Citrus Nutritional Program

Grove Management

Product Costs vs. Grower Profits

Citrus nutritional practices are most often driven by product cost rather than grower profitability. Growers and economists look at product cost rather than profitability of fruit as it leaves the farm. This type of assessment is indeed shortsighted. To assume that all nitrogen sources function similarly in citrus production is like saying all trucks are the same, but the functions of a tractor/trailer is different from a pickup. "Getting by with" certain materials can become very costly as evidenced by the "true costs" of using the cheapest nutrient sources.

Associate All Costs Involved

Growers need to associate all costs and benefits of a product in their production. It has been a common saying that nitrogen is nitrogen and one should purchase the least costly. The initial cost per unit of product isn't all that needs to be considered when selecting a nitrogen source; it is only the beginning point. One should examine the production responses, use efficiency of the product and how it interacts with the production environment. Ammonium-based nitrogen products are popular due to the lower cost per unit of nitrogen when purchased; but the lower price has some added-on costs that growers will pay for later.

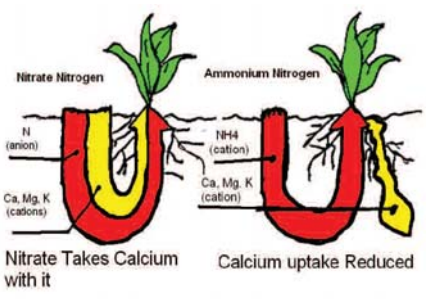
Hidden Costs

Once the ammonium nitrogen is applied, grower costs start increasing. First, ammonium must convert to nitrate by soil microbes. The nitrification process or conversion to nitrate increases acidity (lowers soil pH) and thus increases the need and cost of liming. Increasing the acidity and ammonium levels in the soil increases the activity of fungi that thrive in its presence. Too much applied near the tree roots can cause injury and provide entry for Phytophthora and Fusarium infection. As feeder roots die, less water and nutrients are taken up and the tree becomes weak. Fertilization with ammonium to help the tree recover can create further harm.

Damaged roots provide entry for Phytophthora and Fusarium infection.

Ammonium competes with the uptake of essential nutrients such as potassium, calcium and magnesium. As a result of the "cost savings" from ammonium nitrogen fertilizer, pathogen infection and poor nutrition can greatly reduce profitability and even kill the tree. Therefore, costs associated with more frequent liming, increased tree mortality and diminished fruit production must be "added into" the original cost of the ammonium material.

Calcinit™ Increases Uptake



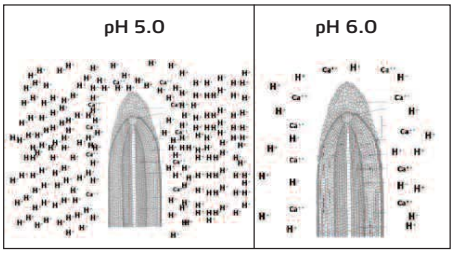
Research over the past 78 years has shown that calcium nitrate consistently outperforms ammonium materials in citrus production. Calcinit™ not only provides nitrate-nitrogen that is non-acid forming, gentle on the root system, and enhances nutrient uptake, but is also a source of 100% soluble calcium.

CALCIUM is the third most abundant element in the roots, stems and leaves of citrus. It is required to provide the vigorous root system needed to support strong healthy trees with dense canopies and maximum fruit loads. Calcium builds strong cell walls when cells are developing.

Reduced Calcium Uptake Weakens the Resistance

Avoidance of conditions reducing calcium uptake during this time is imperative. When cell walls are strong from calcium application, resistance to bacteria and fungi infection is maximized. The bacteria and fungi aren't able to "digest" the cell wall.

pH5 is 10x more acidic than pH6



Acidity reduces calcium uptake due to increased competition.

As a result, the efficacy of other crop protection chemical treatments becomes more effective. Resistant varieties have also shown decrease in pathogen activity with increase in calcium concentration. Applying Calcinit™ as the nitrogen source in a properly managed nutritional program will assist in achieving maximum resistance.

Performance Benefits

Calcinit™ will also provide the grower with predictable growth responses, which can be managed so that other production considerations can be met such as timing of growth flushes and minimizing the time of greatest susceptibility to external agents.

Using a material that produces a predictable response gives the grower more control over production management.

Add all the benefits of Calcinit™ up; reduced liming, maximum nutrient uptake (efficiency), reduced disease activity, increased vigor, denser canopy, decreased mortality and increased production and you will find the net result is the highest potential for profitability. The bottom line – how can you afford the cost of applying ammonium?

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