

## Current Research Objectives

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**Research topic:** Psyllid Management

**Primary Research Objective(s):** Insecticide resistance management for Asian citrus psyllid

**Research Goal:** Implement effective insecticide resistance management for Asian citrus psyllid to protect the long-term effectiveness of insecticides as tools for vector suppression.

**Outcomes to date:** We have evaluated insecticide resistance in field populations of ACP for approximately the past 9 years. This has allowed us to determine the fluctuation of resistance in Florida ACP populations, develop and recommend appropriate rotation schedules, and determine the specific mechanisms mediating resistance in ACP populations. We have reacted to grower concerns about a product failure as quickly as possible. In the event that a grower contacts us to report a possible control failure, we test that population of ACP for possible resistance. Importantly, this allows us to understand whether a product failure is due to resistance or other possible factors. Resistance in ACP is caused by increased metabolic detoxification of insecticides. Of the chemistries available for ACP, high resistance in Florida is most prevalent to neonicotinoids. High resistance associated with product failure has been observed and occurrence of resistance can be geographically isolated. In cases where neonicotinoid resistance is present, alternating foliar sprays of insecticides for young tree protection should be considered rather than reliance on soil drenches of neonicotinoids alone. We have verified experimentally that rotating 5 modes of action in sequence does not escalate insecticide resistance development in Asian citrus psyllid. A period of ACP 6 generations or approximately 6 months of no selection pressure is required to reverse insecticide resistance to normal levels.

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