

The Asian Citrus Psyllid Research Team and its Contributions to HLB Management

By Harold Browning



Research toward solutions to Asian citrus psyllid (ACP) has been at the forefront of the fight against huanglongbing (HLB), even predating the detection of *Candidatus Liberibacter asiaticus* (CLAs) in South Florida in 2005. ACP populations were studied early following detection of the insect in Florida in 1998, and this early effort included monitoring with yellow traps to follow spread and seasonal population development. Evaluations of pesticidal activity and releases of the parasitoid *Tamarixia radiata* were conducted in the late 1990s, providing the beginnings of ACP management. With this head start, the Florida entomologists were prepared to ramp up research when HLB was detected in 2005.

Much of the original ACP research was conducted by members of the team who are still hard at work on this pest, and who have been joined by additional entomologists in recent years. The team has a diverse background and it is pursuing a wide range of short- to long-term research objectives. The advantage to the Florida citrus industry of having this talented group of entomologists working on ACP is that they collectively have undertaken to understand ACP in Florida and to layer together tools useful in managing populations and lowering HLB spread. What are some of the advances that are being made and how are they helping citrus growers?

- Evaluation of ACP populations over time and space in Florida citrus groves, backyards and other environments
- Development of monitoring tools, including sticky traps and tap sampling
- Discovery of attractants and repellents that affect ACP behavior
- Discrimination of CLAs acquisition and transmission dynamics in host plants
- Monitoring persistence and percentage of infection of CLAs nymphs and adults
- Evaluation of chemical insecticides for efficacy and duration of suppression
- Characterization of insecticide application methods, rates, timing and rotations
- Monitor ACP populations for background susceptibility to pesticides and changes over time
- Determination of non-target effects of pesticides on other pests and natural enemies in citrus
- Evaluation of the role of predators and parasitoids
- Understanding ACP physiology and anatomy, and how this relates to CLAs colonization
- Identification of endosymbiotic organisms which colonize ACP and their role in psyllid survival
- Development of methods to reduce ACP ability to transmit CLAs
- Exploration of the interaction of ACP with variable citrus germplasm

The integration of many of these areas of research has allowed the entomology team to recommend monitoring, treatment and evaluation of ACP populations in commercial citrus, and to work collectively through Citrus Health Management Areas to even further improve on ACP management. Grower education through extension of research results also is a strong point of the entomology team.

CRDF continues to provide support for research on ACP to these scientists at UF, IFAS and USDA, ARS, as well as to their colleagues beyond Florida. The current research portfolio contains approximately 30 projects related to ACP, while the new research approved by CRDF in early 2013 includes seven projects related to ACP. ACP tools are being delivered through CRDF's Commercial Product Development Committee as well, including enhanced use of soil applied insecticides to protect young citrus trees from ACP and HLB infection. We encourage you to stay tuned for more results of ACP research as the team provides additional tools.

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.

