

NJ State Report, Northeastern IPM Working Group on Spotted Wing *Drosophila*
Rutgers Agricultural Research and Extension Center, February 13, 2018

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This report summarizes spotted wing drosophila activity in commercial crops and research activities during 2017. Most of the data is from blueberry with some observations on other crops. An annual survey was completed in commercial blueberries within the Rutgers fruit IPM program. NJ blueberries are concentrated in the southern part of the state in the NJ Pinelands encompassing Atlantic and Burlington Counties.

Trapping: We monitored SWD in highbush blueberry fields across 41 individual farming operations. We used 1L clear plastic cups baited with the commercial Scentry lure hung above 150ml of ACV with a drop of unscented dish soap. Traps were placed 3 ft above the ground in steel flower supports during the last week of May. Traps were checked every 7 days, and the drowning solution was changed at the same time. Traps were placed on the woods edge of blueberry fields, cv. Bluecrop, which is harvested from late June through all of July.

Fruit Evaluations: Starting at first picking of Bluecrop, we collected 1 qt of field run, unpacked fruit and performed salt extractions for any larvae present in the fruit. Bluecrop was used as the standard variety since it is widely planted, and harvests through much of the SWD activity. If any positive samples were found, a packed sample from the same field was also run to see if the packing process had removed any of the larvae. The network consisted of 67 traps in 2017. Because growers want to have their trap counts immediately available, and because in previous years the first males and females have emerged within a couple of days of each other, we elected to record male flies only.

During 2017 the first adults were caught as soon as the traps were placed, implying that adults were already active. The first captures were during the week of 6/3 when 85% of the traps in Burlington County were positive. At the same time only 40% of the traps in Atlantic County were positive. Burlington County farms are small and surrounded by woods in close proximity to cultivated fields. This implies that a higher density of wild hosts influenced the earlier trap captures in this county (Figure 1). Individual farms also showed vastly different populations as indicated by trap captures. During 2017 infested fruit was found only in Atlantic County on isolated farms. The first positive samples on 7/15 were from an organic farm, and the second samples on 7/22 were from commercial fields where spraying had stopped for 2-3 weeks. The average number of larvae found was .67/qt on 7/15 and .4/qt on 7/22. Trap averages increased throughout the season. Spraying stopped in Burlington County during the 3rd week of July, since no late varieties are produced on those farms. The presence of late varieties caused a number of Atlantic County growers to maintain insecticide covers through early August. It is likely that this, and the closer presence of alternate hosts, contributed to the higher late season populations in Burlington County (Figure 2).

Other Crops

One farm in Hunterdon County (northern NJ) reported in mid August, SWD infested donut peaches. The farm produces blueberries, raspberries, blackberries, cherries, strawberries, tree fruit and vegetables. The farm is surrounded on all sides by woods, and the section of donut peaches is bordered by 50-60 ft black cherry trees. The peach orchard had been under mating

disruption for borers, and little insect pressure, so had not had insecticides for about 6 weeks. While our sampling did not verify the infested fruit, we did verify infested 'Encore' peaches in late August from our research plantings, which had also not been treated with insecticides for about 6 weeks. Fruit was picked on August 31 and placed in emergence jars with yellow sticky cards for 14 days. Both SWD and African fig fly adults were found emerging from the fruit. These combined observations show that an IPM system for one crop must consider the pest status and management being carried out on other crops. The management program for small fruits and nearby alternate hosts can dramatically affect our IPM programs in peaches.

