



Why are those plants yellow? Ironing out the problems . . .

In virtually every yard in Cheyenne you can find a plant suffering from an iron deficiency. Aspens are probably the most noticeable plants in our landscape that exhibit an iron deficiency. But, you can also find iron deficiency on vegetables, annuals, perennials, strawberries, raspberries, fruit trees and more. The odd thing is that our soils have plenty of iron. So, what's going on?

Spotting an iron deficiency

You can spot an iron deficiency quite easily. Simply look for a general yellowing of leaves with veins of the leaf remaining green. In severe cases, leaves can become quite pale yellow or even whitish, but still the veins have a greenish cast. The deficiency appears first on newer growth. This is usually typified by yellow leaves on the tips of stems, but can spread to the whole plant.

Horticulturists call this "iron chlorosis." You may also see that the leaves themselves may be smaller than usual. Leaves may eventually curl, dry up, and fall. Even mildly affected plants become unsightly and grow poorly. If this iron deficiency persists over several years, it can greatly weaken the plants and individual limbs, or the entire plant may perish.

The yellowing from an iron deficiency may only occur on a single branch or on one side of a tree. Two of the same plants growing right next to each other may vary greatly in their susceptibility to iron deficiency. One may be yellow while the other is still quite green.

On junipers, pines, and other evergreens, the yellowing chlorosis usually develops as an overall yellowing of needles. On lawns just look for a general yellowing.

Iron is necessary for the formation of green chlorophyll, which produces the green color in plants. It is necessary for photosynthesis and the healthy growth of a plant. A reduction in chlorophyll during the growing season reduces plant health, growth vigor, and ability to tolerate stress. Plants with reduced vigor from an iron deficiency are also more prone to winter injury.

But there is plenty of iron in our soils!

Do you remember as a kid taking a magnet and running it through some dry dirt? You would invariably pick up black iron filings clinging to the bottom of the magnet. If you go outside and relive that childhood memory, you would again find that you easily pick up iron on your magnet. This tells you that your soil has plenty of iron. In fact, most soils have plenty of iron, as it is very abundant. So why are the plants telling us they can't find any iron?

The iron deficiency all comes down to the soil's acidity/alkalinity balance as measured by the soil's pH. The scale to measure acidity and alkalinity runs from a pH of 1 at the most acidic to 14 at the most alkaline. Half way between the two numbers, 7.0 pH, is what is considered to be neutral in terms of acidity and alkalinity. Unfortunately, much of Cheyenne's soils are alkaline. Even the water coming out of our hoses is alkaline. As the pH of the soil rises above 7.5 pH, the iron becomes insoluble and cannot be absorbed by most roots even though it is surrounded by iron.

Solving the iron deficiency

Chronic iron deficiency can be helped by applying iron chelate, available at most garden centers. Iron chelate is usually watered into

the soil. For quicker more temporary fixes it can also be applied as a foliar spray. Always follow label directions - if you apply it too concentrated it will cause severe burning. Iron chelate binds to the iron in the soil in a way that the roots can take it up. Any new foliage produced after the spray will be chlorotic. Apply foliar sprays on cool, cloudy (non-rainy) days or in the evening to avoid burning the leaves.

Iron sulfate can also help correct an iron deficiency but is not as effective as iron chelate.

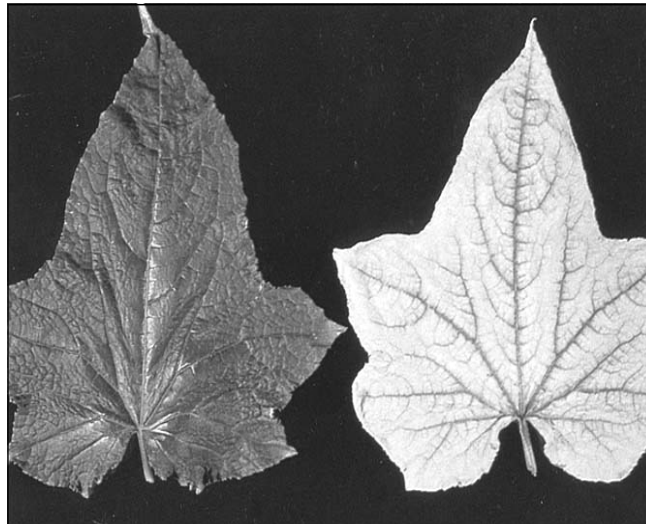
For trees, trunk injections are available and are best done by professional arborists. These products often work well if applied correctly, but there is the potential for opening pathways for insects and diseases in the trunk. It is best to hire a professional and licensed tree service for applying injections. As we enter into fall any cure for iron deficiency will not likely provide a visible solution but it will help next

year. Next spring or early summer you can treat your plants again.

You can also help cure iron deficiency by acidifying (lowering the pH) of your alkaline soil. Sulfur can help lower the pH, but it may take several months to years before you see the results. This is because it requires time for the conversion to sulfuric acid with the aid of soil bacteria. Still it never hurts to start now. Look for a soil sulfur at a professional garden center and apply approximately 1.2 pound of sulfur per 10 square feet of soil. If you can, work the sulfur into the soil. If you can't work it into the soil at least try to wash the sulfur off all leaves after applying.

Prognosis

You may never get rid of all the symptoms of an iron deficiency but you can, over time, make a big difference in the overall health of your trees, shrubs, lawn and flowers.



Look for iron deficiency by the newer leaves turning yellow (right) while the veins of the leaf remain green. Older leaves may will remain green (left). On plants with severe iron problems the leaves on the whole plant may be yellow.