

Fruit IPM for the Week Ending 6/11/14

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Peach

Catfacing Insects and Native Stink Bugs: As we move into summer heat, catfacing insects become a primary target, especially in dry seasons. Many orchards have ground covers composed of flowering weeds and clover, which makes an ideal habitat for catfacing insects. These insects breed and multiply in the ground cover, and then find their way to the fruit. Wet springs that help make a healthy ground cover (especially if it's weeds), followed by prolonged dry periods can often aggravate catfacing damage, since the insects often move from the weedy ground covers to the fruit in the trees. Damage may appear as water soaked areas, bleeding spots on the fruit, or depressed calloused tissue. Because there are pit injury and bacterial spot symptoms present in some orchards, be sure to distinguish between those symptoms and catfacing. Fresh catfacing injury will appear as single or multiple bleeding sites on the fruit surface. Cutting into the bleeding area will reveal a shallow injury. Injured pits will appear similar to catfacing injury, however if the fruit is cut the injured area will appear as a "water-soaked" area extending through to the pit. Bacterial spot often begins with multiple bleeding spots that will eventually heal over leaving blackened spots on areas with broken skin. Orchard blocks that are next to grain fields or wooded edges can be particularly susceptible to stink bug damage.

Brown Marmorated Stink Bug (BMSB): Adults are occasionally seen during orchard scouting and are present in some of our traps. Numbers are low and spotty, but they do tell us that the insect is present and now reproducing. Knock down materials will be required for the remainder of the season in orchards with BMSB populations. While Thionex is still labeled in apples, it can no longer be used in peaches. This material is being phased out, and tolerances are no longer legal in peaches. **DO NOT USE THIONEX IN PEACHES.**

Oriental Fruit Moth (OFM): At this time of year, particular attention should be paid to non-bearing orchards that may not be receiving regular insecticide applications. OFM can build up in non-bearing blocks and create pressure for production blocks. Timing for second brood OFM applications using OP's, Carbamates, Diamides, and Pyrethroids are as follows:

OFM 2 nd Generation Timing			
County/Region	Degree Days by 6/10 base 45	Insecticide Type	
		Conventional	Intrepid / IGRs
Gloucester - Southern	944	1 st – 6/17-19 2 nd – About 6/28-30	1 st – 6/15-17 2 nd – About 6/27-29
Hunterdon - Northern	741	About July 10-13	About July 6-7

Tufted Apple Budmoth (TABM): Timings for TABM control are outlined below. Where populations are high, observe timing recommendations.

	Conventional, Diamides, Delegate	Conventional, Diamides, Delegate	Intrepid, Rimon	Bt
County Area	AM – 4 middles	EM – 2 completes	EM – 2 completes	EM – 2 completes
Southern	3 rd 6/13-14; 4 th 6/18-19	2 nd 6/13-17	2 nd 6/12-16	2 nd 6/13-17
Northern	1st 6/11-12; 2nd 6/16-17	1st 6/12-14	1st 6/12-17	2 nd 6/14-17

Thrips: Looking ahead to early varieties and thrips - Unless Delegate is used for TABM or OFM control, susceptible early varieties like Easternglo, PF-5, and Sentry should be scheduled to receive a thrips treatment from 1 to 2 weeks preharvest. Delegate @ 6-7 oz/ac is effective for thrips. The PHI varies for different stone fruit crops, but is set at 1 day for peaches and nectarines. The addition of a non-ionic surfactant can help improve control. Lannate SP @ 1#/A (or LV @1.5-3 pt/A) may still be effective in some orchards. Prolonged periods of dry weather favor thrips buildup more than the current weather pattern, which at the moment is not favorable for thrips populations to build.

Brown Rot; Anthracnose: Thundershowers and overhead irrigation done around periods of warm temperatures and high humidity can provide good opportunities for brown rot infection, particularly in blocks with damaged fruit or blossom blight. An improved fungicide schedule should be initiated 2 to 3 weeks prior to the first picking.

Bacterial Spot: More bacterial spot is being seen on susceptible varieties. This means inoculum is building. Fruit infections from the 5/24 event are now appearing. Fruit infections from the 6/4 rain event should appear in about 2 weeks. Be sure to keep copper in cover sprays at the highest rate you can safely apply (1.5 ozs.), and apply oxytetracycline products around rain events. Tank mixes with copper and captan may cause phytotoxicity if the skies have been overcast for a few days or if applied in concentrate sprays.

Apple

Codling Moth (CM): Degree day timed treatments are over in all counties. **Treatments ARE NOT OVER if you still have trap counts that exceed 5 males per trap.**

Aphids: Spirea and Apple (green) Aphids: Populations continue to build, and are at treatment levels in some orchards statewide. Our treatment threshold is set at 50% of the terminals infested with healthy colonies. Now that **BMSB** is present in orchards, growers will start targeting these early **Low Populations of BMSB**. Use of effective neonicotinoids at this stage such as Belay or Actara can be helpful. These treatments will also reduce aphid populations.

