

# SUNSHINE™ Microelement boosters

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**Yellowing leaves?**  
Symptom of micro-element deficiency is chlorosis or yellowing between the veins of leaves. Foliar sprays with SUNSHINE™-Micro can fix the problem very quickly!  
See directions on reverse and more info at: [www.TTLaboratories.com](http://www.TTLaboratories.com)



**Yellowing leaves?**  
Symptom of micro-element deficiency is chlorosis or yellowing between the veins of leaves. Foliar sprays with SUNSHINE™-Super-Iron can fix the problem very quickly!  
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Plants need food for their growth. While macronutrients (nitrogen, phosphorous, potassium) are present in all ready-to-use fertilizers (N-P-K ratio), microelements (iron, boron, etc) are often missing in the mix or unavailable to plants.

The most common problem with potted plants is iron deficiency. Iron (Fe) is ranked fourth in abundance after oxygen, silicon and aluminum in the earth's crust. Yet as far as plant nutrition is concerned, it is classified as a micronutrient, or

trace element, as it is only required in small amounts.

There are many reasons why iron (in concentration up to 2.5% in soil) is unavailable to plants. For example, peat moss, widely used in potted soil mix, ties up iron and other micronutrients. The ability of roots to absorb iron is reduced by poor root health caused by inadequate soil aeration resulting from excess watering. Iron can be oxidized very quickly without chelating agent, such as EDTA.



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The symptom of iron deficiency is chlorosis or yellowing between the veins of the youngest leaves, while older leaves remain green. This allows iron deficiency to be distinguished from magnesium deficiency (see below).

Usually there is a sharp distinction between the yellow chlorotic tissue and the green veins. That distinguishes iron deficiency from zinc and manganese deficiencies in which color changes gradually. In severe cases, the yellowing runs into the veins and the whole leaf turns yellow or even white.

Foliar sprays are the preferred way to apply iron in case of iron deficiency. Soil applications may be ineffective if factors, restricting uptake of iron from the soil, are present.

We offer our own micronutrients mixes: ultra-potent, highly absorbable, with Chelated Iron with DTPA (besides usual EDTA). Applying DTPA chelated Iron overcomes the mix instability in hard water and is more effective for chlorosis. Our mixes contain both EDTA+DTPA chelated iron in higher concentrations than regular micro-elements mixes.

The Mix should be used as a supplemental spray, not as fertilization replacement. The mix increases the growth and quality of virtually every plant, grown indoors or out.



[www.TopTropicals.com](http://www.TopTropicals.com) / [www.TTLaboratories.com](http://www.TTLaboratories.com)  
SUNSHINE™ boosters from Sunshine state  
13890 Orange River Blvd, Ft Myers, FL 33905  
phone 239-689-5745, toll-free: 1-866-897-7957  
fax 954-252-4442

## Usage

**To correct iron deficiency:** mix 1/2 - 1 teaspoon (2.5 - 5 g) per gal of water. Spray plant every 2-3 days. Reduce dose for annual and tender plants. Avoid alkaline water ("hard" water, with high mineral content), use bottled distilled water instead.

**To use as plant supplement:** mix 1/4 teaspoon (1 g) per gal of water. Spray plant every week or two weeks during growth period. Reduce dose for annual and tender plants. Do not over-fertilize plants. In high concentration micronutrients could be toxic for plants. It is best to test foliar spray on a few plants/leaves and wait several days to observe the effects. It's always better to use smaller concentration.

Element	SUNSHINE Micro	SUNSHINE Super-Iron	Deficiency symptoms
<b>B</b> Boron	3.00%	1.56%	Stunted growth of young plants. The youngest leaves affected first: misshapen, thick, brittle, and small. Since boron is not easily transferred from old to young leaves, older leaves usually remain green and appear healthy. Often dark brown, irregular lesions appear, followed by pale yellow chlorosis of young leaves. Stems are short and growing points may die.
<b>Cu</b> Copper	0.1%	0.04%	Young leaves dark green and misshapen, curling into a tube; petioles bent downward, few or no flowers. Copper is not readily transferred from old to young leaves, so older leaves remain darker and relatively healthy, symptoms develop on younger leaves.
<b>Fe</b> Iron chelated (EDTA, DTPA)	5.50%	8.62%	Chlorosis of the younger leaves characterizes an iron deficiency. The tissue between the veins gradually turns yellow, while the veins tend to stay green. The tips and margins of some leaves may turn brown and become dry and brittle.
<b>Mn</b> Manga-nese	1.60%	0.84%	Deficiency symptoms include pale green young leaves and a pale yellow mottling develops in interveinal areas, while the veins remain green. White to gray flecks or specks first appear and become more severe on mature leaves about halfway up the shoot. If a deficiency persists, symptoms spread to old leaves then to the youngest leaves.
<b>Mo</b> Molybdenum	0.05%	0.02%	Since molybdenum deficiencies are very uncommon, symptoms are rarely seen.
<b>Zn</b> Zinc	0.30%	0.16%	Puckered margins on leaves, brown spots on petioles, small leaves, sometimes long and narrow
EDTA, DPTA			This is not a plant nutrient. It's added to the mix as chelating agent to incorporate metal ions into a soluble but bound form and to make them available to the plant.

**Dry mix has very long shelf life when kept in dry, dark location. The solution lasts about one month and should be kept in dark (element-EDTA bond brakes down under light very quickly).**