

# GRANDEVO<sup>®</sup>

A next-generation bioinsecticide, Grandevo<sup>®</sup> offers growers a new dimension of pesticide activity. Delivering long-lasting, cross-spectrum control, Grandevo is strengthening the performance, reliability and consistency of pest management programs while satisfying the industry's demand for pesticides having improved residue and resistance management benefits.





**THE NEXT GENERATION OF BIOINSECTICIDES**

**Grandevo: An Advanced Microbial Pesticide.**

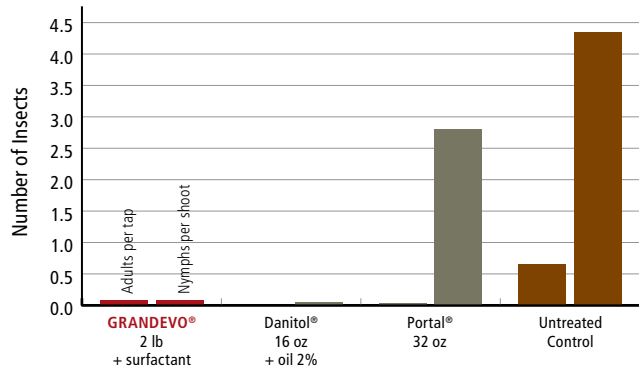
Grandevo offers complex modes of action to manage a cross spectrum of chewing and sucking insects and mites on a wide range of crops. It provides a unique combination of long-lasting performance and operational flexibility, it carries no bee restrictions, is easy on beneficials, and is exempt from residue tolerances. Grandevo provides growers with an effective and reliable insecticide/miticide that is highly compatible with both integrated pest management (IPM) and insect resistance management (IRM) programs.

Naturally derived from a newly discovered bacterium, Grandevo is powered by multiple compounds with highly effective insecticidal properties, giving rise to complex modes of action.

The compounds are produced in bacterial cells during the manufacturing process. The result is a potent biopesticide that is highly active against labeled insects and mites, and controls pests through novel combinations of oral toxicity, repellency, reduced oviposition and reduced fecundity (i.e., ability of the pest to reproduce). Grandevo has also been shown to maintain populations of most beneficials and introduced biological controls.

**Asian Citrus Psyllid**

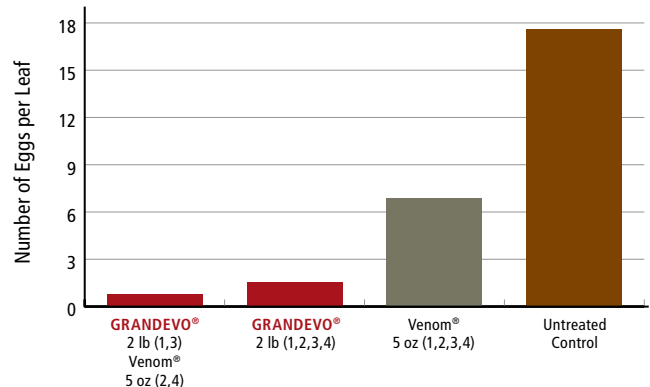
P. Stansly, University of Florida, Immokalee, FL



Treatments applied on Aug 22 and Grandevo received a second treatment on Sep 5, 2011. Treatments evaluated on Sep 15, 2011. Target pest species: *Diaphorina citri*

**Silverleaf Whitefly on Squash**

D. Seal, University of Florida, Homestead, FL



Treatments applied on 1= Dec 1, 2= Dec 8, 3= Dec 17, 4= Dec 31, 2012. Treatments evaluated on Jan 2, 2013. Refer to product labels for approved rates and application directions. Target pest species: *Bemisia argentifolii*



## THE ROLE OF GRANDEVO IN MODERN PEST MANAGEMENT

Grandevo is paving the way for new, innovative uses of advanced microbial insecticides in modern field and greenhouse pest management programs. Used alone or in combination with other pesticides, Grandevo offers exceptional control of labeled pests along with operational flexibility—making it ideal for use as the foundation or platform component for highly effective IPM and IRM programs.

**Reliable Performance.** Grandevo’s performance profile—including unique and complex modes of action and cross-spectrum control, offers growers a fresh opportunity to develop a wide range of highly effective and efficient integrated pest management solutions that optimize yield and quality. Its broad application window and pest spectrum, enable Grandevo to be added into an existing pest control program or to act as the foundation product on which to build a program.

