

Assessing Tree Health

by Lynn Chimera

I recently completed The Cornell Plant Diagnostic Class presented by the Cornell University Plant Disease Diagnostic Clinic. This course is offered each year, and I would highly recommend it.

The section on diagnosing tree problems was particularly helpful. There are basically two major reasons for unhealthy trees, biotic or abiotic. Biotic tree damage shows up as visible changes caused by living organisms like insects, fungi, bacteria, viruses, or parasitic plants. Abiotic tree problems are non-living stresses that weaken or damage trees like weather conditions, poor pruning, or other human activities.

One of the key differences is biotic problems usually create localized, irregular, and progressive symptoms on trees. Some obvious leaf symptoms are chewed, skeletonized, or ragged leaves usually caused by insects. Insects can also cause distorted, curled, or cupped leaves. Other signs of insect damage are exit holes, frass, galls, and webbing or tents.

Spots, blotches, or lesions on leaves can indicate a fungal problem like leaf spot, anthracnose, or rust. Cankers, oozing sap, or dark streaks in the bark are caused by fungus or bacteria. Seeing mushrooms or conks (external shelf or shell-like growths on the bark) indicate internal decay. Branch or structural damage is also a biotic result. Examples are dieback starting from the tips, epicormic shoots (suckers) sprouting from the base of the tree or sudden wilting even with appropriate watering.

Abiotic tree problems develop more slowly but can be easier to control. They come from non-living factors like weather extremes, soil issues, chemicals, or mechanical injury. Outward symptoms are usually more uniform across the tree with no sign of insect or pathogen damage. The decline can be sudden after a weather event like freezing or localized along a road edge or construction area.

Weather stress, either from drought, flooding, heat, frost, wind, or rapid temperature change is a major abiotic issue. Soil is always a place to strategically start. Proper pH, compaction, nutrient deficiencies, and poor drainage can all be problematic.

Exposure to chemicals from road salt, pollution and misuse or drift from herbicides will all cause tree damage. Mechanical injuries from lawn mowers, tree trimmers and construction damage are quite common. Tree trimmer damage is so common it's referred to as "Toro Disease." Then there is improper care, planting, or site selection. Right plant right place is one of the basic philosophies of any planting.

Once you have identified whether your damage is biotic or abiotic you are on your way to a proper diagnosis. This article is a brief synopsis of information from a 2-hour class. For more extensive information go to:

<https://cmg.extension.colostate.edu/wp-content/uploads/sites/59/2021/06/Abiotic-and-Biotic-Tree-Problems.pdf>



Photo Canva



Cornell Cooperative Extension is an employer and educator recognized for providing equal program and employment opportunities in accordance with applicable laws.

© Copyright 2026 All Rights Reserved