

Jentsch, Peter J., Lampasona, Tim.
Cornell University's Hudson Valley Laboratory,
Highland, NY 12528

Results of 2013 Insecticide Screening on SWD in Eastern New York.

Commodity: Blueberry

Spotted Wing Drosophila (SWD): *Drosophila suzukii*

Evaluation Of BioSafe Products For Controlling SWD On Blueberry

BioSafe products were used in a comparative screening study with spinosad (a mixture of spinosyn A and spinosyn D) to control the SWD. Evaluations were conducted to determine the residual efficacy of the products on blueberry against the adult fly and residual efficacy on ovipositional deterrence.

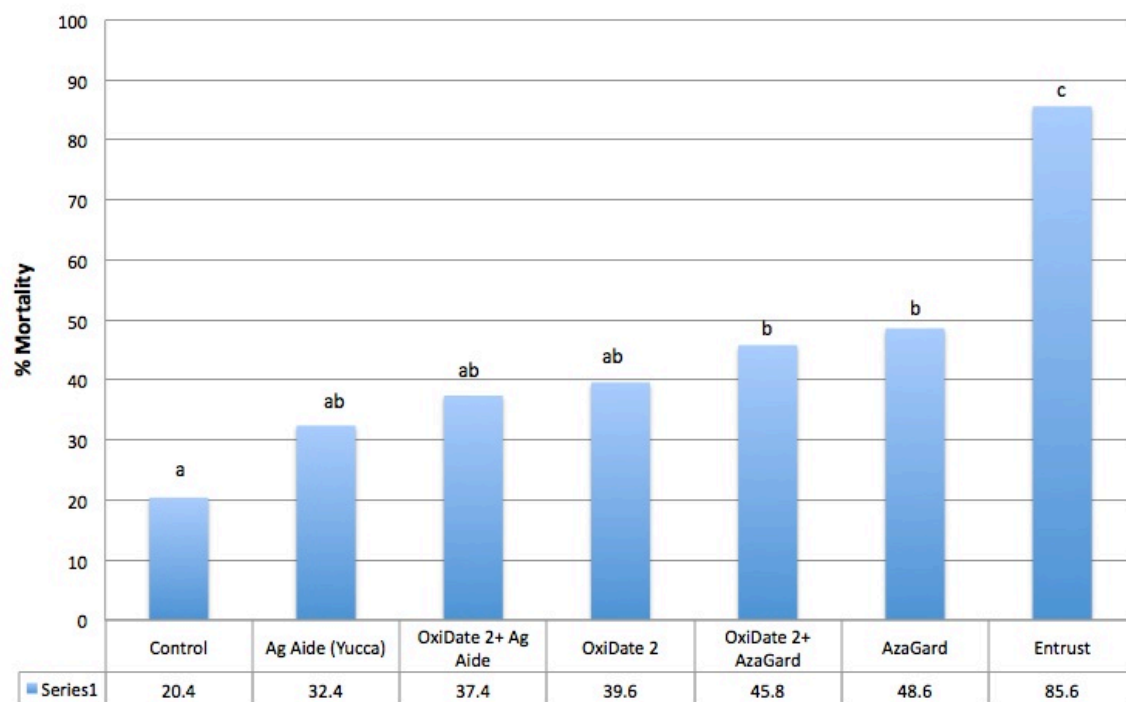
Methods: Prior to exposure to residual insecticides on treated fruit, SWD were anesthetized by placing adults into a cooler at 7.2 C for 5-10 min. Applications to blueberries were made using a Paasche H#1L Single-Action Airbrush and #5 spray head, calibrated to 6.6 mL/minute traveling at 2" per second at 20 psi using CO₂ propellant, to 10 berries / treatment. Berries suspended on a frame of 1/2" in. wire mesh, 12"L, 2"W standing 1"H, received applications to each vertical face two hours prior to SWD female introduction. Treatments were replicated 5 times with insects held under 75% rH, 72° F, 14-hr day length. Adults were held for 72 hours in a 32 oz. plastic deli container, including a 90mm filter paper, and cotton dental wick half submerged in a sealed water cup for hydration, assessed for mortality at 24 and 48 hours. All tests were performed on newly emerged adults (<24h) to reduce untreated adult mortality.

Materials: Materials included in treatments to fruit were OxiDate 2, containing 30% active ingredients of 27.1% Hydrogen Dioxide and 2.0% Peroxyacetic Acid% applied at a 32.0 oz./100 gallon solution (10 mL / L); AzaGuard, a 3% Azadirachtin formulation applied at 1.2 mL / L; and Ag Aide, a 100% formulation of Yucca oil at 2.5 mL / L. as a surfactant by BioSafe Systems LLC, 22 Meadow Street, East Hartford, CT 06108, and Entrust, the 80% WP formulation of spinosad by Dow AgroSciences, 9330 Zionsville Rd., Indianapolis, IN 46268.

