



**CONTROL WITH
GRANDEVO® WDG AND JET-AG 5%®**



Photo credit: Shane F. McEvey, Australian Museum Research Institute

Species: *Drosophila suzukii*

Diet: Soft fruits (blackberries, blueberries, raspberries, strawberries, sweet and tart cherries, grapes, peaches, kiwis, and figs)

Size: 2-3.5mm

Concerns: Upwards of 100% crop loss without proper control. Costs growers an average of \$1,025/acre¹.

Spotted Wing Drosophila (SWD), *Drosophila suzukii*, is a vinegar fruit fly that targets soft fruits such as blackberries, blueberries, raspberries, strawberries, sweet and tart cherries, grapes, peaches, kiwis, and figs. SWD females use a serrated ovipositor to insert eggs into healthy fruit, which then hatch into larvae that feed on the fruit.

DETECTION

Early detection is critical. As fruit ripens it becomes increasingly vulnerable. Current recommendations encourage growers to place simple traps (home or commercially made) throughout the crop well before fruit begins to ripen. Traps should be checked and refreshed weekly.

The provisional threshold to trigger treatment is the capture of a single adult. Since most traps will capture other vinegar flies, accurate identification is necessary. Federal and university entomologists have developed very effective scouting and trapping protocols that are available online.

TREATMENT

Multi-year university and independent trials and validated grower experience have shown **Jet-Ag® 5%** agricultural sanitizer and **Grandevo® WDG** bioinsecticide are effective components of a strong IPM program to control SWD.

Based on fruit susceptibility, use a tank-mix of **Jet-Ag 5%** and **Grandevo WDG** according to the label. Apply in a 7-day interval and ensure thorough coverage.

During periods of intense pressure, the retreatment interval may need to be shortened to 4 or 5 days, in which case Grandevo WDG should be rotated with other SWD-approved insecticides.

A quality spreader/sticker is recommended to aid coverage and increase resistance to wash-off, especially in production areas where rainfall is frequent or expected. Shorter application intervals or re-treatment should be considered following rain events. Also, in arid areas, a quality spreader will help promote spray coverage. Producers are encouraged to contact Marrone Bio Innovations sales and technical representatives at 530-750-2800 about the suitability of various adjuvants.

Use water volumes that allow for thorough crop coverage. For maximum effectiveness, use water volumes not greater than 100 gallons of water per acre. Water used for product dilution should have a pH range between 5.5 and 8.

ART OF USE

Product	Rate
Jet-Ag® 5%	1% v/v or 1 gal./100 gal. of water
Grandevo® WDG Bioinsecticide	3 lb./A

- Experts recommend rotating insecticides with different modes of action.
- **Organic Growers Rotation Suggestion:** Use Venerate® XC in your rotation. It is another OMRI-certified insecticide effective at treating SWD.
- The use of a spreader sticker is strongly recommended.
- An adjuvant is recommended however organosilicone adjuvants are not advised.



SPOTTED WING DROSOPHILA

University Technical Bulletins and Extension Service
Information on Spotted Wing Drosophila

University	URL
Oregon State University	http://spottedwing.org/
Michigan State University	http://www.ipm.msu.edu/invasive_species/spotted_wing_drosophila
North Carolina State University	https://swd.ces.ncsu.edu/
University of California	http://ipm.ucanr.edu/PMG/PESTNOTES/pn74158.html
Cornell University	http://www.hort.cornell.edu/fruit/pdfs/swd/treefruit-grape-insecticides.pdf

HOW JET-AG® 5% WORKS

Jet-Ag 5% oxidizes microbes on the surface of the plant. This results in the fruit being less attractive to SWD. Disruption of fly–yeast–host interactions found significantly lower infestation by SWD in plots treated with Jet-Ag 5%, both alone and in a rotation program with other insecticides. When shoots from treated plots were tested in no-choice bioassays. Jet-Ag 5% treatments did not affect adult mortality but decreased oviposition thereby reducing infestation.



