

Early Fall Coloration, Pale/Yellowing Leaves, and Other Signs of Stress and Chlorosis in Your Landscape Trees

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After an early cold snap this past September in addition to a tough winter, seeing signs of stress and chlorosis in trees is prevalent in Montana landscapes this summer. Stress in trees can appear as premature fall coloration, branch/crown dieback, curling/wilting of leaves, etc. Chlorosis is a change in leaf coloration (yellowing, early fall coloration, dark green veins, eventual browning of leaf edges, etc.) that is often brought about by a nutrient deficiency. The most common nutrient deficiency in Montana landscapes is due to insufficient iron or nitrogen uptake. Stress and chlorosis can often compound on each other, further impacting tree vigor.

Symptoms:



Chlorosis in Amur Maple (*Acer ginnala*)
Photo: Cheryl Moore-Gough

Indicators of environmental stress in trees can present in many ways, including (but not limited to) changes in the tree canopy, early onset of fall coloration, interveinal chlorosis of varying degrees. These symptoms can also indicate potential pests and pathogens, so it is important to rule those out before managing for chlorosis. If you are unsure of what might be going on, you can contact your [local extension office](#) for further assistance.

One of the common characteristics of iron chlorosis is dark green venation in leaves, surrounded by pale yellow/green coloration of the leaf tissue. Sometimes the tissue outside the veins can turn white and/or brown, and other times it is not uncommon to see leaves adopt early fall coloration. If you have an otherwise healthy-looking tree (with no signs of pests or disease) chlorosis can be a likely diagnosis. You can further confirm the diagnosis of iron chlorosis by spraying chelated iron on an affected branch. If the leaves start to regain their normal coloration, you can continue with the management options listed below.

Some tree species are more susceptible to stress and/or chlorosis than others.

The Schutter Diagnostic Lab has received several samples of maple trees [especially '**Autumn Blaze Maple**': *Acer × freemanii*] that are **showing early fall coloration** (leaves are turning red prematurely). If your tree has been healthy for the past few years, and has branches that are showing premature fall coloration now, it is likely that it could be associated with stress. Although iron chlorosis can cause similar symptoms to appear, you will have seen this issue progress over a few years. The best thing to do in this case is to be patient, and keep an eye on

the tree. Continue managing it like you have been, and if you see any changes (such as premature leaf drop, dieback of branches, etc.) give us a call.

Management:

Iron chlorosis can be managed by adding iron to the soil in a way that is accessible to the tree. There are several recommendations for iron formulations that can be found in this [publication from Utah State University](#).

Although chlorosis can be indicative of a nutrient deficiency in the tree, it doesn't mean that the nutrients aren't present in the soil. High pH (>7.0) can limit a tree's ability to access the nutrients in the soil, so adding additional nutrients will not necessarily address the issue entirely. If this is a persistent problem with your landscape, consider getting a soil test to get a better idea of your soil pH and nutrient composition. Our [Soil Testing MontGuide](#) is a great tool to get you started.



Chlorosis in Aspen is a common occurrence in Montana.
Photo: Cheryl Moore-Gough

Sincerely,
Abiya (Abi) Saeed
Extension Horticulture Specialist
abiya.saeed@montana.edu | (406) 994-6523

Disclaimer:

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