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Nutrient Disorders

If you think your plant is experiencing a nutrient disorder:

- 1) **Make sure it is not an insect problem.** Examine the plant carefully for pests, especially the undersides of damaged leaves, along the stem, and in the soil or hydroponic medium. Pests are often very tiny and using a magnifying glass may be necessary.
- 2) **Make sure it is not an environmental problem.** Plants too close to a light or a heat source may burn; plants too far from light may stretch or etiolate. Check your watering--plants that are overwatered may "wilt" as if they weren't getting enough water.
- 3) **Check your pH!** Incorrect pH is often the cause for a nutrient disorder. If you are growing hydroponically you should completely drain and replenish the nutrient solution. Adjust the pH to 6.0 to 6.5
- 4) **Determine where the disorder started on the plant.** Most nutrient disorders will clearly start at either at the bottom of the plant with the older growth, or at the top of the plant with new growth. This will help you isolate what nutrient may be deficient.

Nitrogen (N)

This is the most common deficiency. Lower, older plant leaves will gradually turn completely yellow. The new, young growth remains green. Symptoms include smaller leaves and slower growth overall.

Phosphorus (P)

This is not a common deficiency with good soil or a good hydroponic nutrient. Lower, older leaves usually appear a dark, dull green. The leaf edges may curl down on the older leaves. These leaves will fall or are easily separated from the stem.

Potassium (K)

Starts on the lower, older part of the plant. Often potassium deficient plants will be the tallest in the garden and otherwise appear healthy. But you'll find yellowed areas or brown/dead spots on the lower leaves starting at the tips and along the edges of the main stem leaves. These leaves may be easily separated from the plant.

Calcium (Ca)

A calcium deficiency should not occur in any indoor garden unless you are using a homemade mixture containing only acidic amendments. Almost any general fertilizer/nutrient solution will contain enough calcium. Symptoms of a deficiency include a green but stunted plant that grows slowly, green but crinkled leaves, and young growing shoots will turn yellow or purple and twist or contort before they die.

Sulphur (S)

This is another rare deficiency. It occurs at the top of the plant in the new growth as a general yellowing or paleness. Often the overall plant may appear pale or lime colored. This is not a common deficiency because Sulfur is a common ingredient in nutrients and fertilizers.

Iron (Fe)

Iron is most likely to be deficient when the soil or water is alkaline. Under these conditions Iron becomes insoluble. It occurs in the new, growing shoots of the plant as the leaves become yellow between the veins, which still remain green. It usually starts at the base of the leaf, where the leaf joins the stem.

Magnesium (Mg)

This is a fairly common disorder. It starts in the lower, older leaves as the tissues begins yellowing and dying between the veins. The leaf blades start to die, beginning at the tips, and the edges curl.

Zinc (Zn)

This is another common deficiency with alkaline mediums or water. The new growing shoots begin yellowing between the veins at the base of the leaf. A clear sign of a Zinc deficiency is when the leaf blades of the growing shoots twist and bend at right angles.

Boron (B)

This is a rare deficiency, but may occur in outdoor soils. The symptoms appear first in the growing shoots of the plant. They will appear "burned" and if the condition occurs indoors, you might think your light had burned the plant. A sure sign of a boron deficiency is that once the growing tip dies, the lateral shoots may start to grow but soon die.

Manganese (Mn)

This is not a common disorder. Symptoms include yellow and then brown spots of leaf tissue between the veins of the younger leaves, although they may occur over the whole plant. The telltale sign of this disorder is the edges of the affected leaves will remain dark green, but all inner tissue turns yellow or white.

Copper (Cu)

This deficiency is extremely rare. The shoots and young leaves will show yellowing between the veins and the whole plant may be somewhat limp, as if it is not getting enough water. These symptoms are very similar to those of overfertilization. So if you have been using high doses of nutrient, discontinue and use plain water for a while.

Molybdenum (Mo)

Symptoms start in the middle of the plant, where the leaves gradually turn yellow. As the deficiency progresses it affects the growing shoots, which also twist and distort. This deficiency is extremely rare, look for another cause.

To Correct a Nutrient Deficiency:

Foliar feeding is the quickest way to correct a deficiency. Plants can actually take up nutrients faster through their leaves than through their roots. Use a 1/4 to 1/2 strength nutrient solution in a spray bottle. Superthrive or liquid kelp is a good remedy for trace or micronutrient deficiencies. Check your pH!