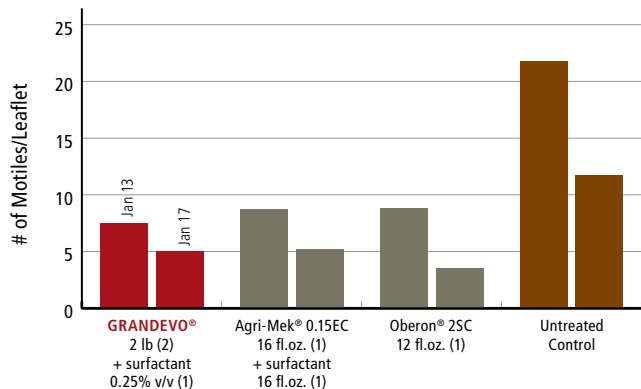
**Resistance Management.** Grandevo is an ideal addition to resistance management programs as its complex modes of action greatly reduce the ability of insects to develop resistance. Using Grandevo in a program—as a tank mix partner or in rotation—with pesticides that are susceptible to insect resistance will extend their life as useful pest control agents.

**Operational Flexibility.** Grandevo sets a new standard for pesticides that provide the greatest degree of operational flexibility. Grandevo carries a re-entry interval (REI) of only four hours, so farming operations can resume quickly. With a zero-day preharvest interval (PHI), growers can now protect crops right up to the day of harvest—preserving color, maturity and crop quality. In addition, Grandevo is exempt from maximum residue levels (MRL) on domestic and exported food crops. The product is approved for use in field and greenhouse applications and can be applied by air, ground or chemigation. Spray applications are allowed without a buffer zone.

**Production Flexibility.** Organic and conventional growers have the flexibility to use the same product with the unsurpassed benefits that Grandevo offers as a biological pesticide. Grandevo is recognized as fully compliant for use on organic crops by the National Organic Program (NOP) and is certified by the Organic Materials Review Institute (OMRI).

### Twospotted Spider Mite on Strawberry

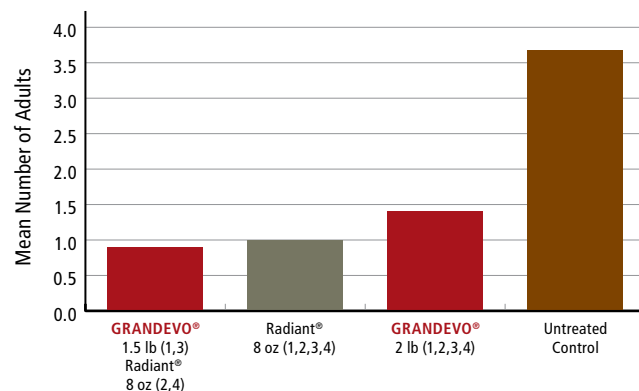
J. Price, University of Florida, Wimauma, FL



Treatments applied on 1= Jan 10, 2= Jan 12, 2012.  
Treatments evaluated on Jan 13, Jan 17, 2012.  
Target pest species: *Tetranychus urticae*

### Melon Thrips on Peppers

D. Seal, University of Florida, Homestead, FL



Treatments applied on 1= Dec 29, 2012, 2= Jan 9, 3= Jan 16, 4= Jan 23, 2013.  
Treatments evaluated on Dec 31, 2012, Jan 11, Jan 18, Jan 22, 2013.  
Target pest species: *Thrips palmi*



## HIGHLIGHTS

- Cross-spectrum protection against chewing and sucking insects and mites
- Complex modes of action
- No honey bee toxicity statement on label
- Negligible impact on beneficial insects
- 4-hour REI/ 0-day PHI
- Tolerance exempt
- Minimal PPE/ no buffer required for spray applications
- Approved for field and greenhouse applications
- NOP compliant and OMRI approved



FOR ADDITIONAL INFORMATION  
CONTACT YOUR LOCAL RETAILER OR  
MARRONE BIO INNOVATIONS:

