

Monitoring spotted wing drosophila (*Drosophila suzukii*) in Ohio

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Abstract

The spotted wing drosophila (SWD) was first detected in Ohio in late 2011 and has significantly increased its geographic range through 2013. In response to this pest, Ohio State University faculty conducted a SWD workshop focusing on identification, biology and management in 2013. Workshop participants helped form the backbone of the SWD monitoring network. To date, multiple sites within 14 counties are reported positive for SWD on MyTraps.com. Salt water tests were used at a few locations to determine larval infestation in raspberries, blackberries, and blueberries.

Introduction

The spotted wing drosophila is an exotic pest first detected in the continental US in 2008 in California. Soon after its introduction, SWD spread to Oregon and Washington in 2009, Michigan, North and South Carolina, and Utah in 2010, and was detected late in 2011 in Ohio and many other states.

This pest is able to attack a wide host range including raspberries, blackberries, blueberries, cherries, grapes, strawberries, pears, plums, peaches, apples, and tomatoes. In Ohio, SWD threatens over \$50 million worth of produce and the viability of commercial and backyard fruit producers.

In April, 2013, OSU Extension faculty held an educational workshop to help growers understand the biology, identification, and management of this pest. One of the outcomes of the workshop was to train and equip all 17 participants (growers & Extension educators) with a utility caddy full of monitoring supplies (apple cider vinegar, traps, vials, sieve, alcohol, etc) to establish a site on their farm or in their county with the expectation they would report any SWD findings directly to us or enter that information into the MyTraps.com website. This group of cooperators formed the statewide monitoring network for this pest.

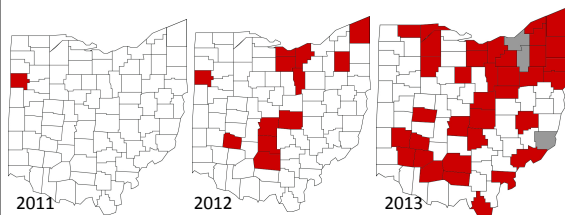


Figure 1. SWD fly detections from 2011 – 2013 by county. Red counties are positive, grey counties are suspect.

Methods

Twenty-six SWD monitoring sites were set up in 14 counties by Extension educators and growers. The crops monitored included red and black raspberries, blueberries, blackberries, strawberries, grapes, serviceberry, and cherries. At each site, between one and three apple cider vinegar baited traps were placed in the crop row, separated by at least 30 meters. The baited traps were deployed in the first week of July and retrieved the first week of October. The traps were serviced weekly, with any insects captured placed in vials and the trap refilled with apple cider vinegar and a drop of dish soap. Insects collected in vials were sorted within 48 hours to identify male and female SWD. Any positive findings were reported on MyTraps.com and the grower was also notified so that appropriate management options could be enacted. Once a site was identified as positive for SWD, the site was assumed infested for the rest of the fruit bearing season, and no further SWD counts were made, though the traps were still serviced on a weekly basis. Any insects caught in the traps were placed in vials for future sorting.

At some of the sites, in addition to baited traps, fruit were collected and subjected to the salt water test to determine the level of larval infestation.

Results

Spotted wing drosophila flies were detected at every location in the monitoring network (Fig. 1). The earliest detection was 2 July at two raspberry plantings in Greene and Clinton counties.

Peak detections of 752 SWD / 3 traps were found in Greene county during the 2nd week of September. Adult trap captures fluctuated at this site in response to grower applications of Entrust and Pyganic (Fig. 2).

Salt water tests at the Greene and Clinton county sites reveal larvae floating out of randomly chosen healthy looking berries (Fig. 3). SWD larval results of weekly salt tests conducted at the Greene county site show presence of larvae nearly season long with peak activity in early and late September from 75 randomly picked healthy blueberries and raspberries and 50 blackberries (Fig. 4).



Figure 3. SWD larvae floating among raspberries and blackberries after being subjected to the saltwater test.

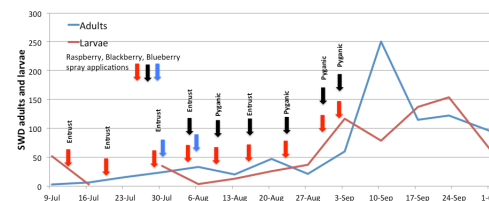


Figure 4. Average SWD adult trap captures and total larvae found in raspberries, blackberries and blueberries after Entrust and Pyganic treatments at a monitoring site in southwest Ohio.

Conclusions

- SWD has spread from 1 county in 2011 to 37 counties in 2013; now generally thought to be ubiquitous
- Salt water tests on "healthy" picked fruit revealed larvae on raspberry, blackberry, blueberry and strawberry in 2013
- Apple cider vinegar baited traps revealed SWD adults and larvae in at least 14 counties
- Reporting SWD counts within 48 hrs. during the season is difficult to accomplish & may not be necessary once SWD is detected on farm
- SWD is affecting both back yard growers as well as commercial scale growers; anecdotal evidence from growers suggests they can manage the problem with insecticides is variable
- MyTraps.com useful in displaying data but issues surround the anonymization of locations

Acknowledgements

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