

**A critical component in plant development, micronutrients offer a return on investment... but they must be well managed.**

By Carl P. Spiva

Why micronutrients? Because they are the key to triggering most growth activity in plants. Without micronutrients as a "sparkplug," the enzyme system in plants would simply be an inert mass of protein.

**DISTRIBUTION**

Once soil begins to support plant life, the top foot begins to accumulate micronutrients in a slow, steady manner. The relative concentrations of these appear in Table 1. How does this occur? Accumulation is a result of a certain process:

First, plants grow and produce extensive root systems that extract both micro- and macronutrients from a depth of several feet, depending upon the kind of plant.

Second, extracted nutrients are routed to shoots and some are retained in the roots as storage.

Third, the growth cycle is completed and plant residues are returned to the soil (minus harvested portions).

Table 1  
RELATIVE CONCENTRATION  
IN PLANTS

Nutrient	Compared To Mo
Molybdenum	1
Copper	100
Zinc	300
Manganese	1,000
Iron	2,000
Boron	2,000
Chlorine	3,000
Sulfur	30,000
Phosphorus	60,000
Magnesium	80,000
Calcium	125,000
Potassium	250,000
Nitrogen	1,000,000
Oxygen	30,000,000
Carbon	40,000,000
Hydrogen	60,000,000

Fourth, crop residues are converted to inorganic salts from organic matter and ionization makes micronutrient cations subject to adsorption on the soil exchange complex where they are immobile. This is the reason that recently leveled fields may have micronutrient deficiencies.

This phenomenon is not restricted to just micronutrient cations. Macronutrient cations share the same fate.

Tillage layer soil sampling is often satisfactory for determining soil micronutrient levels, even for native plants existing on rainfall as their only source of moisture.

**PLEASE SUPPORT OUR  
ADVERTISERS**

**PRODUCTS TO HELP  
KEEP THE GREENS  
GREEN!**

**BOYNTON PUMP & IRRIGATION  
SUPPLY IS A FULL SERVICE  
DISTRIBUTOR OF IRRIGATION,  
PUMP AND ALLIED PRODUCTS.  
SERVING FLORIDA SINCE 1958.**

- TECH TIPS • PRODUCTS
- DESIGN SERVICE

**RAINBIRD GOLF DISTRIBUTOR**



**BOYNTON PUMP &  
IRRIGATION SUPPLY**

FT. PIERCE  
485-1966

BOYNTON  
732-9810

FT. LAUDERDALE  
791-1984

**OUR NAME AND THE BEST  
KNOWN NAMES IN TURF  
EQUIPMENT TOGETHER SINCE  
1932**

- |                              |                        |
|------------------------------|------------------------|
| Distributors for:            | HMC String Trimmers    |
| Toro Mowers & Turf Equipment | Power Trim Edgers      |
| Toro Turf Irrigation         | Lely Spreaders         |
| Toro String Trimmers         | Standard Golf Supplies |
| Billy Goat Vacuums           | Florida Turf Sprayers  |
| Cushman Turf Care System     | Broyhill Sprayers      |
| Ryan Turf Care Equipment     | Olathe Turf Equipment  |
| Mitsubishi Tractors          |                        |



**EQUIPMENT CO.**



Jacksonville  
1741 Hamilton St. 32210  
(904) 387-0516

Orlando  
11405 Rio Grande Avenue 32085  
(305) 841-8460