



At a Glance.....

PEST/DISEASE/CULTURE	JUNE 16 – JUNE 23 Post Pollination	JUNE 23 – JUNE 30
APHIDS Assail, Admire, or Actara	Treat if over 10% of terminals are infested.	Treat if over 10% of terminals are infested.
ORIENTAL BEETLE Admire or imidacloprid generic. Mating disruption.	Monitor and treat with imidacloprid (Admire Pro) or generic product now through mid July if OB populations are high. Alternatively use mating disruption.	Monitor and treat with imidacloprid (Admire Pro) or generic product now through mid July if OB populations are high.
BLUEBERRY MAGGOT See list	Monitor traps and treat if catching 1 or more flies per trap in any production area.	Monitor traps and treat if catching 1 or more flies per trap in any production area.
SPOTTED WING DROSOPHILA Sevin, Lannate, Imidan, Malathion, Delegate/Entrust, Asana, Brigade, Danitol, Mustang-Max, Assail if it is the first spray only	Monitor with traps.	Monitor with traps, and use materials for aphids and maggot that also control drosophila when possible.
PUTNAM SCALE Esteem or Diazinon	Use Esteem as soon as possible if crawlers are present, or there was a problem last year that remained untreated.	Monitor with black sticky traps for crawler emergence.

Culture

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

Fruit but no leaves: Field visits this week saw many fields with plants with fruit but no leaves. Sometimes it was just a few canes of the plant, sometimes it was the entire plant.

These symptoms are very evident right now because the blueberry plant is in the process of sizing the fruit that were set and is also in the most active growing phase of the year. All

of this takes a healthy root system to uptake the water and nutrients needed to drive these growth processes. If the root system is damaged in any way, the result will initially be a lack of leaves on the cane because all the nutrients go to the fruit first. But later, because there are no leaves, the berries will

dry up and fall to the ground. Lastly, the plant will die. In all the cases this week the plants could be pulled out of the ground without much effort. All of the small feeder roots were gone and grubs could be found in the soil surrounding the roots. The recommendation for this problem is Admire. Watch this newsletter for the most effective and efficient time to apply.

Insects

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

Aphids: Aphids are the watchword for last week and this week. Aphids are present on most farms at up to 50% or more of infested new tender growth. Since aphids are vectors of scorch disease, the treatment level is very low. Therefore, any field which has 10% or more terminal infested should be treating for aphids.

Spotted Wing Drosophila (SWD): We have not had any positive trap captures yet, but expect them very soon. Assail will suppress SWD populations, and is generally not suggested after SWD populations get going. However for the first SWD treatment it is OK, especially since the major concern at this time is the aphid complex. If growers have already used Assail and still wish to get a little more aphid control, while using an effective SWD material; and are planning for later in the week to next week, then Lannate is an option.

Putnam Scale: Crawlers have been active for the past 7-10 days. For those growers who have scale infested bushes, and wish to treat on Bluecrop and later varieties, then Diazinon is an option. Diazinon has a 7 day PHI, and can only be used once as an in season foliar application. Diazinon will also control SWD, but is poor for aphids. Esteem can be more effective, but does not control any other insects that are a concern at this time.

Oriental Beetle: Adults are now flying, mating and laying eggs.

Life cycle. OB completes a single generation per year. Adults (see picture) start to emerge in early June, and flight peaks in early July. Females lay eggs in the soil at the base of bushes. Most larvae reach first and second instars by the end of July. Third-instars (see picture) appear by the end of August, they remain in the soil during winter, resume feeding the following spring, and enter the pre-pupal stage in late May.

OB adult



OB 3rd instar larva



Monitoring. Japanese beetle sex pheromone traps (Trécé, Adair, OK), baited with septa lures containing the sex pheromone are used to monitor OB populations and initiation of male flight (see picture).

Japanese beetle trap used for monitoring OB populations



Control. Admire Pro (imidacloprid) (4.6 lb ai/gal) is recommended to manage OB grubs infesting blueberries in New Jersey. Other formulations are also available in generic brands. Most of these are 2 lb ai/gal. These include Alias, Nuprid, Couraze, and others. Imidacloprid is most effective if targeted against early instar grubs. It should be applied in June to mid-July, at least 7 days before the first picking, or applied as a post harvest material. Grubs should be targeted at their youngest stage or as they hatch and are at the 1st and 2nd instars, and while still close to the soil surface. Imidacloprid has little effect on 3rd instars and older larvae. Older 3rd instars start to appear by early to mid August. Therefore, applications should be made well in advance of that date. Applications will degrade if exposed to the sun. Therefore, imidacloprid should be immediately irrigated into the soil to form a layer of insecticide just below the soil surface. Imidacloprid has a long residual activity (>100 days) as long as the insecticide is not exposed directly to the sun. Applications for early varieties like Weymouth can be made immediately after the last picking. If Duke picks by the 3rd week of June, then application should be conducted during the 2nd week of June or after harvest, between mid to the end of July. Applications for Bluecrop are recommended 7 days before the first picking, in late June or early July. Similarly, applications for late season varieties like Elliott should be conducted no later than end of July. Imidacloprid is most effective when applied as eggs hatch and grubs are still near the soil surface. Please read and follow all the conditions and restrictions on the container label for these insecticides. Remember to irrigate the field with at least .5 to 1" of water immediately after application. If the soil is dry, then also water just previous to application. Begin applications late in the evening hours because this insecticide is

sensitive to breakdown by UV radiation. No more than one application of Admire Pro can be used per season. However, Admire Pro (and other generics) may be used in the same field as long as the total a.i. applied does not exceed 0.5 lb/A.

