

## TREE DOCTOR TIPS

### Iron Chlorosis

#### DESCRIPTION:

Iron chlorosis is a yellowing of plant leaves often caused by iron deficiency that affects many desirable landscape plants in North America. The primary symptom of iron deficiency is interveinal chlorosis, the development of a yellow leaf with a network of dark green veins.

#### HOSTS:

Azalea, camellia, holly, magnolia, pin oak, pine, red oak, rhododendron, river birch, sweetgum, white oak, and willow oak.

#### BIOLOGY AND SYMPTOMS:

Affected trees and shrubs' leaf veins will be yellow while the rest of the leaf will remain green. In severe cases, the infected trees:

- Have brown edges along the leaves (in advanced stages)
- Have undersized leaves
- Have branch dieback
- May fall

Iron chlorosis is a result of lack of chlorophyll, the leaves' green pigment. Chlorophyll is necessary for the tree to produce carbohydrates from carbon dioxide, water and light. Therefore, chlorophyll loss results in less food production for the tree.

Trees need iron to make chlorophyll, which is why leaves will turn yellow when they do not receive sufficient iron. In alkaline soils (pH above 7.0), iron deficiency may occur because the tree roots are unable to absorb iron from the soil.

Other circumstances that may cause iron deficiency chlorosis include: poor soil drainage, soil compaction and construction damage.

#### MANAGEMENT:

To help mildly symptomatic trees, add iron or compost to the soil. For trees with severe iron deficiency, trunk injections can provide rapid results within the same season. Yet, the tree's canopy may not be uniform immediately, due to the severe lack of nutrients. This application may cause black foliage and leaf drop, however, new leaves will be healthy and dark green.

Even though iron deficiency treatments are impermanent, injections should not be given each year. Several seasons may pass before trees need to be injected again. In the meantime, soil treatments may be used to help maintain good color.



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FIGURE A. OAK LEAVES WITH IRON DEFICIENCY CHLOROSIS

*The scientists at **The Davey Institute** laboratory and research facility support our arborists and technicians in diagnosing and prescribing based on the latest arboricultural science. For specific treatment and application details, your arborist may consult *The Davey Institute PHC Handbook*.*

