Determining the Effect of Oxytetracycline when Rotated with Additional Crop Antimicrobials on Citrus Phytotoxicity and *Candidatus* Liberibacter asiaticus Reduction

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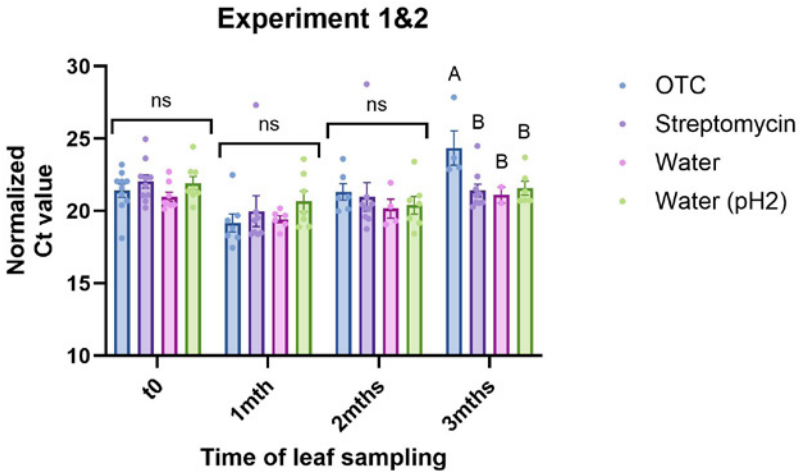

Summary: The antibiotic oxytetracycline (OTC) has consistently controlled *Candidatus* Liberibacter asiaticus (*C*Las) in huanglongbing (HLB)-affected trees through trunk injection. Florida citrus growers have already been using OTC against *C*Las through trunk injections; however, scientists anticipate OTC resistance development in *C*Las populations within a couple of years. Such resistance development may be slowed by rotating OTC trunk injections with a different antibiotic of equal or superior performance, and of different modes of action. Instead of injecting citrus trees with only OTC each year, we are investigating trunk injections with OTC in the spring, after the spring flush is fully expanded (late April, early May 2024), and then subsequently in the fall (October 2024) in the same trees with a different antibiotic. This antibiotic rotation method would help to control *C*Las populations in HLB-affected trees, extend the efficiency of OTC for citrus growers as long as financially possible, and slow down OTC resistance development in *C*Las bacteria. The overall goal of this project is to determine whether or not OTC, rotated with another crop antimicrobial, has an equal or better effect on *C*Las titers than injecting OTC alone in HLB-affected citrus trees without causing phytotoxicity. Therefore, we will utilize sequential trunk injections of five different antibiotics. We also want to monitor the phytotoxicity for each antibiotic rotation regimen to ensure growers will use the safest products and concentrations for their trees. By finding equal or better-performing rotating antibiotics, we can help slow down OTC resistance development in *C*Las bacteria and extend the financial benefits of OTC-trunk injections until a more long-term HLB solution arises.

Take Home Message:

- Oxytetracycline injections currently control *C*Las but resistance may occur within a few years.
- Trunk injections of different antibiotics have potential to control *C*Las but need to be assessed for phytotoxicity.
- Oxytetracycline resistance development could be slowed by rotating trunk injections with different antibiotics.

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