Evaluation: In a 24-hour evaluation of adult flies exposed to fruit treatments, Ag Aide, Oxidate 2 alone, Oxidate 2 + Ag Aide, demonstrated no greater mortality than was found in the untreated controls, with significantly higher mortality observed in AzaGuard and AzaGuard + Oxidate 2, while Entrust provided >85% adult mortality (Graph 1). However, by 48 hours, all treatments demonstrated significantly higher mortality than did the untreated control with 100% adult mortality observed in the Entrust treatment (Graph 2).

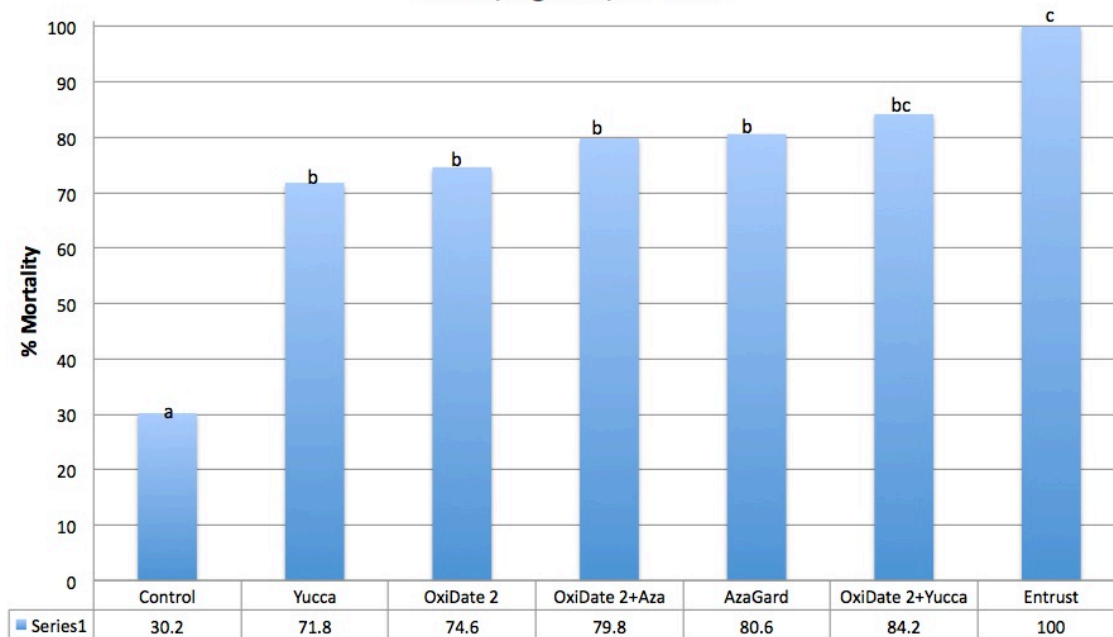
Although spinosad will provide small fruit growers effective reduction in the adult SWD populations in comparison to the alternative materials tested in this study, Entrust did not keep fruit free of ovipositional damage, albeit with low number of eggs per gram berry weight. We observed 48% damaged fruit with 0.9 eggs per fruit in Entrust treated blueberry compared to 91% fruit damage and 6.1 eggs per gram fruit weight in the untreated controls (Graphs 3 & 4).

