

Iron Chlorosis: Symptoms, Causes and Solutions



Many landscape trees planted in Utah are highly susceptible to iron chlorosis, which is caused by a lack of available iron in the soil and results in the yellowing of plant leaves. The most common symptom of iron chlorosis is interveinal chlorosis. This is the yellowing of leaves with a network of dark green veins. In more severe cases, the entire leaf turns yellow or white, and the outer edges may scorch or turn brown. Symptoms can occur on a few leaves, an individual branch, half of the tree or the entire plant. Iron chlorosis that persists year after year may lead to the death of individual branches or the entire tree.

Iron chlorosis often occurs in alkaline soils (pH greater than 7.0), which are common in Utah. While there is an abundance of iron found in these soils, chemical reactions caused by the high soil pH make the iron solid and unavailable to plant roots. Although iron is a macronutrient (required in small amounts), it is essential for plant health. It contributes to nitrogen fixing, plant development and chlorophyll production. Yellow leaves indicate a lack of chlorophyll, which is the

green pigment found in plant leaves. Without it, plants struggle to properly photosynthesize. If plants are unable to properly photosynthesize during the growing season, plant growth and vigor will suffer.

The best way to avoid iron chlorosis is to plant species that are tolerant of alkaline soils and less susceptible to the lack of available iron. Avoid planting species that are highly susceptible to iron deficiency, since recurring chlorosis will weaken the plants. Maples, a commonly planted landscape tree in Utah, have many varieties that are highly susceptible to iron deficiencies and will quickly develop symptoms of iron chlorosis. Even species that are tolerant of moderately high pH soils may exhibit symptoms of iron chlorosis on particularly bad sites. It is always wise to get your soil tested prior to planting. This will help you avoid potential problems in the future.

Species to avoid include most maples, quaking aspen, river birch and pin oak. Some species less susceptible to iron chlorosis include Ginkgo, most oaks, Kentucky coffeetree and catalpa.

Treatment options are available for mature trees that are suffering from iron chlorosis. Soil applications, foliar sprays and trunk injections are available. Soil and trunk treatments will last longer than foliar treatments, though foliar treatments provide a more rapid response. Some methods will work better than others, depending on the area, so you may need to try different methods until you find the right one for your situation.

For more information, including a full list of species to plant and avoid, as well as treatment options for trees with iron chlorosis, visit <http://forestry.usu.edu/trees-cities-towns/tree-care/preventing-iron-chlorosis>.

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