

# Five Tactics in the HLB War



By Rick Dantzler, CRDF chief operating officer

**O**n Aug. 14, I will have been the COO of the Citrus Research and Development Foundation for exactly two years. I'm pleased with changes we have made administratively, and we continue to learn more about HLB. But in all honesty, I thought we'd have whipped the disease by now. Perhaps it was my naivety as a non-scientist that I thought this, but it is a big disappointment to me that we have not.

We are going to cure HLB or make it functionally irrelevant, though. I am determined to do this and convinced we can.

How will it happen? Here are five plausible ways.

**1. Genetic modification.** Scientists are either very close or have already identified the genes that allow *Liberibacter* to do its damage. Through CRISPR editing, these genes can be turned off to make trees less affected. Views of what constitute a genetically modified organism are changing, thus minimizing potential marketing or regulatory issues.

**2. Trunk injection of an agent that either kills *Liberibacter* or inhibits its growth to the point that it becomes inconsequential.** What is injected does not have to be the bactericides which have already been approved for foliar application. There are numerous compounds — some completely natural — that could kill or inhibit *Liberibacter*. Getting to the bacterium is the challenge, which is why I support aggressively testing the newest and most promising models of injection devices. Not only could naturally occurring pesticide-like products such as antimicrobial peptides be injected directly into the phloem (where *Liberibacter* lives within the tree), but such devices could also possibly deliver micronutrients. Wouldn't it be great if we were able to give plants grams of micronutrients instead of pounds?

**3. Delivery to the tree of antimicrobial peptides or genes from plants such as spinach by using citrus tristeza virus (CTV).** CTV is endemic in Florida and lives in the phloem of citrus trees, so it can deliver treatments against *Liberibacter*. Much of the regulatory hurdle to activate this tool has already been cleared, too.

**4. Development of resistant scions.** Breeders have already developed orange-like hybrids that look, taste and smell like conventional round oranges (*Citrus sinensis*), and some are virtually HLB resistant. If transport and processing issues can be resolved, if these hybrids prove to be as nutritious as *Citrus sinensis*, and if we don't create foreign competition that cuts our own throats, this could be a segment of the citrus industry that would be mostly unaffected by HLB.

**5. A novel way to kill the Asian citrus psyllid or render it unable to transmit HLB.** Remarkable progress is being made in altering bacteria in the gut of the psyllid that either kills the psyllid or makes it virtually harmless to citrus.

Are there others? Sure, but these are five that hold real promise.

There are good growers who have given up on the idea of a cure. I understand that sentiment, but we can't quit. There will be a time when HLB is in the rear-view mirror. I've never been so sure of it.



Column sponsored by the Citrus Research and Development Foundation