2,4-D or Weed-N-Feed. Drifting or improper application can distort the foliage on vegetation. Sometimes, the herbicide damage will be quite severe, and the plant may die. Usually, however, the damage is outgrown, and the plant will recover.

Trees and shrubs require 17 essential elements for growth and development; however, excess amounts (never apply more fertilizer than the rate listed on the label) of synthetic fertilizers can “burn” tree roots due to the level of salts in fertilizers. Irrigating with large amounts of water to flush the fertilizer salts is the best course of action if fertilizer burn is suspected.

De-icing salts to remove snow and ice from roadways and sidewalks injure plants from 1) salt burn on foliage, 2) root burn of salts, or 3) salt build-up in the soil that deteriorates soil structure and interferes with drainage and root growth.

Many tree and shrub problems are not caused by insects or disease. Take the time to answer some historical questions about your trees' care and consider changes that can be made to improve their health.