

## Yellowing Tree Leaves

By: Kelly Feehan, Extension Educator

Release: Week of June 27, 2022

Chlorosis is a condition where trees leaves are abnormally light green or yellow. We often see this in pin oak and silver maple. Red maple, Autumn Blaze maple, crabapple, river birch and swamp white oak are also affected.

Along with off color leaves, symptoms include darker green veins, browning along leaf edges or between veins, and branch dieback. Without treatment, severely affected trees eventually die.

The common cause is a deficiency of iron in leaves, often due to high pH soil. Our landscape soils are typically alkaline, especially in urban areas where top soil has been lost. Iron is present in soil but not readily available to certain trees in soils with a pH of 7 or higher.

While high pH soil is the common cause, overwatering, over fertilizing with nitrogen and phosphorous, root damage, and deficiencies in manganese are contributing factors or can be the main cause.

While the solution would appear to be to lower soil pH, this is not feasible. It requires pounds of sulfur tilled into soil and at least one year for pH to change. And soil eventually reverts back to a higher pH.

Since tree roots spread outward to at least the height of the tree, the majority of the lawn would be need to be tilled. And with most tree roots being in the upper 12 inches of soil, roots would be severely damaged by this method.

Sulfur can be added to the soil surface on an annual basis to mitigate pH, but this works best on bare sandy soils. Where trees are growing in a lawn, the area would need to be core aerated prior to application and only half rates of sulfur used to avoid turf damage. And this would need to be done annually.

The best way to avoid chlorosis is to not plant susceptible trees listed above. If already planted, iron could be provided via trunk injections or implants and soil treatments.

The disadvantage to injections is physical damage caused by drilling holes and internal damage caused by the chemical. Treatment needs to be repeated but should not be done until after old wounds have sealed. Injections are best done by an arborist well trained and experienced in tree injections.

Soil treatments are done by digging a ring of 2 inch wide holes 6 to 9 inches deep around the tree and filling these with a mixture of iron sulfate and sulfur. The number of holes and amount of product to use depends on the tree's trunk diameter. This method works slowly and a tree's response can take a year or two, but will last a while.

Tree owners can help trees by providing the best growing environment possible. Place a 2 to 4 inch layer of organic mulch, not a weed mat and rocks, from the trunk to the tree's dripline.

Turn off automatic irrigation systems and only turn them on when the lawn shows signs of needing irrigation or soil is drying. Roots need oxygen to efficiently take up nutrients and continuously wet soil limits oxygen. Core aerate the lawn once a year to relieve soil compaction and increase soil oxygen. This is especially needed where soils are clayey and the lawn receives a lot of foot traffic.

On lawns older than 10 years, cut back to two nitrogen fertilizations a years as recommended by turfgrass specialists. Use a phosphorous free fertilizer unless a soil test shows this nutrient is needed.

When selecting trees to plant, be sure to research which trees are best for the site. Selecting the right tree for the location, then planting and caring for it correctly, helps avoid having to deal with chlorosis or other issues.