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

Farm visits this week did not turn up any big problems. Everyone is very busy harvesting both ‘Duke’ and ‘Bluecrop’. The quality that I saw in the packing houses was very good with excellent fruit size. Now that we are experiencing dry sunny weather, the flavor of the fruit is very good also. I still see a wide range in crop loads. Some fields have very heavy crops while others are obviously down from last year. In most cases I believe this is due to cold damage this winter. Prices for juice remain low so growers may want to investigate the blueberry demand that has been created by the wineries in New Jersey. Many wineries in the state make blueberry wine and need fruit. All winery phone numbers and addresses can be found on the Garden State winegrower’s web site, www.newjerseywines.com

INSECTS
Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University; Dean Polk, IPM Agent, Rutgers Cooperative Extension; Amy Raudenbush, Fruit IPM Program Associate, Rutgers Cooperative Extension

Spotted Wing Drosophila (SWD): Over the past week the average number of male SWD in Atlantic County has increased to 0.5%. Overall, 11 sites in Atlantic county had at least one male in the trap over the past week and 24 males total were in the traps. There were no males captured in Burlington County. Trap monitoring for SWD adult males will continue throughout the remainder of the season. We also started salt testing the berries for presence of larvae. To date no larvae have been found in any of the salt tests in either counties. All growers should continue to follow the 7-day insecticide program for SWD. Insecticides effective against SWD include: Asana, Adjourn, Brigade, Danitol, Exirel, Hero, Imidan, Lannate, Malathion and Delegate. Plan on using Lannate anywhere aphids may still be an issue. Where aphids are not a problem then Danitol would be a good choice if you are exporting to Canada. If you are not exporting to Canada then any pyrethroid will do, and Imidan is fair game. Delegate use should be alternated with other chemistries during the last 2-3 weeks of a program. Malathion still has a 24C label for the high rate as used last year with a 1-day PHI. This means
you can use the Malathion 8F at up to 2.5 pt/A or 2.5 lb ai/A. The high rate is what is needed for good SWD control.

Blueberry Maggot (BBM): We continue to find low numbers of BBM on traps in Atlantic County. To date, no BBM have been observed on traps in Burlington County. Treatment options effective against BBM and SWD include: Asana, Adjourn, Brigade, Danitol, Exirel, Hero, Imidan, Lannate, and Malathion. Delegate will suppress BBM, but should not be used when trap counts exceed 1 fly per trap.

Aphids: Aphid presence was similar to the previous week with 64% of the sampled sites having positive shoot samples with an average of 7% aphids per 50 shoot sample. However, the overall number of aphids has decreased in the number of sites with over 10% shoot infestation to 18%.

Sharp-nosed Leafhopper (SNLH): Trap counts remained about the same compared to the previous week in both Atlantic and Burlington Counties (see table). Most aphicides will also control leafhoppers, as will materials that target SWD.

Oriental Beetle (OB): Trap numbers have decreased in Atlantic and Burlington Counties (see table) indicating peak emergence has already occurred. When making applications, the target is for the OB larvae. Therefore, treatments should be made before the 3rd week in July to ensure efficacy. Mating disruption applied earlier in the season, and the use of AdmirePro/Imidacloprid are the only labeled treatments for OB.

Putnam Scale: We continue to see scale on the fruit at several locations. Second generation crawlers can be treated for at the end of July beginning of August.

Anthracnose: Little disease is being seen in the field, but we are collecting packed pints of Bluecrop to evaluate the effectiveness of the fungicide spray program. Fruit will be evaluated after a 7 day incubation, and percent anthracnose determined.

### Blueberry Trap Counts

#### Atlantic County

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<th>SWD</th>
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#### Burlington County

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Spotted Wing Drosophila - A Key Pest of Blueberries in New Jersey
Caryn Michel, Cesar Rodriguez-Saona, and Dean Polk
P.E. Marucci Center for Blueberry & Cranberry Research & Extension, 125A Lake Oswego Rd., Chatsworth NJ 08019

Spotted wing drosophila (SWD), Drosophila suzukii, is a small (2.5-3 mm) invasive vinegar fly, which 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 and was first found in New Jersey on July 7th of 2011. Unlike the majority of its relatives, SWD has the potential to be a major pest of many fruit crops including blueberry, grape, cherry, raspberry, and strawberry. The female of the species is equipped with a large serrated ovipositor which can saw through the soft skin of many ripening fruits in order to lay her eggs. The larvae rapidly develop within the fruit. SWD infestation causes puncture wounds, softening, wrinkling, and collapse of the fruit.

Identification
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).

Figure 1. Male and female spotted wing drosophila (Photo courtesy of John Obermeyer, Purdue University).
Life cycle
SWD overwinters as an adult and becomes active in the spring to mate (Figure 2). SWD flies lay their eggs in susceptible, ripening fruit during spring, summer, and fall. The female SWD can deposit up to 350 eggs in her lifetime (Figure 2). Depending on the weather the life cycle can be 8 to 14 days, with a mid-season life span lasting 3 to 9 weeks (Figure 2). 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. Spotted wing drosophila life cycle (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 (Figure 3), and a lure can be hung from the lid over a solution of apple cider vinegar and a drop of scentless soap.

Figure 3. Example of trap for monitoring SWD

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 (Figure 4). 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 population.
Salt Flotation Test
To inspect fruit for SWD larvae a simple salt flotation test can be performed (Figure 5). 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 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.

Control
Sanitation is important to SWD management. Like its relatives, SWD enjoy rotting fruit. SWD populations increase dramatically following harvest due to the presence of fallen and overripe fruit which represent a significant food source and a site for reproduction. Fruit should be harvested completely, rows kept clean, fallen berries covered and culled fruit disposed of or buried. Currently, SWD management relies heavily on the use of insecticides. There are several insecticides which have been labeled for the control of SWD. Insecticides with different modes of action should be rotated in order to decrease the risk of SWD developing insecticide resistance. SWD are prone to desiccation so they are likely to seek out shaded areas with high humidity such as the undergrowth and canopy, indicating that applications at dusk with full foliar coverage will be the most effective.

Figure 5. Steps in the salt flotation test.

1. Place screen over berries
   Use a weight to keep screen in place

2. 9x13 in. baking pan
    ¼ in. hardware cloth
    cut to fit

3. 1 quart of berries, laid flat
   Salt solution: ½ cup salt per 2 quarts water

4. Use direct light and magnification to search water surface for larvae
July 6, 2015

**BLUEBERRY BULLETIN**

If you have any comments about this newsletter, please make them in the space below and mail to:

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Rutgers Cooperative Extension of Atlantic County
6260 Old Harding Highway, Mays Landing, NJ 08330

I would like to see an article on the following subjects: ____________________________________________________________

I would like to comment on the following articles: ____________________________________________________________

Title: ___________________________________________ Date: ________________________________

Comment: ____________________________________________________________________________________________

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