

**Iron chlorosis takes its toll on landscape plants** – It seems early for the ‘dog days of summer,’ but already, many of our landscape plants are showing symptoms of environmental stresses common during the hot, dry summers. One of the most common landscape disorders in New Mexico is iron deficiency, also called iron chlorosis. Iron deficiency symptoms typically begin in spring when the plants are leafing out. As summer progresses, untreated plants may exhibit severe symptoms and have an overall unthrifty appearance. Samples from these plants are often submitted to the NMSU Plant Diagnostic Clinic because growers are concerned that there is a disease agent involved. In most cases, the plants are suffering only from iron deficiency either by itself or combined with other environmental stresses, such as water stress, hot drying winds, and other nutrient deficiencies.

**Iron Deficiency** is one of the most common nutrient deficiencies in all sorts of landscape plants. Some of the most commonly submitted plants for diagnosis include: Photinia, willows, mulberry, maples, sycamore, Poplars, roses, apples, pears, Hawthorne, stone fruits and pecan. Iron is a critical element for good growth and green color. Iron may be plentiful in the soil, but it is tightly bound to the soil particles in high pH (alkaline and calcareous) soils. Under these conditions, the iron is unavailable for plant use. The classic symptom of iron deficiency is interveinal chlorosis where the leaf turns yellow and the veins remain green (Fig. 1, 2 and 3). In very severe cases, leaves may turn white in color (Fig. 4) or develop necrotic spots, which can look like a fungal infection, on the affected leaves (Fig. 5). Over time, plants which remain untreated will start to dieback (Fig. 6), become unsightly in appearance and may eventually die. Symptoms can be exacerbated when shrubs are planted in heavy, poorly drained soils. The application of a chelated iron product should correct the problem. Foliar applications of chelated iron are usually effective if applied at the right time. If applied in the spring, the iron is readily taken up by the newly developing foliage. Once the foliage is fully developed, iron will not be

readily taken up by the leaves. Treatments later in the growing season should be made with soil applied chelated iron. These treatments can be especially useful in severe cases. Foliar applications should not be made when the temperature is over 85 F, as the chemical will burn the foliage. High temperatures will also affect the ability of roots to absorb the nutrient; therefore, soil applications in during hot weather may be less effective. Chelated iron is available in four different forms. FeEDTA is the most common iron chelate available. This can be applied to the



Figure 1. Iron deficiency on sweetgum (photo: Jason French, NMSU – PDC).



Figure 2. Iron deficiency on Bradford pear (Photo: Natalie Goldberg, NMSU – PDC).

foliage and the soil but is most effective in neutral soils (so it won't be very effective in NM's alkaline soils if soil applied). FeEDDHA is the best iron chelate available for alkaline soils and it can also be foliarly applied. It is expensive and sometimes hard to find. It can be purchased online and at some local garden stores. Two other chelated forms are FeDTPA and FeHEDTA. These chelated forms will not be effective in alkaline soils and should be avoided.



Figure 3. Iron deficiency symptoms on aspen (Photo: Jason French, NMSU - PDC).



Figure 4. Whitening of the foliage caused by severe iron deficiency on Photinia (Photo: Joran Viers, NMSU – CES, Bernalillo County).



Figure 5. Leaf spots caused by severe iron deficiency on Hawthorne (Photo: Joran Viers, NMSU – CES, Bernalillo County).



Figure 6. Dieback on a Photinia with severe iron deficiency symptoms (Photo: Natalie Goldberg, NMSU-PDC).

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