- ✓ Microbial-based bioinsecticide
- ✓ Repels, stops feeding and reduces reproduction
- ✓ Improves insect resistance management
- ✓ Easy on beneficials – no acute toxicity to honeybees
- ✓ 4-Hour REI, MRL-Exempt, 0-Day PHI, Organic Compliant

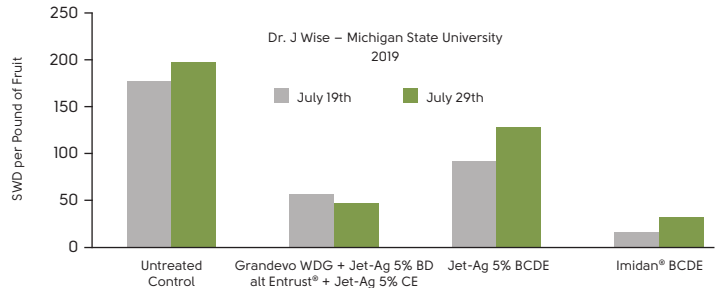


- ✓ Kills the yeasts SWD feeds on
- ✓ Proven to reduce infestation
- ✓ Apply at first sign of adult fly
- ✓ Compatible in a rotation with SWD-approved insecticides
- ✓ Non-toxic, MRL-Exempt, 0-Day PHI, Organic Compliant

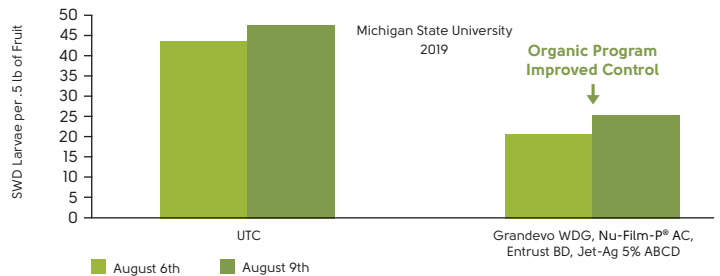


- ✓ Broad spectrum protection including against SWD
- ✓ Multiple modes of action: life cycle disruption and molting interference
- ✓ Reduces insect resistance
- ✓ Non-toxic to fish, birds, and most beneficial insects, including honeybees
- ✓ 4-Hour REI, MRL-Exempt, 0-Day PHI, Organic Compliant

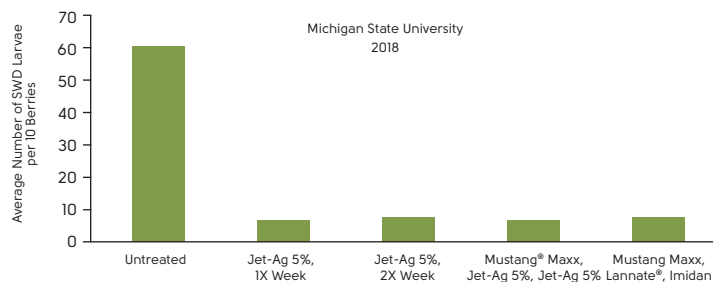
Grandevo WDG for the Control of SWD in Tart Cherries



Grandevo WDG & Jet-Ag 5% Enhance SWD Control in Blueberry

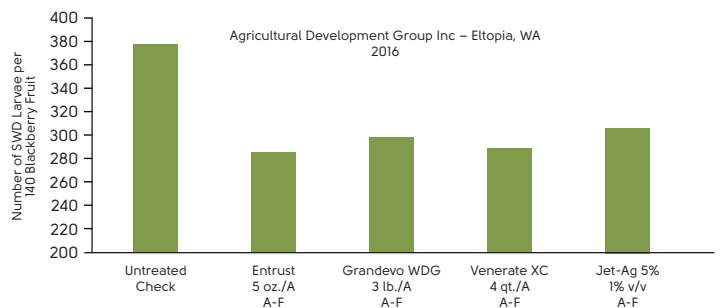


Jet-Ag 5% Reduces Attraction of SWD to Blueberry Fruit



The average total number of SWD larvae per 10 berries in berry bioassays. Blueberry bushes were treated with one of four insecticide programs or were left untreated and ripe berries were collected the following day (1 August). Berries were placed in cups, exposed to adult SWD for 1 day, and the presence of larvae in fruit was assessed via filter salt test seven days later.

Sum of 7 Blackberry Evaluations with 20 Fruit per Evaluation



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Source: 1. Input cost figures from Oregon Blueberry Enterprise budgets, Strik et al. 2011.
Date: 2020-9-16

www.MarroneBio.com/Products/Grandevo or www.MarroneBio.com/Products/Jet-Ag

