

MICRONUTRIENT AVAILABILITY

THE LEADING CAUSE OF MICRONUTRIENT DEFICIENCY IN PLANTS



Current research is quite clear: it's the plants inability to uptake micronutrients through the roots.

But why? And how do we get off the carousel and grow better plants. To get a better picture we need to look at some simple soil chemistry and micronutrient fertilizer technology of today.

A simple answer to the question of why plants have an inability to uptake micronutrients is soil pH.

We know ideal soil pH is 6.5 and this pH allows for the availability of all the essential nutrients balanced for proper plant growth.

As our soil pH deviates from this ideal, we come face to face with the micronutrient uptake problem.

Less than ideal soil pH equates to either Acidic or Alkaline soil. We lime the acidic soils and acidify the alkaline soils. These processes are expensive and short lived as all soils want to return to their natural state. With that door closed, ag scientists have looked to supplementing crops with direct applications of micro-nutrient fertilizers.

Current technology offers us multiple forms of micronutrients to apply to our soil and plants, either inorganic or organic materials.

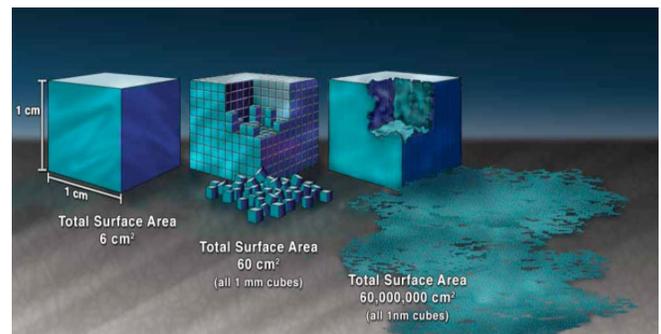
The inorganic materials can be further divided into water-soluble and non-soluble compounds. We have inorganic options: sulfates, chloride, nitrate, oxide. While these options are the cheapest per pound of material they are also the least efficient and in some cases a waste of money all together when you consider the amounts needed and the binding these nutrients to the soil (remember the pH issue!).

Organic materials are either synthetic chelate or natural organic complexes made of: EDTA, DTPA, EDDHA, NTA, and HEDTA. Chelates are ring-type chemical structures formed around a polyvalent metal. Chelated micronutrients are of interest because they tend to remain soluble longer when applied to the soil, giving time for the plant to take up the desired nutrient. However, these materials are expensive and have a tendency to leach from the root zone.

With current technologies seemingly hitting their limits, how do we get off the carousel and grow better plants and feed the hungry planet?

Fortunately, latest innovations from the world of nano-particle science are providing answers. VFRC-IFDC research provides us hope in this regard <http://bit.ly/29W5i9j>

Nanoscale foliar sprays are already making an appearance in the market place and first results are very encouraging.



Due to a much larger surface area coverage, they are less bulky and therefore easy to handle and transport. Application is also convenient as they can be tank mixed with other products.