Trunk Injection of Oxytetracycline Increases Yield and Fruit Quality
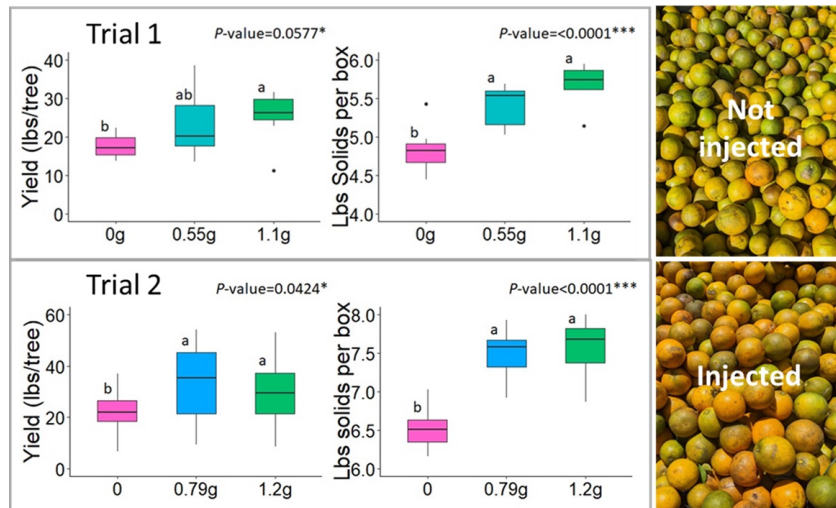
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Take Home Message:

- OTC injections can improve yield and fruit quality.
- Results are variable and depend on tree age and other factors.
- Fruit quality improvements can vary based on the month of injection.

Summary: Trunk injection can deliver plant protection materials directly into the tree's vascular system to combat systemic pests and diseases. An emergency exemption now allows the use of this technology to deliver oxytetracycline (OTC) for huanglongbing (HLB) management in Florida. Our lab has conducted numerous field studies which showed that annual injections of OTC can significantly improve tree health, yield, and fruit quality of HLB-affected trees. However, results are variable depending on tree age, time of injection, and the OTC dosage. In a study with 9-year-old 'Valencia' trees, injecting 1.1g OTC (11,000 ppm rate) per tree increased the yield by nearly 70%, whereas 0.55 g (5,500 ppm rate) increased yield by 30%. In a study with 8-year-old trees, yield increases of 30-50% were measured, but 1.2 g OTC did not improve the yield more than 0.79 g OTC. A stronger correlation between OTC dosage and yield increase was found in younger trees. In all trials, OTC injections consistently increased the Brix and therefore the pounds soluble solids per box. Whereas the yield appears to increase regardless of the month of injection (we injected April to August 2022), the juice Brix or pounds soluble solids improved more when trees were injected in late summer compared to spring. As spring injections increased the fruit size more, extending the maturation period, i.e., harvesting later, may further increase the Brix in those larger fruit. Field studies are in progress to provide more information on injection timing and the most effective rate of OTC.