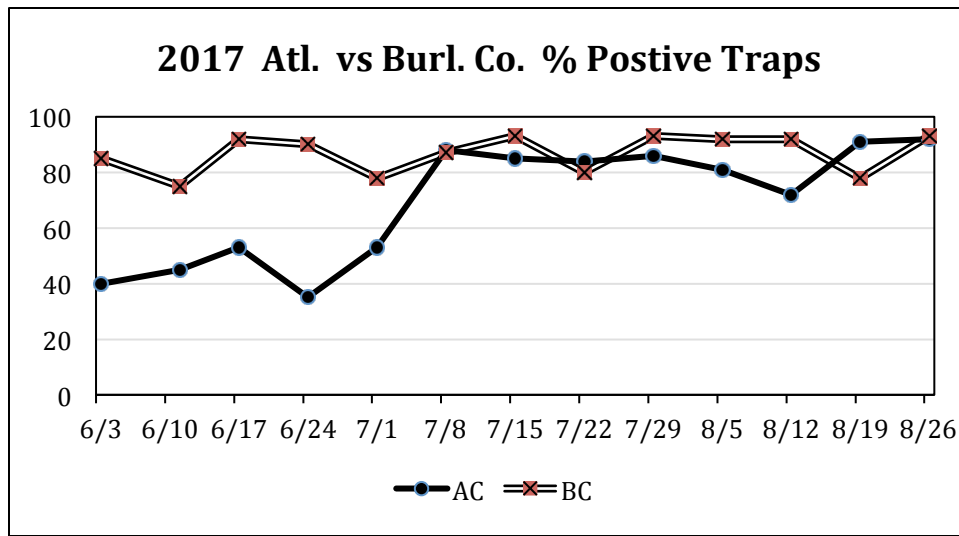


Figure 1. Percent traps positive in Burlington vs. Atlantic Counties

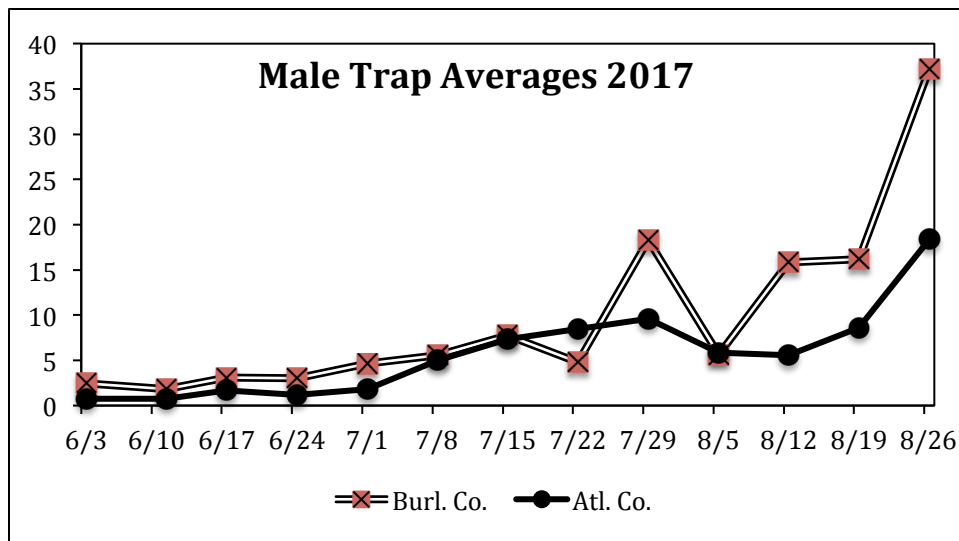


Figure 2. Trap averages 2017

On Going Research Summary: Rodriguez-Saona Lab

Study areas:

- Effects of landscape and distance to forests and wild hosts on the abundance and density of SWD.
- Development of a degree-day model based on historical population and climatological data.
- Improvement of improved trapping systems with studies on the effects of volatiles from fermentation, fruit, yeast, and leaf sources, both alone and in combination.
- Development of improved IPM programs and best management practices through correlations with trap records, and fruit infestation counts.
- Development of attract and kill methods and other alternative controls using SPLAT matrix combined with insecticide, and attracticidal spheres as behavior-based control tactics for SWD
- Behavioral studies looking at blueberry cultivars from wild vs. cultivated sources.