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The Blueberry Bulletin

A Weekly Update to Growers

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- *Visit the Blueberry Bulletin webpage at njaes.rutgers.edu/blueberry-bulletin*
- *The 2020 Commercial Blueberry Pest Control Recommendations for New Jersey is available on njaes.rutgers.edu*

BLUEBERRY CULTURE

Dr. Gary C. Pavlis, Ph.D. Atlantic County Agricultural Agent

Visits to grower's fields have shown the obvious presence of canes infected with stem blight. These canes are easy to identify now with their dried up brown leaves. It cannot be emphasized enough that the timely removal of these canes is critical. The infection initially is located in the canes but the infection will move down the canes and into the crown of the plant. Once this happens often the entire plant dies. This complicates the grower's decisions. Replanting young plants in a mature block often does not work because the routine practices of disease and insect control as well as fertility often are not appropriate for a young plant and in many cases will kill young plants. On the other hand, having blank spots in the field is costing the grower money. The equation is quite simple. A 20% loss of plants equates to 20% less money in the grower's pocket. The best fix is the removal of infected canes now.

BLUEBERRY INSECT

Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University
Mr. Dean Polk, IPM Agent – Fruit
Ms. Carrie Denson, IPM Program Associate – Fruit

Spotted Wing Drosophila (SWD): This is the only pest of concern, and only on the latest varieties. The average Elliott field may require only 1 more treatment.

Putnam Scale: Tape traps were set out in a number of fields with known 1st generation populations that had settled on the fruit during July. We have now detected second generation crawlers on 7 of the 10 traps set. The number of crawlers seen on positive traps range from just a few to a maximum of 57 crawlers per trap. Higher numbers are present in Atlantic County compared to Burlington County. Recall that Putnam Scale has 2 generations per year, with the young crawlers emerging 2 times per season. The first emergence starts during the first half of June, and the second , during the first half of August. As the crawlers disperse from the 'mothers', they move up the canes and can reach the fruit if the populations are high enough. This means that any fields that produced scale-infested fruit in July have populations now that

are high enough to be treated. Options for control include: Esteem 35W @ 5oz/A or Diazinon @ 1-2 lb/A (50W). The diazinon label specifies that there is a maximum of 2 lb of formulated product allowed per season, and a maximum of only 1 in-season foliar application per year. In most cases this will be a post-harvest application, but there is 7 day PHI for diazinon. The application volume is just, if not more important that the rate. The insecticide must contact the insect as it crawls up the cane and onto the branches. Make sure to use as much water as possible, or close to 50 gal/A. Scale applications **Will Not Work** if done by air. Good pruning that eliminates the old canes that harbor the highest populations is another management tactic that should always be practiced.

Sharpnosed Leafhopper (SNLH): Adult populations remain very low, indicating that 2nd generation adults have not yet matured or started to move about. It is too early for any insecticides directed against SNLH.

Blueberry Trap Counts

Week Ending	CBFW-AC		CBFW-BC		SWD-AC		SWD-BC		OB-BC		OB-AC	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
5/11	0.1	1	0	0								
5/18	0	0	0	0								
5/25	0.1	1	0.25	1	0.8	7	0	0				
5/30	0	0	0.25	1	.75	5	.55	1				
6/6	5.5	34	0.75	3	2	8	2.1	5				
6/13	5.6	22	3.5	8	4	14	7.7	20	3.2	11	18	340
6/19	7.2	48	6.5	18	4.64	30	4.9	16	71.75	675	21.4	68
6/27	0	0	3.5	8	2.8	12	4.3	25	1834	13750	462	2025
7/4	0.22	1	1	3	4.17	16	11.3	46	2421	8775	976	5062
7/11	0.11	1	0.25	1	5.8	27	6.6	22	1093	5000	1997	6075
7/18	0.11	1	0.5	2	5.3	19	4.6	14	769	5000	1575	6750
7/25	0.11	1	0.25	1	12.2	41	5.5	20	443	3500	920	4050
8/1	0	0	0	0	8	42	11	37	179	2025	520	4025
8/8	.	.	.	.	8.9	62	5.6	23	31.5	340	231	4025
Week Ending	SNLH – AC		SNLH-BC		BBM-AC		BBM-BC					
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
6/27	0.14	3	0.8	4	0	0	0	0				
7/4	0.08	1	0.8	5	0.009	1	0	0				
7/11	0.12	1	1.82	6	0	0	0	0				
7/18	0.11	2	1.16	5	0	0	0	0				
7/25	0	0	0	0	0.02	1	0	0				
8/1	0.04	1	0.3	2	0	0	0	0				
8/8	0.152	3	0.14	2	0.03	2	0	0	9.25	57	0.5	1

