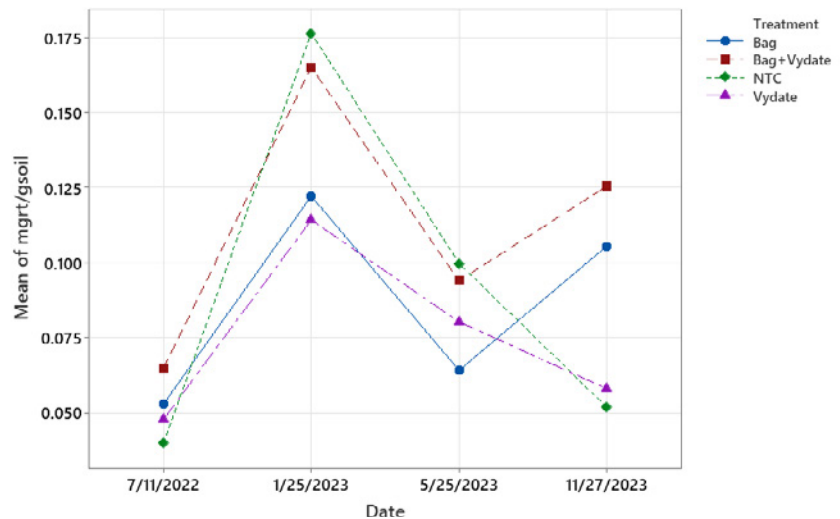


# Individual Protective Covers and Management of Soilborne Pests

**Researchers:** Larry Duncan, Fernando Alferéz, Jude Grosser, Kim Bowman, Lukasz Stelinski, Lauren Diepenbrock

**Contact:** Larry Duncan, [lduncan@ufl.edu](mailto:lduncan@ufl.edu)

UF/IFAS CREC



**Effort Statement:** All descriptions are from new data or new objectives.

**Summary:** Sting nematode was recognized as a pest of young citrus trees following major freezes in the 1980s. Widespread replanting combined with extensive root loss due to huanglongbing (HLB) has reprised and exacerbated the nematode problem. Individual protective covers (IPC) were shown to double fibrous root weight (figure), triple the annual increase in tree height, and increase 12-month growth of trunk girth by 81% in two-year-old trees in a grove with historical sting nematode damage. An ongoing greenhouse project has provided consistent evidence that recent rootstock releases are more tolerant of sting nematode than are previous

commonly used rootstocks. USDA rootstocks such as US812, US942 and US1516 outperformed sweet orange or sour orange and UF rootstocks such as UF1, UF5 and Orange 16 have shown the greatest tolerance. No tested rootstock is resistant to supporting the nematode, and all exhibit damage symptoms. A second ongoing project is characterizing the distribution of nematicide concentrations in soil (using Na-bromide as a non-toxic proxy) when delivered via microsprinkler. Highly variable concentrations in the wetted zone occur under some of the trial conditions. Our objective is to optimize criteria such as water pressure, windspeed, and emitter configurations for optimum chemical performance. In a separate project,

IPCs used to protect trees from HLB and Diaprepes root weevil increased trunk girth by 21% two years after removal of the covers but had no effect on tree from weevils and hurricane damage. Characterization of soil food webs in the grove identified several *Paenibacillus* species that may contribute to biological control of the weevil.

## Take Home Message:

- IPCs mitigate sting nematode damage to young trees.
- Recent rootstock releases are generally more tolerant of sting nematode than previous generation rootstocks.
- Nematicide efficacy can be compromised by variable deposition via microsprinkler.

## Funding:

**UF | IFAS**  
UNIVERSITY of FLORIDA

