

Why Does My Tree Have Yellow Leaves? Rick Abrahamson

Nutrient deficiency in plants causes many symptoms ranging from yellow to purple leaves depending on which nutrient is the limiting factor. Think of plant nutrition as being a barrel with a broken stave. Water (or whatever other liquid you might put in a barrel) flows out at the point where the stave is broken and the barrel can only fill to that level. Until the stave is repaired the barrel will never be full. Plants with nutrient deficiencies work in the same manner; if a nutrient is limited then the plant will only grow until that nutrient is used up.

Nitrogen deficiency will result in older leaves becoming chlorotic (yellow) or even necrotic (dead), with new leaves being green in color. This is because nitrogen is mobile within the plant. Young leaves need more nitrogen than older leaves because younger leaves are more efficient at photosynthesis. Phosphorus deficiency can cause foliage to turn a greenish purple color, especially at the leaf margins. This is what causes purple sweet corn. Potassium deficient plants will show mottled or chlorotic leaves with small necrotic spots close to the leaf tips and margins. Plants deficient in iron will have interveinal chlorosis (yellow leaves with dark green veins). The veins in the leaves will be green because iron (central element in the chlorophyll molecule) is used in the leaf as soon as it can.

Iron chlorosis is a problem not because our soils lack iron, but because some plants have a hard time extracting iron in alkaline soils. Iron deficiency is seen often on maple, crabapple, aspen, and oak. To overcome iron deficiencies fertilize using a product containing iron sulfate. Another option is to spray the foliage with a liquid fertilizer containing iron, which should result in the leaves becoming green quickly.

A soil test is a good idea before any fertilization as fertilizing when not needed or in excess amounts is a waste of time and money. In addition to the cost extra fertilizer can cause other problems in the development of plants. Soil test kits are available at your county extension office and can be sent to the soil-testing lab in Brookings for a small fee. These kits have detailed instructions and soil bags to ship samples in.

More information about nutrient deficiencies or other horticultural topics can be found by calling Pennington County Extension at 605-394-2188 or by e-mail to ricky.abrahamson@sdstate.edu.