UF/IFAS CITRUS STATE

Grower dialogue advances science

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Left: Bryan Belcher stands in a grove where the trees are under high bicarbonate stress (the water has a high pH level). Note that these trees have been harvested. **Right:** Bryan Belcher stands in a grove where the trees are under low bicarbonate stress (the water has a low pH level). Note that these trees have not been harvested.

About five years ago, Bryan Belcher observed something astonishing in the groves he manages at Davis Citrus Management in Avon Park.

On two plots with the same trees from the same nursery, planted at the same time and fed the same nutrients, he saw vastly different levels of tolerance to HLB. He didn't plan it that way, but he had unwittingly staged a multi-year controlled experiment. Pretty good science.

Belcher and the owner of the groves, Joe L. Davis Jr., agreed they needed a scientist to help them interpret the results. So Belcher called Jim Graham at the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS). Graham was also astonished by what he heard from Belcher, and he hopped in his truck at the Citrus Research and Education Center (CREC) in Lake Alfred and drove out to Belcher's groves the very next day.

BICARBONATES TO BLAME

It turned out that the difference was the level of bicarbonates in the irrigation water. One plot of trees got its water from a shallow well, the other from a deep well, and that made a big difference in what the trees' roots were sipping on.

It was a breakthrough in HLB research. Up to that point, almost all the attention had been focused on the leaves where the psyllids alight. Belcher and Graham established root health as a prime area of inquiry into HLB.

CITIZEN SCIENTISTS

This happened because Belcher closely observed what occurred in his grove and called IFAS. It also happened because Graham and other IFAS scientists listen to what those in the groves have to say, and it informs their science.

The dialogue makes growers and grove managers, practically speaking, adjunct faculty for IFAS. At the very least, they're the ultimate citizen scientists.

It's because you tell us what you see in the field — and because we listen — that UF/IFAS can do such solid science. Belcher helped us to literally go beneath the surface of the problem of HLB.

Belcher had known Graham casually before calling him up. Well known in the industry, Graham has been a soil microbiologist at the CREC for 34 years. Like our other faculty, he prides himself on getting outside the lab, the greenhouse and the CREC groves to look for new insights. That means frequent dialogue with folks like Bryan Belcher.

Now the two are close. They bonded over bicarbonates. They continue to talk every week. It's been a 5-year-long conversation about how to tame HLB from the soil up.

NEW SOIL SCIENTIST ON STAFF

Graham is retiring this year, but I did not want to leave Southwest Florida without a soil microbiologist. So I decided that one of my expansion hires this year — made possible by the support of stakeholders like Florida Citrus Mutual and other industry leaders — will be a soil microbiologist. Sarah Strauss is scheduled to start work in Immokalee on May 20.

She doesn't have a phone set up yet, but you can reach her at strauss@ufl.edu. Graham will be around all summer to pass the baton to her, and he's still taking calls. Whether you talk to Graham or Strauss, this is a conversation that's too important to be interrupted. Keep us on speed dial.

Jack Payne is the University of Florida's senior vice president for agriculture and natural resources and head of UF's Institute of Food and Agricultural Sciences.