

## Short-term Insecticide Drench Impacts on Red Headed Flea Beetle Larvae in Container Nursery Production

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### Problem: Multiple generations in container substrate and on foliage



Adult foliar feeding makes deciduous plants unmarketable spring to fall and evergreen plants unmarketable all year due to 3-4 generations.

*Systema frontalis*, red headed flea beetle, life cycle



Larvae feed on roots in potting mix.



Even with multiple foliar applications spring to fall, foliar damage continues due to repeat adult emergence.

### Hypothesis

-Since *Systema frontalis*, the red headed flea beetle, overwinters as eggs, can 1<sup>st</sup> generation larvae be controlled with a single drench between 250 and 500 GDD<sup>50</sup> once they hatch and are detected by non-destructive scouting?

-Can some currently labeled insecticides, soon to be labeled insecticides, and experimental insecticides be applied as rescue drench applications and provide effective (>75%) control of larvae to reduce adult population?



Treatments applied at a drench volume of 12 oz./3 gal. pot.

### Materials and Methods

Treatments applied: (active ingredient, trade name, rate)

- tolfenpyrad, Hachi-Hachi SC, 16 fl. oz./100 gal.
- Isaria fumosorosea* Apopka Strain 97, Preferal, 2 lb./100 gal.
- acephate, Acephate 97UP, 12 oz./100 gal.
- chlorpyrifos, DuraGuard ME, 50 fl. oz./100 gal.
- H<sub>2</sub>O, Control (water only)
- azadirachtin, Azatin O, 16 fl. oz./100 gal.
- cyclaniliprole, no trade name, 22 fl. oz./100 gal.
- cyclaniliprole, no trade name, 27 fl. oz./100 gal.

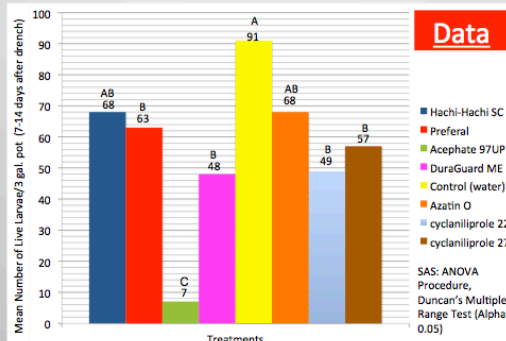


*Hydrangea paniculata* 'Pinkie Winkie' in RCBD.

### Harvest



Root balls of all 10 single plant replicates per treatment were destructively harvested to count live larvae.



### Results and Conclusions

-The Acephate 97UP treatment provided excellent, 92%, control of 1<sup>st</sup> generation larvae compared to the control (water) drench.

-Other treatments provided 25-47% control. The need for additional applications with these products may not make them economically viable control options.

-Additional insecticide drench, top-dress, and incorporated treatments need to be tested in order to find other options for rotation.