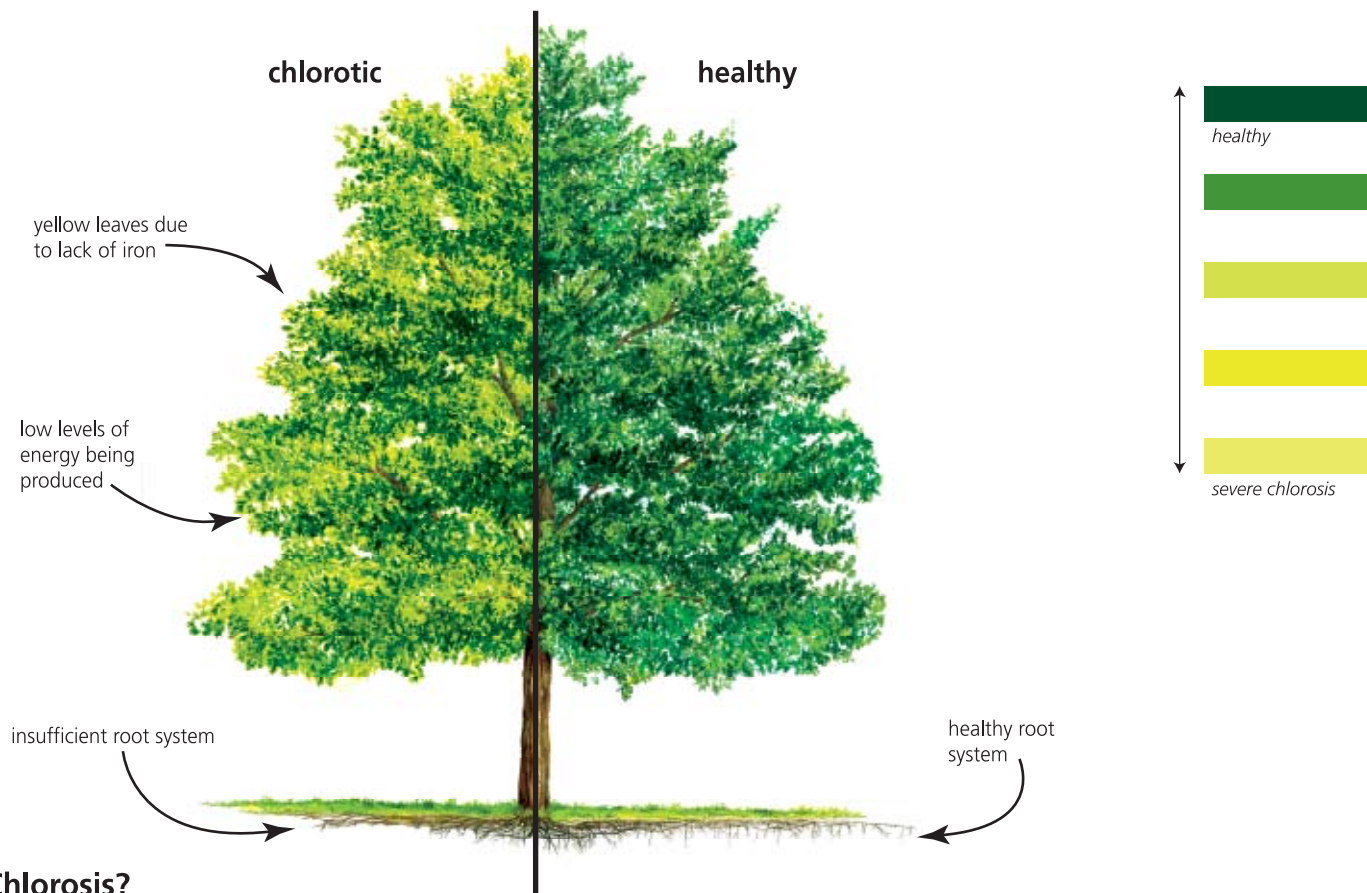


Caring for trees with **Chlorosis**



What is Chlorosis?

Chlorosis is a serious condition where a tree's ability to manufacture chlorophyll has been compromised. Chlorophyll is the green pigment found in leaves. Chlorosis is easy to diagnose by looking at leaf color. Mild chlorosis may occur as a pale green appearance to the leaves, while leaves may be yellow and even white in severe cases.







Why is Chlorosis a Problem?

Trees utilize chlorophyll molecules to make energy for themselves. Trees with chlorosis make less energy. This condition results in a weaker, less durable tree that will rarely make it to maturity. Chlorotic trees continue to decline and will often die without treatment.

What Causes Chlorosis?

There are a number of factors that can cause chlorosis in trees. Mineral deficiencies and root system health are among the most significant. Minerals like iron or

manganese may be absent from the soil or locked up by high soil pH so they are not available to the tree. Additionally, the root system may be damaged or unhealthy inhibiting the trees' capacity to absorb these items. Some common reasons trees may appear chlorotic include:

-  Severe soil compaction
-  Over-irrigation
-  Lawn herbicides
-  Root Severing
-  Deicing Salt
-  Root rot/disease
-  Repeated drought

Chlorotic Trees are Trapped In a Catch 22

A healthy root system requires the 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 on a path of decline that will eventually lead to death.

Treating Chlorosis –

Chlorotic trees do not produce sufficient energy to develop a healthy root systems. Trees with unhealthy root systems do not extract the water and nutrients from the soil needed for canopy health. Uncorrected, this will lead to tree decline and eventually to tree death.

Using Verdur™ to Stimulate Chlorophyll Production

Verdur is a readily available form of iron that lasts up to 3 years. The purpose of treatment is to completely cover the entire crown of the tree with the active ingredient. This is done through a process called macro-infusion. The best time to treat trees is in the fall or anytime during the dormant season. Treatments during the growing season can result in leaf drop. Results last approximately 3 years from one treatment.

Using Cambistat® to Stimulate the Root System

Cambistat has been shown in university studies to increase the size and surface 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 plants health and vitality.

Other Cultural Practices

Certain other species of trees such as river birch and silver maples 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 growing environment for roots.



photos by Dr. Gary Watson



up to 3 years green up of chlorotic trees



Untreated Pin Oak



One year after Treatment with Verdur and Cambistat

Cambistat®

for greener, healthier, lower maintenance tree



Untreated



3 years after Treatment with Cambistat



Untreated



3 years after Treatment with Cambistat

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