Key: PC=plum curculio, Scale=Putnam scale, CBFW=cranberry fruitworm, SWD=spotted wing drosophila, OB=oriental beetle, SNLH-sharpnosed leafhopper, BBM=blueberry maggot, BC=Burlington County, AC=Atlantic County

INTERPRETING TRAP CAPTURES OF SPOTTED WING-DROSOPHILA (SWD) IN BLUEBERRIES

Cesar Rodriguez-Saona
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Although we are making progress in other aspects of IPM such as cultural, behavioral, and biological control, current recommendations to manage SWD rely heavily on preventive weekly applications of broad-spectrum insecticides, including organophosphates, carbamates, and pyrethroids, in rotation. Because a single infested fruit can cause the rejection of an entire shipment, there is a zero tolerance threshold for SWD larvae in fresh market fruit or frozen products. Thus, early detection of adult activity in crops is critical to reduce fruit infestation risks. In New Jersey, monitoring traps are used to detect early fly activity and time the start of insecticide applications (Figure 1). However, the possibility of using trap counts to evaluate the effectiveness of SWD management programs and for predicting fruit infestation in blueberries has thus far remained an open question.

Figure 1. Traps used to monitor SWD adult activity.

In 2016-2017, we conducted studies to determine if: 1) the frequency of insecticide sprays reduces SWD trap count, 2) proximity to forest edges increases SWD trap counts, and 3) trap counts are correlated with fruit infestation. Using a mark-release-recapture study, we also investigated the range of attraction of these traps. Our data showed that: First, insecticide applications reduce SWD trap counts. However, the effect of insecticide applications on trap counts depended on time of the year (i.e., seasonality). Second, trap location matters such that traps placed near non-crop forest habitats within farms had higher SWD counts than those placed in farm interiors. Third, trap counts correlated with fruit infestation since fields with zero fruit infestation had predictably lower trap counts than those with infested fruit. Finally, we found that the maximum dispersive distance for SWD within blueberry fields was 90 m.

Altogether, our data indicate that:

1. Under certain circumstances, monitoring traps for SWD can predict the efficacy of management programs in blueberries but, because of high seasonal variability, their predictive power may not be very reliable.
2. Although trap counts could also predict fruit infestation, this prediction was more accurate under a relatively low population size.
3. Based on our data, proximity to forest was the most reliable predictor of high SWD numbers in traps, suggesting a constant pressure of flies moving from non-crop forest habitats into blueberry fields.

4. Our dispersal data were consistent with those previously reported and could be used for future monitoring and management recommendations, such as establishing trap densities or for border spray tactics.

Although significant progress has been made in improving current trapping systems for SWD, our study highlights the challenges of developing action thresholds and making management decisions based on trap counts for an invasive pest that has a zero tolerance for larval infestation in crops such as blueberries.

This work was recently published in the Journal of Economic Entomology ("Interpreting Temporal and Spatial Variation in Spotted-Wing Drosophila (Diptera: Drosophilidae) Trap Captures in Highbush Blueberries" by Cesar Rodriguez-Saona, Nicolas Firbas, Johnattan Hernández-Cumplido, Robert Holdcraft, Caryn Michel, Sirley Palacios-Castro, and Diego B. Silva), and was funded by the USDA-NIFA Specialty Crops Research Initiative Award 2015-51181-24252 and the NJ Blueberry/Cranberry Research Council.