Trunk Injection of Imidacloprid for Asian Citrus Psyllid Management

Researchers: Ute Albrecht, Leigh Archer, Jawwad Qureshi

Contact: Ute Albrecht, ualbrecht@ufl.edu

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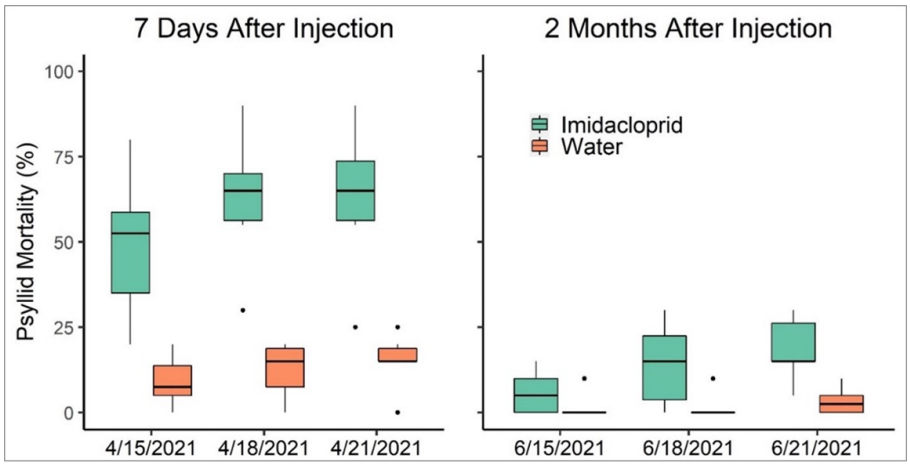

Modified after Archer, Qureshi, Albrecht. Agriculture 2022, 1:1592.

Take Home Message:

- Trunk injection of imidacloprid increased ACP mortality.
- Effects diminished by two months after injection.
- Psyllid suppression with imidacloprid injection did not improve yield or fruit quality.

Summary: Trunk injection of imidacloprid (IMI) has been successfully used for insect pest management in multiple tree species. However, it has not been extensively tested for management of the Asian citrus psyllid (ACP). The potential benefits associated with injection of IMI, such as extended residual activity and reduced rate of application, may prove economically valuable. Five-year-old 'Valencia' trees were injected with an infusible formulation of IMI or with water during flushing and monitored for effects on ACP mortality. The highest concentrations of IMI (2.7 ppm) in the leaves were measured 15 days after injection, followed by a significant decline to 0.50 ppm within 30 days. The mortality of ACP that fed on IMI-injected trees reached 63% one week after injection compared to 15% of ACP that fed on water-injected trees. However, this effect was much less evident two months after injection when mortality did not exceed 18% for the IMI-injected trees. At this time, IMI leaf concentrations were less than 0.04 ppm. The mortality was still higher compared to the water-injected trees, but not enough for effective ACP control. Six months after injection, IMI concentrations were less than 0.01 ppm and ACP mortality was not different from the water controls. There was no effect of IMI on the yield or the quality of the fruits at harvest. More research is needed to study the efficacy of IMI injections using different rates and whether combining insecticides with antibacterial or other therapeutic compounds will enhance their benefits.

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