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Experiment Station

The Blueberry Bulletin

A Weekly Update to Growers

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CULTURE

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Harvest is progressing in spite of all the rain we are experiencing. No one wants to pack wet fruit and many have waited for the fruit to dry off only to see another storm arrive. In Burlington County it is reported that 5 inches of rain fell in a little over an hour. In spite of that, Duke is coming on very strong with a very concentrated ripen this year. This was probably due to warm temperatures during bloom which also concentrated the bloom. My observations of Draper fields are very positive. Very little green fruit dropped and the size is incredible. Consumers are definitely going to like that variety.

One problem I did encounter reinforced to me how important a leaf analysis is to the health of a growers blueberry plants. I was called out to a farm and brought to a 'Bluecrop' block. 100% of the ripe fruit was not marketable because of chocolate-like blotchy spots on the fruit. When this fruit was cut open, there was a browning of the interior under the blotchy sections. The fruit was a total loss. In addition, the growing point on every cane was black. This is a very good indication that there is a Boron deficiency. Growers who have attended the Blueberry Open House have seen my slides of this deficiency symptom. To confirm my diagnosis I collected leaves and sent them to Penn State for analysis. The analysis came back with very low Boron levels, far below optimum range. In addition, Iron, Copper, Magnesium and Nitrogen levels were also low, though not to the extent of the Boron. FYI, Boron deficiency can be alleviated very easily with a foliar application of Boron. This application is also quite inexpensive.

Growers that are in the Rutgers IPM program know that soil and leaf analysis are monitored every year. As a result, a disaster in which an entire crop is lost due to a nutrient deficiency is much less likely to occur. Growers who are not in the program should realize that in extreme cases, nutrient deficiencies can be devastating. Most growers are probably not aware of the impact that a nutrient deficiency can have. It is understood that diseases and insects can be devastating but nutrition should be added to that list and realize that it is probably the easiest to prevent with an annual leaf analysis. Watch this newsletter for timing of the leaf analysis, how it is done and where to send your samples. This is a very cost effective method to prevent major problems.

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

Blueberry Maggot (BBM): The first capture of blueberry maggot adults was on Friday 6/14 in an unsprayed field near Hammonton (Figure 1). Any grower who is exporting fruit to Canada needs to be on a regular schedule that targets both **BBM** and **SWD**.

Figure 1. Blueberry maggot adult on trap. Photo – N. Freeman.

Spotted Wing Drosophila (SWD): Both males and females continue to be captured, with numbers per trap increasing slightly since the previous week. This is the main insect to control at this time, as well as through the entire ripening process. Population pressure will get more intense as the population increases, making protection even more important by the time you are in the middle of 'Bluecrop.'

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 2). Females possess a large serrated ovipositor (Figure 2). 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.

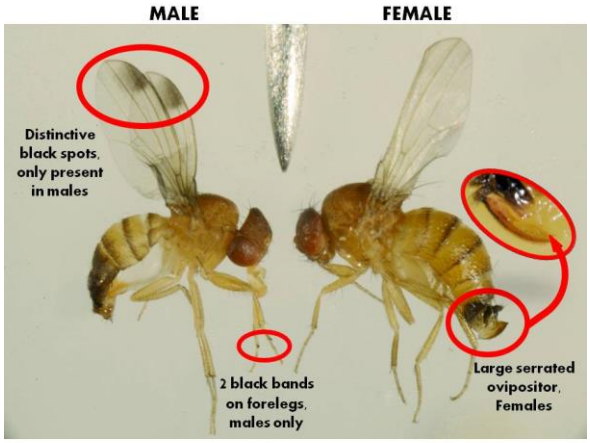

Figure 2. Male and female spotted wing drosophila. Photo courtesy of John Obermeyer, Purdue University.

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. As an alternative to deli cups, baited red sticky traps can also be used. Male SWD are more easily recognizable on 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. Place berries in a 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.

Scale: The level of fruit injury has increased since the previous week, showing an increase in crawler activity. Make sure to note the fields where scale injury is present in the cull boxes by the sorting lines. These fields should be scheduled for treatment in the beginning of August when the second generation crawlers are active. We will be setting additional traps to time second generation crawler emergence later in the season.

Aphids: Aphid populations decreased this past week to an average of 0.62% of new terminals infested. Where present, colony size increased slightly to 2-5 aphids per shoot. For those growers who have done a good job of aphid control, no additional targeted applications should be needed. Remaining population should be suppressed by the SWD treatments being applied.

Oriental Beetle (OB): The OB emergence is well underway. Populations will continue to build during the rest of June and early July. Growers who are treating for this insect and have not yet done so, will probably have to wait until the fruit is off the bushes in order to get equipment in. However, this means that only Duke and other early fields will be able to be treated if not already done, since treatments need to be applied by mid-July. Otherwise this year's grubs will be too big to be controlled by the Admire.

Leafroller larval presence and injury: Some larvae are still present, and have increased slightly at 0.07 percent per shoots infested. This is still a very low number that does not merit special treatments.

Insect Traps

Atlantic County Traps

Week Ending	SWD	OB	BBM
6/8	1.05	8.2	0
6/15	1.2	97	0

Burlington County Traps

Week Ending	SWD	OB	BBM
6/8	0.07	2.91	0
6/15	0.83	69	0

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www.njaes.rutgers.edu/blueberry-bulletin