Are Your Trees Starving to Death?

Iron chlorosis in oaks is associated with alkaline soils containing relatively high concentrations of phosphates and bicarbonate ions.

Most chlorosis can be corrected by using Fe or Mn chelates or by inserting iron-containing capsules into the trunks of the trees.

IN MOST CASES, the chances are your trees are not starving to death. But rather they are enjoying a more than adequate diet of N, P and K, since turf people are known to be fairly liberal in applying fertilizer to turf. And where turf is well fertilized, the trees in those areas are also well fertilized.

However, there are a couple of situations where the trees could be starving to death in areas of plenty. This would be where you are irrigating the turf with water of high pH, in the range of 7.5 to 8.5, and where there are tree species — oak, sugar maple, sycamore — that do not like the alkaline environment. In this situation, the trees develop chlorosis; that is, the leaves fail to develop the green color in the area between the veins, although the area adjacent to the veins remains green.

The chances are fairly good that the trees are suffering from iron or manganese chlorosis. It is difficult to determine the difference between the two deficiencies without chemical testing. The probability is fairly good that on oaks, especially pin oak, that the problem is related to iron and on maple it could be Mn.

Iron chlorosis is aggravated by factors that promote the oxidation of iron from the ferrous (Fe²⁺) to the ferric (Fe³⁺) form. It is associated with alkaline soils containing relatively high concentrations of phosphates and bicarbonate ions. Also, decomposing organic matter in alkaline soil will help to increase the alkalinity of the soil and thus maintain iron in the ferric form.

Plants that cannot counteract the alkaline soil factors will develop iron chlorosis. The fate of the plant is related to its ability to change iron from Fe²⁺ to Fe³⁺.

Many remedies have been recommended to correct iron chlorosis. They include: 1) the pounding of iron nails into the trunk, 2) injecting iron salts, such as ferric citrate, iron tautrate and iron sulfate into the trunk, 3) spraying the leaves with various solutions containing iron, 4) application of iron salts to the root zone, 5) the use of iron chelates both as sprays and soil injection, and 6) modifying the soil pH by using various acidifying agents.

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The initial response to the injection will be browning at the sight of application. The turf usually closes in completely in 4 to 8 weeks.

Nematodes (from page 52)

limited, primarily because of the belief that lower temperatures and a shorter growing season limit the opportunity of the nematode colony to build up. Perry has conducted some research that indicated significant nematode problems do occur on greens and fairways in the Midwest.

Vigorous turf provides the best weed control anywhere, and a healthy turf is within reach of everyone, Horn concluded. Nematode eradication is part of the insurance package.

Trees (from page 20)

such as ammonium sulfate, sulfur, aluminum sulfate or sulfuric acid. Iron sprays will green up the foliage with which it makes contact. However, leaves that develop after the treatment are generally yellow. Sprays containing chelates are generally unsightly and therefore not too desirable. Treatments used to change the pH of the soil are slow with the exception of the sulfuric acid treatment which is rather critical and must be applied with caution. The best results have been obtained by the use of soil treatments, particularly with the use of iron chelates. However, these remedies have not been without their disappointments. Presently, the suggested treatment is the use of iron chelates or iron sequestrians adapted for use on alkaline soils. These products should be applied in early spring before or just after growth starts and at concentrations recommended by the manufacturers.

The use of iron-containing capsules inserted into the trunk of chlorotic trees has also shown promise. A number of holes are bored into the trunk of the chlorotic tree, with the aid of a high speed drill. The holes should be deep enough so that (continued on page 56)
the capsules when inserted will be situated in the sapwood with the head of the capsules flush with the cambium. This will allow the iron citrate to be dissolved in the sap and translocated to the leaves. Capsules inserted during the early stages of growth have produced positive results in 10 days or less.

Information for the correction of manganese deficiency is not as readily available since Mn deficiency of ornamental trees is not too common. But the use of manganese sprays has been effective in "greening up" the foliage. However, the use of manganese chelates injected into the soil in the spring should produce more lasting results.

Trees in well maintained turf areas are probably not starving to death. But in areas where turf is being irrigated with water that has a high pH, it is possible that certain species of trees may be lacking in iron or manganese. These deficiencies can be corrected by the use of Fe or Mn chelates or by inserting iron-containing capsules into the trunks of trees.

BONDS(from page 16)

In order to satisfy itself that you can perform a surety must inquire into and satisfy itself as to your:
1. Background and history
2. Your organization
3. Your equipment or the availability of equipment
4. Your business acumen
5. The adequacy of your professional, i.e. legal, accounting, etc., advice
6. Your cost records and internal accounting system

Similarly, in reviewing your ability to pay your bills the surety must satisfy itself as to:
1. Your credit history or how you have paid your bills in the past
2. Your available bank credit
3. Your corporate or personal finances

Since your ability to perform, once questioned, is rarely tested on a regular basis the emphasis in the long run rests on your continuing ability to pay your bills and finance new work. The more financial data you furnish a surety the more confidence you will engender.

For instance, your fiscal financial reports are going to carry more weight than your interim financial reports. There are a lot of reasons for this but it all boils down to the fact that if you have really made a profit you will have to pay a tax on it. If you are paying taxes you are making money. Now, there are four methods of recognizing income, namely:

Cash
Accrual
Percentage of Completion
Completed Contract

You can be on one method for taxes and another for credit. This is fine. But at the end of your fiscal year the surety can review your reported and unreported profits, determine what tax might be due on your unreported profit and arrive at an honest net worth or working capital for your company. The figure which they arrive at should not be what determines the amount of surety credit you receive but it will help them to determine your ability to pay your bills and finance new work.

Scheduling in a financial statement is almost a prerequisite since

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