

Grower Trials — An Important Component of Delivering Solutions to Huanglongbing

By Harold Browning



The pathway toward solutions to agricultural challenges is well trodden, and the stepwise walk along this path has repeatedly provided answers. In simple terms, the challenge is defined, and an exploration/discovery phase is undertaken to determine the nature of the challenge and what opportunities exist. Following this step, an experimental phase tests one or more hypotheses surrounding proposed solutions, and generally, in replicated experiments, the most promising leads emerge. At the same time, those ideas which sounded good but have limitations are shown to have less value and thus are set aside. At this point along the path, the focus turns to “how can we use this information in the field?”

Here is where the real work begins: to test the proposed solution with all of its variables, timing and combinations in the field. The wide variation in conditions, management approaches and inputs in most agricultural systems heavily influences performance at this stage, so field trials must be repeated widely to adapt the solutions to the local environment. Once tested, the results of this last step must be interpreted and shared with the intended users. The path does not end here, for once growers begin to implement the solution, further tweaking is required to get it right and make the solution most useful.

CRDF was established to help guide the Florida citrus industry along this path toward answers to huanglongbing (HLB), and the attention and effort has been most noticeable on the early phases where discovery and experimentation identify possible solutions. Absent this effort, field testing becomes a blind screen of all that is possible. But equally important is the field test phase described above, where the real utility of a solution is tested and refined. In many cases, this leads to general support and recommendation of the solution, whether a horticultural practice or a product in a bottle.

As expected, progression along the pathway toward solutions to HLB has not been uniform. The first priority was Asian citrus psyllid (ACP) management, and the pathway was navigated fairly quickly, with ACP control tools made available quickly. The grower trial phase actually began before HLB was discovered in Florida, and continues to further tweak the tools. In addition, CHMAs (Citrus Health Management Areas) emerged to help with the interpretation and wide-scale use of tools to support regional management of ACP, and this has resulted in significant improvement.

CRDF is now focusing attention on the field trial of promising HLB-tolerant rootstocks, and efforts are under way through CRDF and individual growers to further field-test these possible solutions. The pathway for this solution winds back more than 20 years, during which the plant improvement programs at UF, IFAS and USDA, ARS were pursuing the discovery and experimentation stages. We now are embarking on the final field testing specific to HLB so that growers can incorporate this tool into their management.

Other examples where the earlier investments in discovery and experimentation are leading to field testing are the Advanced Citrus Production Systems (ACPS), anti-microbial materials and enhanced nutrition. Field trials on the latter have been under way for years, with large numbers of growers testing possible nutritional solutions.

What’s the best we can hope for from grower trials? Like the discovery and experimentation phases, field trials require careful planning, data collection and interpretation. If conducted properly, these field trials provide the information needed for growers to take the final steps on the pathway to solutions.

Harold Browning is Chief Operations Officer of CRDF. The foundation is charged with funding citrus research and getting the results of that research to use in the grove.