Oriental Beetle Mating Disruption

As an alternative to insecticides, we recommend the use of mating disruption for oriental beetle control. Dispensers (see picture), containing the oriental beetle sex pheromone, are now available to growers. These dispensers are being sold by AgBio:

Mr. Jan Meneley, Ph.D.
AgBio Inc.
9915 Raleigh St.
Westminster, CO 80031
www.agbio-inc.com
ph 303-469-9221
fx 303-469-9598

To use, simply attach the dispensers to a lower blueberry branch at a density of 20-40 dispensers per acre in a grid pattern, depending on the size of the area to be treated. Please see label for information on restrictions, spacing, timing, etc. Below are instructions on how to space the disruptors through blueberry fields.

The price of each dispenser is \$ 2.45 or \$ 61.25 for a package of 25.



Retrievable AgBio dispensers

Blueberry Maggot (BBM): As of June 12, no BBM adults have been seen in the traps that we have up. Insects are arriving a little later than usual this year, but we expect them soon. *Life Cycle.* There is one generation per growing season. BBM overwinters in the soil below blueberry bushes enclosed in a brown puparium buried one to two inches deep in the soil. Pupae lay dormant until environmental conditions become suitable to emerge as adults (early through mid-June). Peak emergence and migration from wild hosts continues from mid-July through mid-August. Female blueberry maggot flies do not begin laying eggs until 10 days after emergence, typically corresponding to when the blueberry fruit turns blue. Adult females live for about 30 days, feeding on nectar, dew, and honeydew. Female flies lay one egg per berry under the fruit skin, which hatches in five to seven days. Maggots feed for about three weeks inside ripening and harvested fruit. The full-grown larva is about 7/16 to ½ inch long and white. The body is tapered, with an indistinguishable head at the narrow end. As the larvae mature, infested fruit become soft and watery, and drop to the ground. The cycle is perpetuated for the following year as larvae then pupate in the soil under the bushes from which they have dropped. Pupae may remain in the soil for up to 2 to 3 years.

Monitoring and Management. Determining the onset of adult fly activity is essential to the control of BBM as protective sprays must be applied in the 7 to 10 day period before oviposition begins. Regular monitoring of blueberry maggot emergence is done with yellow baited sticky traps. A trap and lure system has been developed that increases blueberry fly capture. Pherocon AM yellow sticky boards baited with ammonium acetate work effectively in monitoring blueberry maggot flies. Traps should be hung in a “V” orientation within the top 6-8” of the bush canopy, not above it, with the yellow surface facing down (see photos). Sometimes this

means cutting away a little foliage so it doesn't stick to the trap. If the trap is hung above the foliage then fewer to no maggot flies will be caught. The traps should ideally remain open at a 90° angle. As the trap gets wet, it loses form and gets heavier. Use of a # 14 or 12 wire in place of the plastic coated

wires that come with the traps will help maintain proper orientation and shape. Traps should be placed at least a week before first flies are expected to emerge (early June). Traps should also be changed every 2 weeks, since the ammonium acetate will volatilize off the traps. Place traps on field borders near wooded areas, with a few traps in the field interior.



Trap Orientation and Placement - Upside down tent or "V" in top 6" of canopy

Blueberry Maggot Insecticide Options

Material	Rate/A	REI	PHI	Rating
Diazinon 50W	1 lb	5 days	7 days	G
Imidan 70WSB	1.33 lb	24 hr	3 days	E
Lannate 90SP	1 lb	48 hr	3 days	G
Malathion 8	1.5 pt	12 hr	1 day	G
Sevin 80WSP /4F	1.5 lb / 3 pt	12 hr	7 days	G
Asana XL	8 oz	12 hr	14 days	G
Danitol	10 2/3 – 16 oz	24 hr	3 days	G
Hero	4 – 10.3 oz	12 hr	1 day	G
Provado 1.6F	6–8 oz	12 hr	3 days	G
Actara	4 oz	12 hr	3 days	G
Assail 30SG	4.5 – 5.3 oz	12 hr	1 day	E
Rimon	20-30 fl oz	12 hr	8 days	G
Delegate	6 oz	4 hr	3 days	F
Surround	25 lb	4 hr	day of harvest	suppression
Entrust	2 oz	4 hr	3 days	suppression
GF120	20 oz	4 hr	day of harvest	F

E=excellent, G=good, F=fair, suppression=suppression only

Assail, Provado, Actara, Rimon, and Delegate are reduced-risk/OP replacement products.

Surround, Entrust, and GF120 are organically-approved insecticides.

Blueberry Trap Counts – Atlantic County

Week Ending	CBFW	BBM	
5/24	1.2		
5/31	6.0		
6/7	0.33	0	

Blueberry Trap Counts – Burlington County

Week Ending	CBFW	BBM	
5/24	2		
5/31	0.13		
6/7	0.25	0	

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June 9, 2014

Vol. XXX, No. 9

BLUEBERRY BULLETIN

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

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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: _____

The Blueberry Bulletin
Weekly Newsletter
Published By

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