Demonstration of IPM Principles and Increasing Adoption in the Sacramento Valley

Project No.: **17-ENTO20-Symmes**

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Objectives:

The overall objective is to increase adoption of integrated pest management (IPM) practices in almonds. The emphasis of this proposal is demonstration of IPM principles and practices in the Sacramento Valley, and extension of regionally-based information to growers and PCAs. Specific objectives targeted by this proposal include the following:

(1) Establish IPM demonstration almond blocks and compare pest management outcomes to blocks more conventionally managed with regard to pest control activities.
(2) Document and extend information throughout the demonstration period and beyond using a combination of traditional and novel methods.
(3) Provide cost-benefit analyses of IPM blocks versus conventional blocks.

Interpretive Summary:

This project was initiated in the 2018 almond growing season and is currently ongoing. Thus, key findings and recommendations will be presented in the final Annual Report at project completion.

Materials and Methods:

In 2018, the focus of the project was to demonstrate and evaluate large-scale mating disruption and mass trapping blocks relative to “grower standard” operations, which relied primarily on conventional pesticides for management of navel orangeworm (NOW).

In Spring 2018, IPM demonstration blocks were established in a 405-acre mature commercial almond orchard with significant history of NOW pressure and damage (Glenn County, CA). The orchard is planted to 50% Nonpareil (every other row) and 50% pollinizer varieties (Winters, Monterey). Five “IPM” treatments, each on 70-acre plots, alongside a 55-acre “grower standard” plot was included in this project. IPM treatments included: (1) mass trapping system (Peterson Trap Co., 16/acre), (2) aerosol mating disruption system (Isomate® NOW Mist, Pacific Biocontrol Corp., 1/acre), (3) medium-density passive disruption system

(Cidetrak® NOW MESO, Trécé Inc., 20/acre), (4) combination medium-density passive disruption system plus experimental sprayable mating disruption formulation (Cidetrak® NOW MESO, Trécé Inc., 20/acre plus two applications of sprayable formulation), and (5) experimental sprayable mating disruption formulation (two applications).

Data collected during the 2018 growing season included: (1) trap capture/egg laying in trapping stations centrally-located within each treatment plot, (2) harvest damage evaluation, and (3) mating status of female NOW. Eight trapping stations were deployed in each plot, each station consisting of (1) one pheromone trap (orange delta trap baited with Trécé Pherocon® NOW L2 lure) to evaluate adult male NOW trap capture and flight activity, (2) one kairomone trap (orange delta trap baited with Peterson Trap Company pistachio-almond bait bag) to evaluate adult female NOW trap capture and flight activity, and (3) one black egg trap (baited with Trécé almond meal) to evaluate oviposition abundance and activity. Harvest samples from each plot (Nonpareil, n = 4000) and pollinizers (n = 2000) were collected from the field (windrows) and dissected to evaluate harvest damage caused by NOW. Female NOW trapped in kairomone traps in all plots throughout the season were collected, preserved, and dissected to determine mating status.

At press time, data are still being collected for the 2018 season and will be evaluated at the conclusion of the project.

Results and Discussion:

Complete results of this project and discussion of significant findings will be presented in the final Annual Report at project completion.

Research Effort Recent Publications:

NA

References Cited:

NA