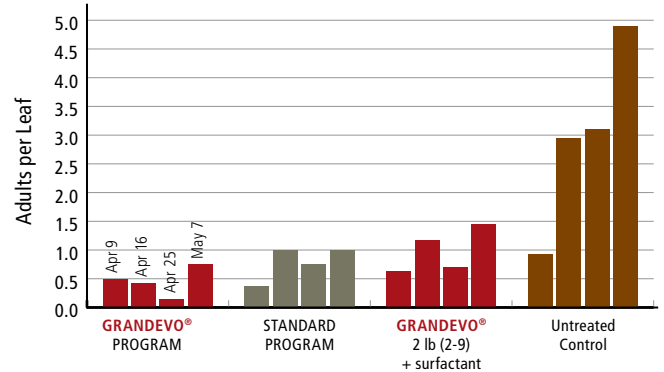
Phone 530-750-2800 • Toll Free 877-664-4476  
Email [grandevo@marronebio.com](mailto:grandevo@marronebio.com)



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## Sweetpotato Whitefly on Tomato

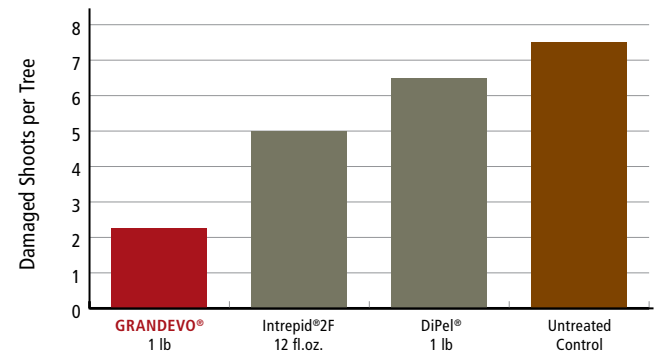
P. Stansly, University of Florida, Immokalee, FL



GRANDEVO PROGRAM: Admire® Pro 8.5 fl.oz. (1- soil drench), Grandevo® 2lb + surfactant (4-9), Malathion 32 oz (4), Knack® 10 oz (5), Hero™ 10.3 oz (6,9), Baythroid®XL 2.8 oz (7), Oberon®2 SC 8.5 oz (8)  
STANDARD PROGRAM: Admire® Pro 8.5 fl.oz. (1- soil drench), Fulfill 2.75 oz (3), Malathion 32 oz (4), Knack® 10 oz (5), Hero™ 10.3 oz (6,9), Baythroid®XL 2.8 oz (7), Oberon®2 SC 8.5 oz (8)  
Treatments applied on 1= Mar 12, 2= Mar 19, 3= Mar 26, 4= Mar 30, 5= Apr 6, 6= Apr 13, 7= Apr 20, 8= Apr 27, 9= May 4, 2012.  
Treatment 1 applied at 120 ml/A, treatments 2-7 applied at 40 gpa, treatments 8 and 9 applied at 60 gpa.  
Target pest species: *Bemisia tabaci*

## Peach Twig Borer on Almonds

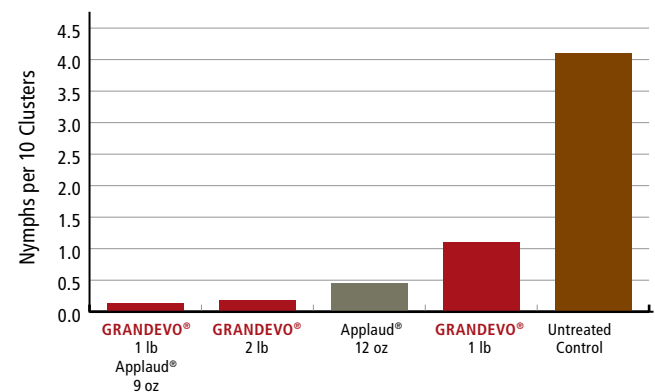
Bio Research, Kerman, CA



Treatments applied on Mar 5 (full bloom), Mar 12 (7 DA full bloom), May 7 (first flight), Aug 9, 2012 (early hull split).  
Treatments evaluated on Aug 27, 2012.  
All treatments included surfactant at 1 pt/A.  
Target pest species: *Anarsia lineatella*

## Mealybug on Grapes

Pacific Ag Research, Arroyo Grande, CA



Treatments applied on Aug 2, Aug 9, Aug 20, 2012.  
Treatments evaluated on Sep 17, 2012.  
Refer to product labels for approved rates and application directions.  
Target pest species: *Pseudococcus maritimus*

