



## **Quik Guide to Cop-R-Quik®**

Cop-R-Quik® is a highly soluble, amino acid complexed **12%** copper nutritional. It is a systemic copper nutritional that provides the safest, most efficient, and the most cost effective foliar tool for increasing systemic copper levels in plants.

### **1. Why is copper important?**

Copper (Cu) is one of eight essential plant micronutrients. Copper is required for many enzymatic activities in plants and for chlorophyll and seed production. Deficiency of copper can lead to increased plant susceptibility to disease and bacteria.

Most bacteria are known to be sensitive to copper containing solutions. It is common knowledge that the application of copper solutions reduce, or eliminate, most disease and bacterial populations. In fact, copper compounds provide the widest ranging, and most effective control, of most disease and bacterial organisms.

Research has shown there is a direct correlation between copper levels in the plants, and disease incidence in crops.

**The higher the copper level, the lower the disease pressure.** As measured and monitored in plant tissue analysis, systemic copper acts as a natural defense mechanism against disease and bacteria. Growers who kept elevated systemic copper levels in their leaves reported healthier plants. Healthier plants mean better quality and better quantity.

### **2. Has research been done to prove the effectiveness of systemic copper nutritionals?**

University of Florida researcher, Dr. Jim Graham, found that citrus trees treated systemically with copper "*produced changes in canopy ratings that reflected a positive response compared to no change for the non-treated control trees. Ct values for the non-treated control trees indicated positive HLB status, whereas Ct's for copper treated trees were significantly higher and indicated negative or threshold bacterial infection.*" In addition, "*a bioassay for systemic copper activity was conducted with expanding fall flush by injection-infiltration of detached leaves with Xanthomonas citri. Canker lesions were reduced in leaves of copper treated versus NTC trees, confirming Cu is systemic in the tree.*" In summary, Dr. Graham's work shows us that increasing systemic copper levels in the citrus tree reduced bacterial populations of *Candidatus Liberibacter spp* and *Xanthomonas citri*, and significantly reduced the symptoms of both greening and canker.

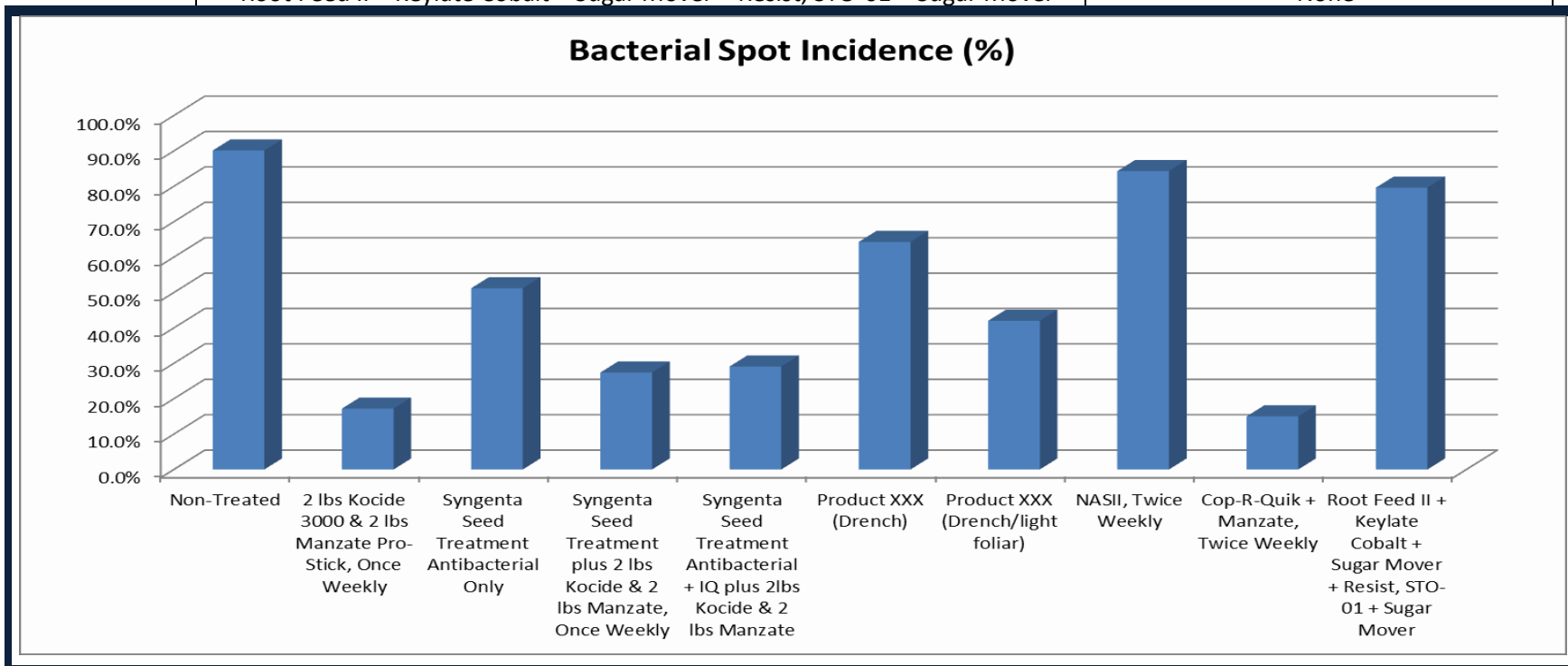
Private research scientist Dr. Henry Yonce performed a trial on greening infected citrus trees. The trees were treated with *a single 32 oz foliar application* of Cop-R-Quik®. PCR tests were done prior to the treatment, and again, seven weeks later. During the trial period, Ct values in these trees increased by an average of 18%, in nineteen out of twenty trees. This improvement in plant health occurred after only ONE application of Cop-R-Quik®.

### **3. Is Cop-R-Quik® a fungicide or bactericide?**

No, **Cop-R-Quik®** is a nutritional copper product with systemic capabilities of raising internal copper levels in the plant. It is a natural alternative to traditional fungicides and bactericides, with no reentry restrictions or preharvest intervals. In trials by Dr. Mathews L. Paret, Plant Pathology,

University of Florida, **Cop-R-Quik®** was as effective as ManKocide in controlling *Pseudomonas syringae* on melons. In greenhouse studies by Monica Ozores- Hampton, Ph.D., University of Florida/IFAS/SWFREC, Immokalee, FL, Cop-R-Quik demonstrated its potential impact in the control of Bacterial Spot, on Tomatoes. Data is shown below:

PRODUCTS	Elemental Copper Applied Weekly
Non-Treated	None
2 lbs Kocide 3000 & 2 lbs Manzate Pro-Stick	0.6 Lbs
Syngenta Seed Treatment Antibacterial Only	None
Syngenta Seed Treatment plus 2 lbs Kocide & 2 lbs Manzate	0.6 Lbs
Syngenta Seed Treatment Antibacterial + IQ plus 2lbs Kocide & 2 lbs Manzate	0.6 Lbs
Product XXX (Drench)	None
Product XXX (Drench/light foliar)	None
NASII	0.09 lbs
<b>Cop-R-Quik®</b> + Manzate	0.09 lbs
Root Feed II + Keylate Cobalt + Sugar Mover + Resist, STO-01 + Sugar Mover	None



#### 4. Can Cop-R-Quik be tanked mixed with other products?

Yes, Cop-R-Quik is a good tank mix partner with all products except phosphites. Remember, metals lose their efficacy when mixed with phosphites.