What's Up With My Tree?

Understanding Chlorosis

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Most trees found in nature and urban landscapes are varying shades of green during spring and summer, turning showy hues of orange, yellow, red, and brown in the fall. But what if a tree appears yellow during spring and summer instead of green? It could be experiencing a condition called chlorosis—the yellowing of leaves due to inadequate chlorophyll production.

Chlorosis occurs under one distinct circumstance: a deficiency of the micronutrients iron and/or manganese. Without a steady supply of these key micronutrients, trees can't produce enough chlorophyll to keep their leaves green. This, in turn, hinders photosynthesis and negatively impacts overall tree health. The stress caused by chlorosis often makes trees more vulnerable to pests and diseases such as foliar fungal infections, bacterial leaf scorch, and sap-feeding insects.

Micronutrient uptake can be hindered in several ways, including high soil pH, poor drainage, drought, and stem girdling roots. Even if the soil contains adequate micronutrient levels, trees may not be able to access them if the soil pH is too high. At elevated pH levels, micronutrients become less soluble or form compounds that are unavailable for uptake. Both excessive and insufficient water can also inhibit nutrient absorption: flooding reduces oxygen availability, while drought limits moisture—both essential for transporting nutrients. Similarly, a stem girdling root can restrict water and nutrient flow, much like a rubber band restricts blood circulation when worn around a wrist.

Chlorosis can affect a wide variety of trees, shrubs, and landscape plants. In Ohio, it's commonly seen in red maple, Freeman maple, pin oak, river birch, magnolia, sweetgum, and white pine. Azaleas and rhododendrons are also prone to chlorosis in Ohio, as they are not naturally adapted to alkaline soils.

If your tree is showing signs of chlorosis, consult a local arborist to discuss treatment options. It's essential to diagnose the underlying cause before beginning treatment. Often, a soil acidification product such as granulated sulfur may be used to lower the soil pH near the tree. Pine bark mulch can also help acidify the soil. Your arborist may recommend soil-injected fertilization with added micronutrients. Soil and foliar tests can confirm whether micronutrients are present and reaching the leaves. More advanced cases may require a root collar examination to check for stem girdling roots or other obstructions, such as wire planting baskets or twine left over from planting.

The Ohio Chapter International Society of Arboriculture's mission is to advance the practice of responsible tree care while promoting the benefits of trees. There are over 1,000 qualified tree experts in the state of Ohio who have passed rigorous training and testing by the International Society of Arboriculture to become ISA Certified Arborists. These tree care professionals have the knowledge, experience, and are ready to ensure your trees are in a safe, healthy, and functional condition. To find a tree care professional in your area, visit www.trees4ohio.org.