**24-hr SWD Adult Mortality on Blueberry
HVLab, Highland, NY 2013**



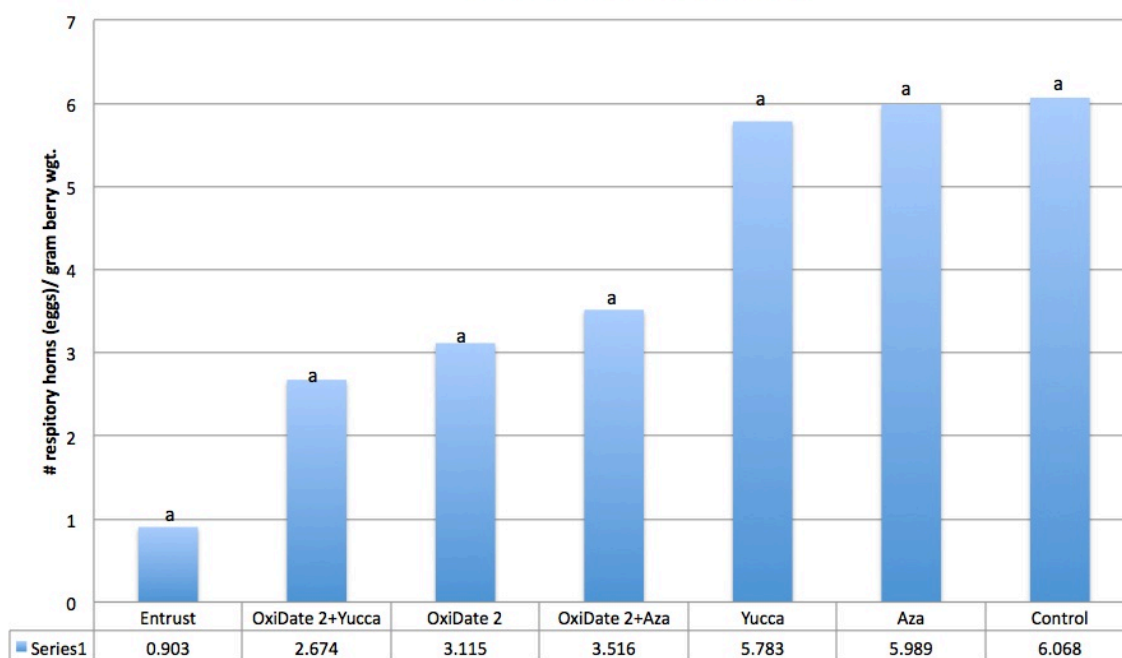
Graph 1.

**48-hr SWD Adult Mortality on Blueberry,
HVLab, Highland, NY 2013**



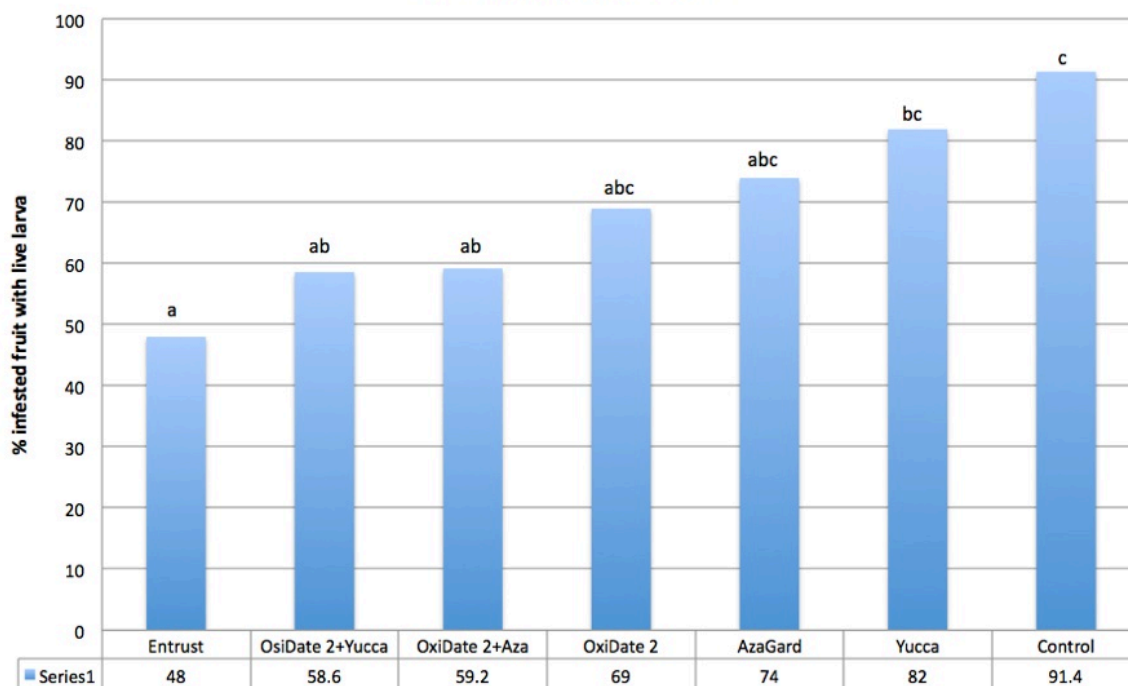
Graph 2.

**SWD Oviposition on Blueberry
HVLab, Highland, NY 2013**



Graph 3. Number of ovipositional sites per gram weight of berry using observations of surface respiratory tubes at 48 hours post adult introduction.

**% SWD Infested Blueberry
HVLab, Highland, NY 2013**



Graph 4.