



# Stocking the HLB toolbox

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**A** decade ago, you were unarmed for the fight of your life. You've shown you can take a punch, and now you have something to hit back with.

## CURRENT STRATEGIES

There's the Sugar Belle® for starters. University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) citrus breeder Fred Gmitter's tree shows a remarkable tolerance to HLB. It's not completely resistant to the bacteria, but it keeps producing when disease strikes.

Then there are citrus health management areas (CHMAs). UF/IFAS entomologists helped you develop a strategy to coordinate sprays to control psyllids over an entire area instead of just chasing them to the grove next door.

The CHMA program bought time — years of continued productivity for the family grove operation. Meanwhile, UF/IFAS learned more about HLB and how to live with it in the short term.

Then there's the path-breaking work by UF/IFAS plant pathologists identifying impacts on the root system well before symptoms appear above ground. That has helped shape tree health recommendations.

Through a better understanding of HLB effects on root function, you've now got new guidance for improving the health and productivity of HLB-diseased trees by changing how we irrigate and fertilize them. After several years of field trials in this area, new fertilizer recommendations will soon be published by our citrus soil and water scientists.



**Ed Etxeberria of the Citrus Research and Education Center is perfecting the use of a laser gun to deliver treatments to the leaves of citrus trees, bypassing roots compromised by HLB.**

You can see a theme here. It's UF/IFAS science. And it's happening in your grove.

There's something else you in the grove and we in the lab have in common. We're not satisfied with all we've accomplished together.

## UPCOMING REMEDIES

More solutions are on the way. Arnold Schumann is growing citrus trees under screens, and Ariel Singerman is penciling out the cost for you to do it. Gmitter and Jude Grosser are creating new varieties to replace the 30 million trees we'll need to plant to restore citrus to its former glory.

Ed Etxeberria is zapping leaves with lasers to maximize penetration and effect of antimicrobial products that

may kill the disease-causing bacteria. Nian Wang is editing the citrus genome until he comes up with the right combination that spells HLB resistance.

Other UF/IFAS researchers are injecting bactericides into trunks. They're adding microbes to the soil. They're experimenting with new products such as brassinolides (plant hormones).

## OUTREACH EFFORTS

And they're sharing it with you almost as it happens. They gave seminar after seminar at the Citrus Expo. They hold field days, visit groves and publish results in this magazine.

Our researchers travel the globe, back to the origins of HLB, to understand how citrus industries in China or India have survived and if there is anything in their experience that we can apply in Florida.

Just in the last few months we've launched a podcast, started a newsletter, and published a growers' guide — all with tactics and suggestions you can put to work in your grove today.

We won't even rest on our laurels when that day comes when we can talk about HLB the way we talk about cancer — as a once-upon-a-time threat vanquished by UF/IFAS discovery.

We know there will be another challenge after that. And another one after that.

I know the fight is still going on in every grove. That's why UF/IFAS is providing the science of fighting back that you can use today. At the same time, we're doing the exploratory science that will lay the foundation for solutions to problems we don't even know are coming yet.

After more than 100 years running what's believed to be the world's largest research center dedicated to a single commodity, UF/IFAS will continue to be all in on citrus science.

To help with the urgency of now, you'll get UF/IFAS science that travels faster than the speed of a psyllid. Please take in as much of it as you can. It's your best chance to hit back. 🍊

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