

Next Step: Large-Scale Field Trials



By Rick Dantzler

The legislative session is in full swing, and those representing citrus organizations have been fully engaged and united. One thing we've all heard is the desire on the part of legislators to continue transitioning our research dollars to projects that hold more potential for short-term benefit to growers.

In researcher terms, this distinction is the difference between “basic” research and “applied” research. Basic research focuses on a better or fuller understanding of a subject, phenomenon or law of nature. Applied research is research that seeks to solve practical problems. In practice, moving from basic knowledge to applied knowledge is often the act of scaling up to commercial application.

With HLB, a few examples help make the point.

First, in the lab, scientists have learned how to precisely inject a killing agent into the phloem, where liberibacter lives, and kill the bacteria effectively. However, scaling that up to a commercially viable (affordable) way of getting the killing agent into the phloem of thousands of trees is a different kettle of fish.

Second, calcium bicarbonate affects a tree's yield, and the same level of calcium bicarbonate affects rootstocks differently. By optimizing pH with the addition of calcium bicarbonate, the intake of nutritionals is enhanced, positively affecting tree health. However, the ideal pH for each rootstock needs further study in the field.

Third, in a controlled setting, researchers have learned that the flavor of orange juice can be changed dramatically by what the tree is fed even though the difference cannot be measured in standard units of quality like Brix. Learning the mechanism of how this works is basic in nature, but then scaling up these nutritional recipes on a commercial basis to beneficially affect taste of an entire crop is the next step.

These and other scenarios are what make the prospect of large-scale field trials so exciting, and these types of trials have attracted the attention of lawmakers.

Growing citrus in the HLB era is site-specific. It is no longer enough to know basic farming practices for a citrus-growing region or even an area. It's now necessary to know what works best in the neighborhood. Developing optimal recipes will require additional basic research, certainly, but then it becomes a question of scaling up the findings to the field-trial level. CRDF is committed to helping the industry move the knowledge we have learned through basic research to the field in large-scale trials. Lawmakers are making it clear they expect nothing less.

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