Root problems reason for Autumn Blaze maple leaves turning yellow

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An Autumn Blaze maple which has become chlorotic during the heat of summer.

What is that beautiful golden tree? Is that really a maple? Is this color normal for this time of year or is the tree sick? How can I make the tree green again? These are the types of questions we continually receive from those who have a silver or Autumn Blaze maple in their yard or see one in their neighborhood.

During one of the training programs I conducted for the CSU Master Gardeners last month, I pointed out a yellow silver maple. As I continued to drive from training site to training site, I pointed out how easy it was to identify a silver or Autumn Blaze maple even from afar. These yellow trees were easy to recognize.

Silver and Autumn Blaze maples are supposed to have green leaves. However, these trees have problems with our soils and become chlorotic (lose their green color) during the heat of summer. This chlorosis can be the result of a deficiency of iron with the leaves showing the typical deep green veins with yellow between the veins. This does not mean our soils lack iron, but that these trees are unable to take it in through their roots.

There are numerous reasons why trees and other plants don't absorb adequate iron to include compact soil, excessive soil moisture, high phosphorus levels, the use of nitrate fertilizers, etc., but the reason silver and Autumn Blaze maples lack adequate iron is due to their inefficient roots.

The root systems of most trees are capable of adjusting their soil environment to enhance nutrient uptake. If the tree lacks a specific nutrient such as iron, it pulses hydrogen ions (protons) into the soil to acidify the soil. This changes the soil pH and helps release needed nutrients. Efficient roots also release phytochelates from their roots to solubilize iron and make it more available for uptake by the roots. Silver and Autumn Blaze maples, on the other hand, lack this ability and thus are very

inefficient.

Due to this inefficiency, the silver maple (Acer saccharinum) often becomes chlorotic unless the soil is amended with copious amounts of good quality compost well beyond the drip line of the tree. The Autumn Blaze has this same inefficient root system characteristic having inherited this characteristic from both parents, the silver maple and the red maple.

According to the AboutGardenPlants.com website, "the autumn blaze maple tree is a unique combination of good traits from the red maple and silver maple. The qualities mixed by the autumn blaze maple tree are brilliant orange-red color in the fall, dense and healthy branching, and enhanced growth that protects (it) from insects and disease." Testimonies such as this neglect to mention this tree's inefficient root system.

The Amur maple (aka Ginnala maple - Acer ginnala) is another tree with an inefficient root system. The root system of the Tartarian maple (Acer tartaricum), however, has a very efficient root system. It would be interesting to see what would happen if silver and Autumn Blaze maples were grafted to a Tartarian maple root stock. Would these trees still turn yellow in the middle of summer? I doubt it!

So how can we correct chlorosis with these two trees? Prepare the soil properly, avoid the use of phosphorus and nitrate fertilizers, water properly and hope for the best. Or avoid the planting of these trees in the first place especially when they are on its own roots.

Check out my gardening blog at http://swiftsgardeningblog.blogspot.com/

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