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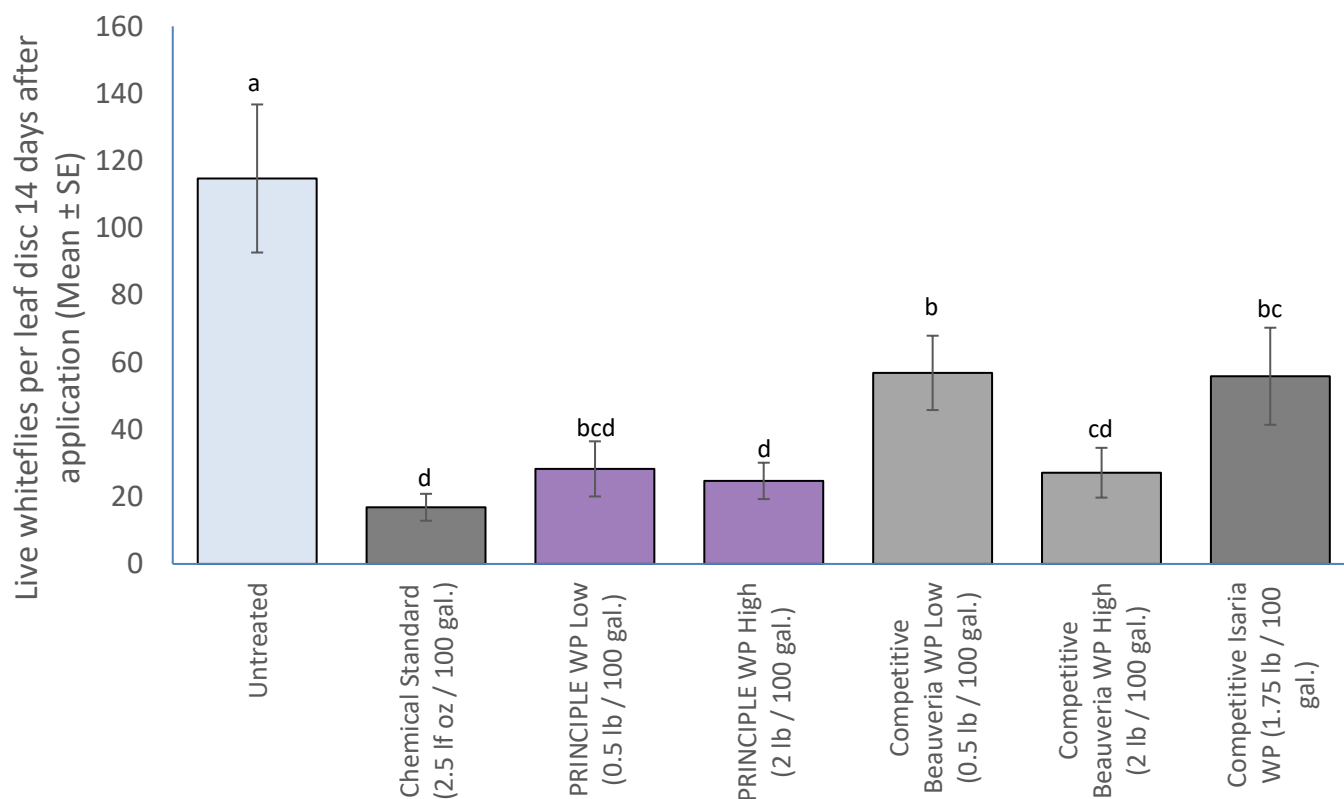
BioWorks Products Included in Trial

PRINCIPLE WP (*Beauveria bassiana* strain BW149)

Summary:

PRINCIPLE WP controlled silverleaf whitefly nymphs on dwarf sunflower.

Treatment	Rate/100 Gallons	Method Summary	
Untreated Control	-	Crop	Dwarf sunflower (<i>Helianthus</i> spp.)
Chemical Standard (Spirotetramat)	2.5 fl oz	Location	Growth Chamber set at 75°F, 50-60% humidity
PRINCIPLE WP	0.5 lb	Pest	Silverleaf whitefly (<i>Bemisia tabaci</i>)
PRINCIPLE WP	2 lb	Trial Design	Randomized complete block
Competitive <i>Beauveria</i> WP	0.5 lb	Application Dates	January 21 (initial), 29 (7DAT), February 5 (14DAT) 2019
Competitive <i>Beauveria</i> WP	2 lb	Application Method	Foliar Spray
Competitive <i>Isaria</i> WP	1.75 lb		



Mean nymphs per 2.5 inch leaf disc 14 days after treatment (DAT). Three applications were made seven days apart. Means followed by the same letters are not significantly different ($P < 0.05$).



Whitefly nymph killed by PRINCIPLE WP (left). Note the color difference from the healthy whitefly nymph (right).

Result Summary

- After three applications, the low and high rates of PRINCIPLE WP significantly reduced whitefly nymphs compared to the untreated control.
- The low and high rates of PRINCIPLE WP were not statistically different from the chemical standard, spirotetramat.
- PRINCIPLE WP at 0.5 lb / 100 gallons caused a larger reduction of whitefly nymphs than the same rate of the competitive *Beauveria* product.
- PRINCIPLE WP at 2 lb / 100 gallons provided a statically larger reduction of whitefly nymphs than the competitive *Isaria* product.
- No plant phytotoxicity was observed during the study.

Recommendations from Data

- Apply PRINCIPLE WP at 0.5 - 2 lb / 100 gallons for control of whiteflies.
- Apply PRINCIPLE WP as a fine spray to full coverage, but not the point of run off.
- PRINCIPLE WP can be used in an integrated program to control whiteflies and other damaging insect pests.