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The Blueberry Bulletin

A Weekly Update to Growers

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2018 Commercial Blueberry Pest Control Recommendations for New Jersey
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BLUEBERRY CULTURE

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County Agricultural Agent

Farms visits this week show that the harvest of Duke is progressing well. Fruit quality is excellent and fruit size appears to be very good. The fields that experienced poor pollination do have decreased yields however the fruit that did set is of good size and excellent quality. Unlike last year where many fields of Draper saw fruit drop while still green, this is not the case this year. I have had discussions with the breeder who released this variety, Jim Hancock, and he could not put his finger on why fruit drop is occurring in this variety. Draper has been in various fields around the country for years and has not shown the tendency to drop fruit. I am conducting an experiment with calcium applications to prevent fruit drop and even the untreated plots are not showing fruit drop. This problem may be environmentally related however the true cause is up for debate. Could the excessive rain early in the season make the calcium in the soil more available and so decrease fruit drop? Unknown.

Bluecrop harvest will begin late this week or early next week. Some anthracnose has been seen and should be controlled.

BLUEBERRY INSECTS

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

Plum Curculio (PC): During this past week of scouting, numbers have significantly decreased on injured infested fruit. Our average count was 0.002 infested fruit per bush, with a high of 0.2 infested fruit per bush. Very low numbers of adults are being found in traps. Only 1 adult was found in a trap in Atlantic County.

Spotted Wing Drosophila (SWD): Trap counts are still minimal but more trap locations are turning positive for adult flies. Numbers should increase over the next several weeks. In Atlantic County our average trap count was 0.176 with a high of 1 male per trap. In Burlington County our average trap count was 0.5 per trap with a high of 3. While these numbers may seem low, remember that this is only an indication of relative abundance, and means nothing about whether or not you have SWD. There are larvae in unsprayed fruit. **All remaining Duke, Draper, and Bluecrop and anything else with color should be under a treatment schedule.**

Life history. SWD is a small (2.5-3 mm) invasive vinegar fly that can damage many fruit crops. Native to Southeast Asia, SWD was first detected in the continental U.S. in 2008, since then it has become established in many states across the country. SWD males have a distinctive black spot on each wing near the tip and two black 'bands' on the front legs (Figure 1). Females possess a large serrated ovipositor (Figure 1). Flies overwinter as adults and become active in the spring to mate. They lay their eggs in susceptible, ripening fruit during spring, summer, and fall. Females can deposit up to 350 eggs in her lifetime. Depending on the weather the life cycle can be 8 to 14 days, with a mid-season life span lasting 3 to 9 weeks. SWD flies are most active at temperatures above 68°F but decrease their activity at temperatures above 86°F. Eggs are deposited in the fruit and hatch in 12 to 72 hours; larvae develop inside the fruit and take 5-7 days to pupate; pupation can take place both inside and outside the fruit and lasts 4 to 15 days.

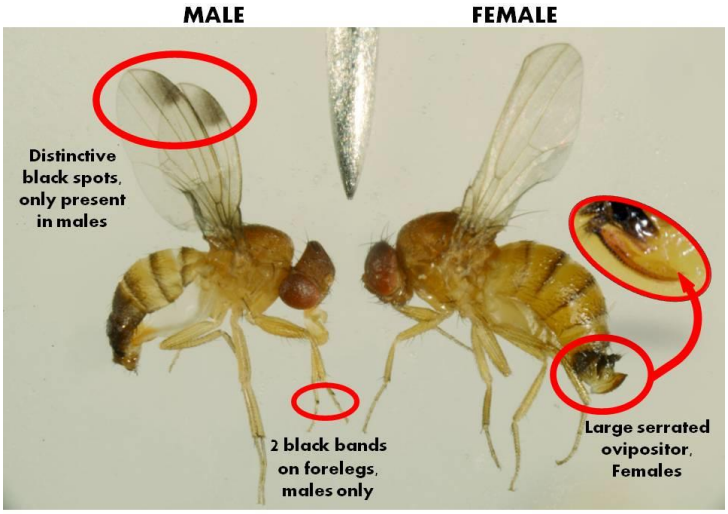

Figure 1. Male and female spotted wing drosophila. Photo courtesy of John Obermeyer, Purdue University.

Monitoring. Early detection is important for SWD management. Traps used for monitoring should be placed in the field at least 2 weeks before fruit ripening and monitored every week. Traps should be placed at bush level close to the developing fruit, preferably along the edges of the field that have wooded borders. Traps may be purchased or simply hand made. The newest trap designs involve cutting two round holes on both sides of the upper portion of a clear 32 oz. deli cup, a piece of mesh material is then glued in place over those holes, and a lure can be hung from the lid over a solution of apple cider vinegar and a drop of scentless soap. There are two commercial SWD lures available for purchase, *Pherocon SWD* lures and traps are available through Trécé and Scentry SWD lures and traps available through Great Lakes IPM. A yellow sticky card can also be employed inside the trap. Inspect the trap solution and the yellow sticky card for SWD males and females. Male SWD are more easily recognizable on yellow sticky cards

because of their prominent spots. The female however is less visible because the serrated ovipositor may be receded into the abdomen. Pressing lightly on the abdomen may help pop the ovipositor out for inspection. Once SWD has been detected you may wish to simplify your inspection by only counting males, which are representative of the total

Salt Flotation Test. To inspect fruit for SWD larvae a simple salt flotation test can be performed. This is a good method of evaluating the effectiveness of your SWD management program and insuring the quality of your product. Salt water will irritate any larvae present into emerging from the fruit and they will float to the surface of the salt water. Cover all berries, screen, and weights with the saturated salt solution (half a cup of salt in two quarts of water) so any larvae are free to float to the top and be seen. After 10 minutes it is safe to assume no more larvae will surface.

