

Post Rock Answers
By Cassie Homan August 13, 2021
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Iron Chlorosis Affecting Trees

Trees with dark green, lush leaves are a beautiful addition to our landscapes. However, this year we have seen many trees with yellow and sick looking leaves. What causes this? Iron chlorosis. It might sound like a scary disease, but it's very common condition in Kansas. It's actually a nutrient deficiency caused by the high pH of our soils and can cause significant problems to many of our tree species.

Though Kansas soils normally contain adequate amounts of iron, a high pH makes that iron unavailable to the plant. Iron plays a major role in the production of chlorophyll. Thus, a lack of iron reduces the amount of chlorophyll and results in yellowing of leaves. Affected leaves turn a yellowish color while the leaf veins remain dark green. Iron chlorosis weakens the tree, and in severe cases, may cause leaves to turn brown or scorch. In even worse cases it may kill a susceptible plant.

There are several ways to correct this condition. Remember iron chlorosis occurs when iron in the soil is either deficient or unavailable to the tree. There are three ways to provide iron to the plant: foliar application, soil treatment, and trunk injections done by an arborist.

If you are wanting a quick fix, the tree will respond rapidly to a foliage spray. Spray with an iron sulfate or iron chelate solution when the tree is in full leaf. A rate of five pounds of iron sulfate to 100 gallons of water is recommended. Iron chelates are water soluble forms of iron that remain in the solution once added to the soil or tree. Follow all label instructions for determining the proper concentration when applying chelated iron directly to foliage. If spraying the foliage of your tree, it is best to spray during the evening or during periods of cool weather.

A longer lasting option would be to amend the soil around your tree. Lowering the pH is a more permanent way of correcting iron chlorosis caused by high pH soils. This can be done by adding sulfur to the soil. You can also add iron to the soil in sufficient quantities to increase the amount available to tree roots. If you have turf around your tree you should place iron sulfate in holes drilled into the soil. Holes spaced two feet apart and 25 to 18 inches deep should form concentric circles around the tree, beginning two to three feet from the trunk and extending beyond the ends of the branches about three feet. This treatment method is longer lasting and should be done in early spring just as buds begin to swell. If you know your soil has a high pH, using an iron chelate with EDDHA will help the tree absorb the nutrients.

You can also inject or implant your tree with iron. However, this is a complicated process that should be left to a professional arborist. In this method, holes are drilled in the lower trunk and ferric ammonium citrate is pumped through the holes. Drilling holes can wound the tree and should be done by a skilled arborist.

With a little extra help, we can grow some beautiful trees in North Central Kansas. If you have questions about iron chlorosis or treating the trees in your landscape, stop by your local Post Rock District Extension Office.

Post Rock Extension District of K-State Research and Extension serves Jewell, Lincoln, Mitchell, Osborne, and Smith counties. Cassie may be contacted at choman@ksu.edu or by calling 738-3597. Find us online at www.postrock.ksu.edu