



Ahlum & Arbor Tree Preservation is a family-owned, full service arboricultural firm serving both residential and commercial clients in central Ohio for more than 30 years. Ahlum & Arbor's staff includes 13 certified arborists and 7 state licensed pesticide applicators.

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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 easy to diagnose by looking at leaf color. The leaves of most healthy trees should be a rich, verdant green color, while trees suffering from chlorosis can appear pale green in mild cases to yellow and even white in more severe cases. Because chlorophyll is the molecule that a tree utilizes to turn light into energy for itself, trees that are chlorotic are making less energy than they normally would. This condition results in a weaker, less durable tree that will be more prone to other health problems. Chlorotic trees are usually declining and may die if left untreated.

There are a number of factors that can cause chlorosis in trees, but mineral deficiencies and root system health are among the most significant. When minerals like iron or manganese are absent from the soil or locked up by high soil pH, they are not available to the tree. Similarly, if the root system is damaged or unhealthy, the tree will not have the capacity to absorb these items if they are present. Some common causes of chlorosis include:

- Soil compaction
- Over irrigation/Over watering
- Lawn herbicides
- Cutting or severing roots
- Leeching of de-icing salt into the soil around the root system

Chlorotic trees are trapped In a catch-22

A healthy root system requires food made in the leaves to function and grow. Healthy leaves require healthy roots to extract nutrients from the soil. Without one, the other languishes. Without human intervention – the tree will be stuck in a declining spiral that will eventually lead to tree death.

*Right Below Varying shades of green to yellow
Right Above: Chlorosis present*

Treating chlorosis

Chlorotic trees do not produce as much energy to develop a healthy root system, and trees with unhealthy root systems do not extract the water and nutrients from the soil needed for canopy health. Without one the other languishes, and human intervention is needed to correct the situation.

Using Verdur® to stimulate chlorophyll production

One possible treatment for chlorosis is Verdur Fe for iron and Verdur Mn for manganese. A single treatment of these micro-nutrients can produce results that last up to 3 years. The purpose of treatment is to evenly and completely cover the entire crown of the tree with enough active ingredient. This is done through a process called macro-infusion. The best time to treat trees is in the fall or any time during the dormant season. Treatments during the growing season can result in leaf drop.

Using growth regulator to stimulate the root system

In university studies, growth regulators have been shown to increase the size and surface area of root systems. It slows the expansion of cells in the top part of the plant which allows energy to be redirected to other parts of the plant. It also increases a hormone that stimulates root growth. This combination of events increases the plant's health and vitality.

Other cultural practices

Certain species of trees such as river birch and silver maple have evolved in river bottoms or soils rich in organic matter. These trees have a difficult time maintaining a healthy root system in urban areas that have poor soil conditions. It is recommended that a mulch ring be placed around the tree. Mulch provides a more favorable environment for root systems by adding natural organic matter to the soil as it decomposes.