Blueberry Maggot (BBM): The first BBM adult was trapped on June 22nd in a non-commercial field (Figure 2). We will be seeing more BBM adults during the coming weeks. This is a regulated pest and needs to be treated under a strict protocol if exporting to Canada. All treatments being used for SWD will control BBM, except Delegate if high populations are present. Growers on a Delegate rotation should have BBM traps in their fields so that Delegate use can be coordinated with low to "0" trap counts of BBM.

Figure 2. Blueberry maggot fly adult on yellow sticky trap. Photo – Carrie Denson.

Oriental Beetle (OB): This week's traps have significantly increased. The maximum trap level in Atlantic County was 6075, and 4050 per trap in Burlington County. Based on past experience, these farms are virtually guaranteed to have grub problems later in the year or early next year. Treatments need to be applied by the middle of July, or mating disruption used the following year (since it is too late to apply mating disruption dispensers this year).

Cranberry Fruitworm (CBFW): CBFW trap captures are pretty much "0" with a few 'stragglers'. This pest is no longer a concern.

Aphids: Aphid populations are hanging on in several locations, and have slightly increased since last week with an average count of 9.6% infested shoots, with a high of 88%. Colony size averages 6 to 10 aphids per shoot. Many growers have already made 2 applications of a neonicotinoid for aphid control. If this is the case, and significant aphid populations are still present, then you are seeing very little return for the spray, most likely from the material not reaching the target. Aphid materials will not control SWD, and SWD is the main target at this time. So unless you can change your application coverage, let the aphids go and concentrate on the SWD.

Sharpnosed Leafhopper (SNLH): Trap counts of adult leafhoppers increased slightly since last week. We should see increased captures over the next couple of weeks, but adults should be controlled by the materials being used for SWD.

Putnam Scale: Crawlers are visible in some fields. There are 2 generations per year with this being the first generation. Tape traps will monitor the length of the first crawler generation and help define the window for treatment if some growers want to take that option.

Life history: Most of the scale populations we normally see in blueberry are from Putnam scale. There are 2 generations of this insect. The first generation crawlers settle on new wood and berries (this time of year). After the crawlers settle, they will form a gray waxy layer on top as they mature. Scales feed on plant sap, decreasing plant vigor and fruit yield. Adult scales are protected from insecticide sprays by a waxy covering. These insects are common in older canes when not removed, and located mostly under loose bark. In New Jersey, the Putnam scale has two generations a year. It overwinters as second-instar nymphs under loose bark. Spring activity begins in early February. Eggs from the first generation are laid in late April, and immature "crawlers" begin to appear in mid-May. Peak crawler emergences occur in late May and early June. Peak crawler emergences for the second generation occur in early to mid-August.

Monitoring and Management. Growers that have a scale problem need to treat post harvest for the 2nd generation of crawlers (use Diazinon or Esteem). Crawlers can be monitored by wrapping black electricians' tape covered by double-sided sticky tape around canes. Use a hand lens to see crawlers on the sticky tape. Sprays should coincide with crawler emergence.

Anthracnose: Some field Anthracnose is present on both Duke and Bluecrop (Figure 3). Numbers of infested fruit per bush are low (.06 per bush), but since this disease can increase rapidly in packed containers, any field level is cause for concern.

Figure 3. Field anthracnose.
Photo – Carrie Denson

Summary of insect counts seen during the week of June 17th – 23rd

	Leafroller % Inj. Shoots	Aphids % Inf. Shoots	CBFW % Inf. Fruit	Leafroller % Shoots Inf.	Plum Curculio % Inj Frt
Average	0.179	9.61	0.005	0.037	0.002
High	18	88	1	2	0.2

Blueberry Trap Captures – Atlantic County

Week Ending	PC	CBFW	OB	SWD	BBM	SNLH

5/26	0.43	0.0				
6/2	0.43	0.0				
6/9	0.09	0.43	5.4			
6/16	0	0.015	31.75	0.02	0	0.072
6/23	0.285	0.015	1436	0.176	0.024	0.104

Blueberry Trap Captures – Burlington County

Week Ending	PC	CBFW	OB	SWD	BBM	SNLH
5/26	1.67	0.18				
6/2	0.67	0.16				
6/9	0.0	0.1	0.6			
6/16	0	0.5	38.52	0.15	0	0
6/23	0	0	1016	0.5	0	0

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