

Chlorosis



River Birch



Northern Red Oak

(The Yellowing of tree foliage)

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Many Maple, Oak and River Birch trees in this area (Fox Cities) tend to only develop the yellow-green color of spring foliage and time will not advance this to a richer darker green. Also symptomatic of this condition called Chlorosis is that the veins do remain dark green, contrasting with the most of the yellow-green leaf. Most typically trees species that get chlorosis are Northern Red Oak, White Oak, Pin Oaks, Red Maple and River Birch. Sugar Maple will also develop chlorosis on occasion.

The normal dark green of the leaves is due to high chlorophyll content. It is a sign of a healthy rate of photosynthesis (food production). A healthy dark green tree will grow well and put down healthy food reserves. Trees that are chlorotic grow slowly, put down little food reserves and tend to decline to death in time.

Chlorosis is a condition mostly experienced on heavy clay soils. Clay soils tend to be alkaline (basic), which is the opposite of acidic. A pH of 7.8 or higher in local sub soils is not uncommon. These alkaline soils chemically “tie up” Iron and Manganese making these elements unavailable for absorption by the tree. The leaves need iron and manganese to manufacture chlorophyll. Therefore, changing the soil pH needs to be done. Quite often extreme alkalinity is also caused by site construction. After concrete workers pour home foundations, they often wash the truck tank and shut. This leaves a deposit of lime (calcium hydroxide) that is of high alkalinity. After completion of the construction the area is covered with topsoil and lawn is established. Chlorosis may eventually show on the mentioned group of trees due to concrete washing below ground.

Since our local soils are adequate in iron and manganese, it is primarily necessary to change the pH of the soil. An effective treatment is as follows: Remove the turf grass from around tree in a circle equal to the circumference of the tree canopy. The most efficient way to do this is with the herbicide glyphosate (Round Up). Spread pure elemental sulfur at a rate of 10 pounds per 100 square feet under the canopy of the tree. A soil pH reaction will slowly change as the sulfur and natural rainwater convert to sulfuric acid. The affect on darkening the foliage will be slow. It may not be notice until the next growing season. Cover the sulfur treated ground with two to three inches wood chips or bark chips as a mulch. This is a “best cultural practice for any tree. Mulching the tree with wood chips or bark maintains a cooler more moist soil, eliminates competition from turf grass for water and minerals and cultures a natural relationship between the tree roots and symbiotic fungi. This too will help correct the chlorosis.

The need to reapply the sulfur again is likely. Perhaps every other year or as dark green leaves turn to yellow-green

Red Maple (*Acer rubrum*) is a tree species that most often develops chlorosis quickly. This is a maple that displays the scarlet color foliage in early October. It is the native soft maple of northern Wisconsin, not the purple leafed hard maple that shows this color in spring or all season long. Those are varieties of Norway Maple (Crimson King, Royal Red). Red Maple is not recommended as a transplant to the clay soils of east-central Wisconsin.

A good substitute for the Red Maple that will grow as fast as Red maple and have the same autumn glow is a hybrid called **Autumn Blaze**. This hybrid is a cross between Red and Silver Maple and is available in most tree nurseries.

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