Summer Diseases – Sooty Blotch and Fly Speck, White Rot and Black Rot, and Bitter Rot, are critical diseases to control at this time. Topsin-M, Sovran Pristine or Flint can be included for control. Good coverage is essential for control. Topsin, and Flint are considered weak for Bitter Rot control, and last year with June's extreme rainfall we had control failures with Sovran. These materials should be combined with captan or ziram to improve bitter rot control.

Fire Blight: Fire Blight has shown up in southern counties at moderate to severe levels, however it is not yet widespread. If you have not cut out fire blight strikes yet, now through July is a good time to do so. Make cuts into wood that is at least two years old and leave 4 to 6 inch naked stub in 2-year or older wood. By leaving a stub, the canker forms in it, and the stub can be cut off with the canker during the next winter. Sterilizing tools is not necessary if you are practicing this 'ugly stub' pruning method.

Pear

Pear Psylla: Pear Psylla continues to lay eggs, and nymphs are hatching. Treatments that target pear psylla are intended to kill these young softshell nymphs at this time of year. In addition to insecticide applications, Summer pruning and suckering of trees will help to suppress the buildup of psylla.

Grapes

Grape Berry Moth (GBM): Many growers will treat for GBM about 10 days after bloom. However, the more critical timing is to treat the second generation. We set the phenology model biofix for May 28. Given the 810 degree days (base 47F⁰) needed for treatment of the second generation, we forecast that the first applications for generation 2 will be early July for southern counties. A summary of the first generation flight is in the table below. Feeding on early fruit set can also be seen below – note GBM egg (left) and hanging larva (right). Injury from the first generation will be visible in one to two weeks.



Grape Berry Moth Trap Captures 2014

Date	
6/7	2

Scouting Calendar

The following table is intended as an aid for orchard scouting. It should **not** be used to time pesticide applications. Median dates for pest events and crop phenology are displayed. These dates are compiled from observations made over the past 5-10 years in Gloucester County. Events in northern New Jersey should occur 7-10 days later.

Pest Event or Growth Stage	Approximate Date	2014 Observed Date
1/4" Green Tip Red Delicious	March 27 +/- 10 Days	April 11
Tight Cluster Red Delicious	April 8 +/- 10 Days	April 17
Pink Peach (Redhaven)	April 10 +/- 9 Days	April 13
Pink Apple (Red Delicious)	April 13 +/- 11 Days	April 24
Full Bloom Peach (Redhaven)	April 16 +/- 7 Days	April 21
Full Bloom Apple (Red Delicious)	April 20 +/- 9 Days	May 3
Petal Fall (Redhaven)	April 21 +/- 9 Days	May 2
Petal Fall (Red Delicious)	April 27 +/- 13 Days	May 11
Shuck Split (Redhaven)	April 29 +/- 7 Days	May 11
Second generation Pear Psylla Hatch	May 29 +/- 3 Days	June 6
SJS Crawlers-first generation	June 6 +/- 4 Days	June 2
Pit Hardening	June 19 +/- 5 Days	Not yet observed

Tree Fruit Trap Counts - Southern Counties

Week Ending	STLM	TABM_A	CM	AM	OFM-A	DWB	OFM-P	TABM_P	LPTB	PTB
4/13					0		0			
4/20	14				5		0			
4/27	0				51		1			
5/3	19				51		1			
5/10	41	0	3		36		5	0		
5/17	21	2	12		15		6	4	27	
5/24	1	10	6		6	3	1	7	34	
5/31	1	4	3		10	53	2	28	52	
6/7	1	27	5		9	19	2	21	38	

Tree Fruit Trap Counts – Northern Counties

Week Ending	STLM	TABM-A	CM	AM	OFM-A	DWB	OBLR	OFM-P	TABM-P	LPTB	PTB
4/13	1										
4/20	2							0			
4/27	71.5		0					1.1			
5/3	41		0.0		3.5			1.3			
5/10	91.5	0.0	0.0		31			18.2	0.0	0.0	
5/17	67.5	0.0	4.5		57.7			21.4	0.0	0.0	
5/24	35.5	2.3	5.6		12.7			4.5	1.4	10.4	0
5/31	18.3	5.6	9.3		4.5	1		2.3	6.4	25.8	0.3
6/7	12.5	22.1	7.8		0.3	0.5	0	1	23.9	21.8	0.2

Blueberry

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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.

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.

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).

Oriental beetle adult



Oriental beetle 3rd instar larva



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



Retrievable AgBio dispensers

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.

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 1/2 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



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	