The Answers to Common Citrus Questions

The Help Desk answers requests for home gardening information, pest management from the residents of Alameda County. We'll feature a single question we think will be of interest to others or perhaps a topic that consolidates several related questions.

One topic for which we've received a number of questions is yellowing leaves on citrus trees. In general when in comparison to other fruit trees citrus trees have relatively few pest and disease problems if they receive good care. Very often the yellow leaves or chlorosis on a citrus tree is caused by over watering or a nutrient deficiency.

Citrus need regular water especially in the warm months but over watering can leach nutrients from the soil and cause root rot. If the roots are damaged they can't take up the nutrients the plant needs. Often the leaves on an over watered tree will turn yellow and drop.

When trying to assess what might be the cause of the chlorosis it's important to step back and observe the whole tree. Where are the yellow leaves? On part of the tree, on new growth or on older growth? Is the yellowing over the whole leaf? Or perhaps it's in between the veins with the veins remaining dark green. Or is it mottled? Also observe the soil. In what kind of soil is the tree planted? Sandy, loam or clay? Is it very wet? Is it in a lawn?

With these observations the homeowner can make a more informed determination as to what is causing the chlorosis.

Foliage is pale overall when nitrogen is deficient

Some nutrients are considered "mobile" that is if there is a shortage the plant can move the nutrient from one part of the plant to another. Nitrogen is considered a mobile nutrient and is the most common nutrient deficiency for citrus. If there is a shortage, the plant will move nitrogen from older leaves to the new growth. The new growth may look healthy and green while the older leaves are overall pale yellow green. The plant has moved nitrogen from its older leaves to support new growth. As the deficiency progresses the leaves throughout the tree become progressively more yellow with no distinct pattern. If the deficiency becomes more severe the lower leaves will turn tan and fall from the plant. Nitrogen deficiency can reduce plant vigor and fruit production. But even with adequate amounts of nitrogen in the soil citrus might show signs of nitrogen deficiency in the winter and early spring. With cold wet soils the plant is not able to take up available nitrogen. As the weather warms the nitrogen will become more available. In the meantime home gardeners can apply foliar nitrogen such as urea to help increase bloom set and fruit yield. Chronic nitrogen deficiency can be signs of over watering, root rot or compacted soil.

Citrus may occasionally suffer from a deficiency of zinc, iron or manganese. The plants uses these nutrients in very small amounts but they are nevertheless very important. There is usually an adequate amount of these nutrients in the soil but the plant may not be able to access them due to overly wet soil or damaged roots. These nutrients become less available to the plant in more alkaline soils, soils with a pH of 7 or higher.

Extensive chlorosis develops between veins when zinc is severely deficient;

Manganese deficiency in citrus leaves appears as broad pale areas between green veins causing foliage when viewed from a distance to have a mottled appearance overall.

Zinc, iron, and manganese, are immobile in the plant so the deficiencies will usually present in the new growth. And their symptoms can look very similar. The tissue between leaf veins turns yellow or pale green, but the veins remain dark green, at least initially. When manganese is deficient young leaves turn light green between the veins. Lack of zinc is seen as small terminal leaves with yellow mottling between the large veins. Iron deficiency is suspected if leaves are yellow while veins remain green. Foliar sprays containing chelated zinc or iron can be used to correct these deficiencies.

Interveinal chlorosis from iron deficiency appears as yellowing between the small, darker green veins

But even with close observation it is not always possible to make a definitive determination of a nutrient deficiency and its cause. Professional growers use labs to monitor the nutrient levels in the soil and in the plants, something that isn't practical for most home growers. The best approach is good cultural care. Citrus like well-drained soil and regular water. Water a mature tree when the top 2 or 3 inches of soil is dry. Water deeply to about 2 feet.

Citrus are heavy feeders and need a regular supply of nutrients especially nitrogen. Fertilizing with nitrogen is recommended three times a year with the first application in February and the remaining applications at 4 to 6 week intervals. Citrus planted in lawns will probably not get enough nitrogen from fertilizer applied to the lawn. The grass will take up most of the nitrogen so additional fertilizer for the tree is needed.

Applying an organic mulch such as compost in the area around citrus trees has many benefits. Keep the mulch about a foot away from the trunk of the tree. The mulch will help moderate soil temperature, conserve water and as it breaks down it will release nutrients into the soil essentially acting like a slow release fertilizer. Maintaining a healthy soil is a good first step to maintaining healthy tree.

Below are links to UC websites that will provide you more information on overall citrus care and specific recommendations for fertilizing watering.

http://homeorchard.ucanr.edu/files/140618.pdf

http://ipm.ucdavis.edu/PMG/GARDEN/FRUIT/CULTURAL/citfertilization.html

Got home gardening questions? The help line is staffed Monday and Thursdays from 10 to 1, 510-639-1371 or email us at anrmgalameda@ucanr.edu If emailing please provide the following information:

- Name, phone number and city
- Problem description - name of plant if applicable, when the problem began, cultural history such as watering, fertilizing, pruning, pesticides, etc.
- Photographs of the problem, if possible