



## YELLOW CITRUS LEAVES

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Yellow citrus leaves are often due to root dysfunction caused by issues related to irrigation, disease or nutritional deficiencies. Careful examination of overall tree health and the pattern of leaf yellowing with consideration of soil and irrigation can lead to the correct cause.

### **WATER**

- Overwatering is one of most common causes of yellow leaves. When soil is continually wet, the roots cannot function so nutrients cannot reach the leaves. Leaves turn yellow and may drop.
- Do not plant citrus trees in lawns or near frequently irrigated plants. Let top 3 inches of soil dry before watering. Use a soil moisture probe to monitor and water when needed.
- Insufficient water and drought cause leaves to turn yellow or dull green, curl upward and become leathery and dry.
- Salt burn results in yellow leaves or brown tipped leaves and is due to frequent shallow irrigations, high water salinity (common with well water), overuse of fertilizers or manure. These factors cause salts to build up in the superficial root zone.
- Treatment for salt burn: Slow deep irrigation (12-24 hours) which pushes the salt build up deeper in soil away from the plant roots. Follow proper irrigation practices such as less frequent and deeper irrigation. Salt burn is a common problem during drought as winter rains function to naturally flush out soil salts.

### **DISEASE**

- Symptoms of *Phytophthora* root rot, a fungal disease, include: thinning canopy, significant leaf drop, oozing sap and slow decline of the tree. This soil-borne fungus decays the root system resulting in nutrient deficiency with small pale green or yellow leaves which drop.
- Examine the roots to diagnose this disease. Surface roots will be difficult to find in this disease. Healthy roots should be light tan; infected roots are brown or black and the outer layer will easily rub off.
- Prevention is key: provide adequate soil drainage, avoid overwatering and water logged soil. Plant citrus trees with disease resistant or tolerant rootstock. Don't allow irrigation water to wet the trunk, kept mulch away from the trunk, and the graft union above the soil line.

### **NUTRITIONAL DEFICIENCIES**

Many nutrient deficiencies can result in yellow citrus leaves, and the pattern of yellowing varies with each type of deficiency. Often citrus trees have more than one deficiency resulting in overlapping patterns. The most common deficiencies are nitrogen, iron, zinc and manganese.

- **Nitrogen Deficiency.** This is the most common nutritional cause of yellow citrus leaves. Leaves throughout the tree may be light green to yellow with yellow veins. New leaves are small and thin and mature leaves have irregular yellow blotches. Leaves may turn completely yellow and fall. Fertilize oranges and grapefruit between December and February; lemons between February and August.

- **Iron Deficiency (Iron Chlorosis).** Leaves are yellow with green veins. If the deficiency is severe, the leaves may be completely yellow and dieback can occur. Excess salinity contributes to chlorosis, so proper irrigation is important. Deficiencies in zinc and manganese are more common and often mask iron deficiency. Therefore, use a micronutrient foliar spray containing iron, zinc and manganese to new growth, since it is not absorbed by the older leaves. May is the best time to apply. Diluted chelated iron spray applied to leaves or directly to the soil can also be used. Chelated iron must be diluted to prevent leaf burn.
- **Zinc and Manganese Deficiency.** Both deficiencies are most prominent in new growth causing pale green leaves with dark green veins or may have yellow mottling between green veins. Dieback can occur. Treat with a micronutrient foliar spray when new leaves are 2/3 the size of a fully-grown leaf.
- **Magnesium Deficiency.** Yellowing begins at leaf edges and tips and progresses inward. Eventually the entire leaf is yellow except for a green inverted V at the leaf base.

## MISCELLANEOUS CAUSES

- **Rodents** - Check tree trunk for girdling by rodents which can cause tree decline with yellowing of leaves. Look for nearby mounds.
- **Winter chlorosis** - Cold temperatures result in root dysfunction causing yellow leaves. This condition is transient and will resolve as weather warms.
- **Herbicide damage** - Different herbicides result in a variety of leaf changes ranging from yellowing with green veins to green leaves with yellow veins.
- **Grapefruit trees** - Some grapefruit trees, such as Rio Red, develop a seasonal yellow leaf color in spring, called spring or winter chlorosis. Star Ruby grapefruits normally have yellow streaks in their leaves.

## CONCLUSION

The best plan of action when a citrus tree has yellow leaves: consider if drought conditions, over or under watering or disease may be affecting your tree. Use a citrus fertilizer and micronutrient foliar spray to correct any nutritional deficiencies.

### References:

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Lazaneo, Vincent. "Citrus for the Home Garden."  
<http://www.mastergardenerssandiego.org/downloads/citrus for home garden.pdf>

### Resources for managing fruit trees:

Mauk, Peggy, and Tom Shea. "Questions and Answers to Citrus Management."  
<http://ucanr.edu/datastoreFiles/391-272.pdf>.

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