Ahlum & Arbor
TREE PRESERVATION

Chlorosis

Healthy green tree versus a chlorotic yellow tree (left)

Chlorotic yellow leaf (below)

What Is Chlorosis?

Chlorosis is a condition where a tree's ability to manufacture chlorophyll has been compromised or degraded. Because chlorophyll is the green pigment found in leaves, this condition is easily recognized by looking at leaf color. The leaves of most healthy trees should be a rich, lush green color. Trees suffering from chlorosis may appear pale or lime green in mild cases to yellow and even white in more severe cases. Typically, the veins of the leaf will remain green (interveinal chlorosis).

What causes chlorosis?

Chlorosis itself is a symptom of a problem, but not a specific diagnosis. The more common causes of chlorosis are a damaged root system, excess soil moisture/over-watering, girdling of root/trunk tissue, pollution, herbicide injury, and/or micronutrient deficiencies. Prognosis and treatment options ultimately depend on the underlying cause.

Why is chlorosis important?

Regardless of underlying cause, it is important to know that chlorosis means stress. Trees that are yellowing (chlorotic) have less chlorophyll in their leaves. Chlorophyll is what allows a tree to convert carbon dioxide, water, and sunlight into energy (food). A chlorotic tree will ultimately be weaker and more prone to other health problems. Afflicted trees become trapped in a catch-22. A healthy root system requires energy (food) made in the leaves to function and grow. Healthy leaves require healthy roots to extract nutrient and water from the soil. Without one, the other languishes.

Treatment options

Treating a tree for chlorosis begins with a full evaluation by a Certified Arborist to diagnose the underlying cause(s). Pending diagnosis, one or more of the following treatments may be prescribed:

1. Macro-infusion

This treatment consists of drilling a series of small holes in the base of the tree (root flare). A small plastic applicator is inserted into each drill site and then tubed together. The tubing ultimately feeds back to a pressurized hand-can filled with a specific amount of either iron (Fe) or manganese (Mn) (The most commonly deficient micro-nutrients observed in Central Ohio). A single treatment can produce results that last up to 3 years. The purpose of treatment is to evenly and completely cover the entire canopy. Applications are best performed in the fall as summer infusion may result in early leaf drop.

2. Growth Regulators

In university studies, growth regulators have been shown to increase the size and surface area of a tree's root system. Growth regulators slow the expansion of cells in the canopy of the tree, allowing energy to be redirected to other parts of the plant. It also increases a hormone that stimulates root growth. Growth regulators are often applied following root loss due to construction/digging activities. The effects of treatment last for 3 years and applications are done during the growing season.

3. Cultural Practices

Some trees have a difficult time maintaining a healthy root system in urban areas. Compacted soils may make it difficult for tree roots to grow out and away from the main trunk, resulting in stem girdling roots (roots that have grown around the base of the tree, restricting nutrient and water uptake). Inspecting and removing these stem girdling roots early will alleviate future headaches. Root aerations may also be necessary to reduce soil compaction and improve rooting conditions. Also, in most urban sites leaves and woody debris are not left to naturally break down. The absence of this process interferes with the natural nutrient cycling found in wooded sites. Root enhancements, when appropriate, may offer a long-term solution for chlorosis to some trees. For more information on these services check out our Improving Root Health fact sheet.

Healthy green leaf versus a chlorotic yellow leaf

A tree with new chlorosis

Ahlum & Arbor Tree Preservation is a family-owned, full service arboricultural firm serving both Residential and commercial clients in central Ohio for over four decades. Ahlum & Arbor's staff includes Board Certified Master Arborist, ASCA Registered Consulting Arborist, Certified Arborist, ISA Tree Care Safety Professionals, State Licensed Pesticide Applicators and much more.

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