

Fruit IPM 7/29/14

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Oriental Fruit Moth (OFM): Trap counts are very low, indicating very low pest pressure on most farms. The spray timing for the third brood started over the last 10 days, with the second of 2 applications due at the end of the month in southern counties. The first of two treatments will be due in northern counties at the end of the month. Timing for third brood OFM applications are as follows:

Third Brood OFM Timing Dates				
County/Region	Degree Days by 7/27 base 45	Insecticide Type		
		Conventional	Intrepid / IGRs	Diamides
Gloucester - Southern	2291	1 st – past 2 nd – 7/30	1 st – past 2 nd – 7/31	1 st – past 2 nd – 7/29
Hunterdon - Northern	2040	1 st – 7/30-8/3 2 nd – About 8/12-8/14	1 st – 7/28-29 2 nd – About 8/10-8/12	1 st – 7/27-8/1 2 nd – About 8/9-8/12

Tufted Apple Budmoth (TABM): Timings for second generation TABM control are outlined below. Some flight is still present from the first generation. Trap captures should start to increase gradually as adults emerge. These adults will mate and lay eggs, which hatch and turn into second brood larvae. Sprays will target adults and hatching second brood larvae. There will be considerable overlap with TABM and Codling moth (CM) timing on apple. Since CM is almost guaranteed to be pest requiring control, then most attention should be devoted to that insect in apples.

	Conventional, Diamides	Conventional, Diamides	Intrepid, Rimon	Bt
County Area	AM – 4 middles	EM – 2 completes	EM – 2 completes	EM – 2 completes
Southern	1 st – 8/2-8/3; 2 nd – 8/7-8/9	1 st – 8/4-8/7	1 st – 8/7-8/9	1 st – 8/7-8/9
Northern	About mid August	About mid August	About mid August	About mid August

San Jose Scale (SJS): Second generation crawlers have been observed in southern counties. Effective materials include Assail, Actara, Belay, Diazinon, Esteem, Centaur, and Movento. See the production guide for rates. Check the label for use restrictions, especially for the neonicotinoids, which have highly restrictive maximum amounts per season. Note that the Esteem label instructs users to apply at the beginning of crawler emergence, while Centaur users should apply that product at peak crawler emergence. Movento should be applied at the start of crawler emergence, since it takes about a week to become fully active. Peak crawler emergence usually occurs sometime in late July or early August in southern counties. Diazinon is limited to one in-season application per season, and may not be as effective as the other listed materials.

Peach Scab: Peach scab is appearing in some blocks. Scab seen now is the result of infections that occurred 6 or more weeks ago. While some further scab infection is possible in orchards that had high levels of infection last year, this is the exception. For the most part scab treatments are over, and nothing more can be done for control this year.

Apple

Tufted Apple Budmoth: This is only a minor pest at the present time. We are between generations, however treatments will be due by late next week. See Peach Section above. In most cases, if you are using a diamide (Altacor, Belt, Voliam products, or Turismo), or Delegate for codling moth, you should be able to skip the early treatments for TABM.

Codling Moth (CM): After 2 complete CM treatments have been applied, then trap counts can be used as a guide to help determine the need for supplemental applications. Some orchards in southern and northern counties have had exceptionally high trap captures, and therefore need further treatment. This, combined with a stretched out second generation means growers should be particularly concerned with codling moth control. Applications using effective materials, such as the diamides and Delegate, should be continued. If multiple sprays of 1 chemistry were used for the first generation, then switch to another chemistry for the second generation. Try to use no more than 2 complete applications of the same chemistry per season.

Codling Moth Degree Day Timing						
	Application and Insecticide Type					
County Area	Rimon, Intrepid, Diamides, Delegate: 1150-1200DD 1450-1500DD			Standard Insecticides, 1250DD 1550-1600DD		
DD	1150	1200	1500	1250	1550	1600
Southern	Past	Past	Past	Past	Past	7/23
Northern	Past	Past	7/28	Past	7/30-31	8/2-3

Brown Marmorated Stink Bug (BMSB) and Available Section 18 Labeling: Both the high rate labels for dinotefuran (Venom and Scorpion) and the labels for bifenthrin (Bifenture and Brigade) are available for NJ peach and apple use against BMSB. Venom may be applied at 4 - 6.75 oz/A, and Scorpion 35SL may be applied at 8-12 oz/A. Venom and Scorpion can be used no closer than 7 days apart with a 3 day PHI. Bifenture 10DF can be used at 12.8-32 oz/A, Bifenture EC is used at 5.12-12.8 oz/A, and BrigadeWSB is used at 12.8-32 oz/A. Bifenture/Brigade applications cannot be used closer than 30 days apart, with a 14 day PHI.

European Red Mites (ERM): Mites have been troublesome in some orchards. Different miticides have different properties. Zeal or Envidor take a longer time to work than some other products, so those applications should be evaluated 7-10 days after application, or they should be used for early season and young populations. Mite populations that occur at this time of year usually respond best to fast acting materials that act on adults and immature stages of mites. These materials include Nexter, Portal/Fujimite, Kanemite, and Acramite. Slower acting

miticides are usually reserved for early in the season and used on young, emerging red mite populations. These include Apollo, Savey, Agrimek, Zeal and Envidor that work best on immature mite stages.

When using a miticide during the heat of the season on building populations, coverage is the name of the game. For troublesome mite populations, coverage includes coverage of the foliage as well as coverage of the mite. Miticides do not have to be applied dilute to the drip point, but the application does have to be thorough enough to cover the tops and bottoms of leaf surfaces in the inner and outer parts of the entire tree. This means that 13-14 ft trees on M7 may need 100 – 120 gal per acre. Larger trees or poorly pruned trees may take more spray volume. Know your dilute tree row volume. Do you have 100 GPA (**Dilute**) Tall Spindle trees, 300 GPA M111's for processing, or 200 GPA M7's? For adequate mite control you need to spray at no less than 2x concentration. This means for 200 GPA M7's (spaced 10x18 at 24 feet tall) 2x=100GPA as a minimum. **Note:** There is an excellent [online Tree Row Volume calculator](https://extension.umass.edu/fruitadvisor/fact-sheets/block-specific-sprayer-calibration-worksheet) developed by Jon Clements and Ron Perry online @ <https://extension.umass.edu/fruitadvisor/fact-sheets/block-specific-sprayer-calibration-worksheet>.

The addition of a spray adjuvant or 1qt of oil/A often helps with mite control, but make sure to read the label for the specific adjuvants that are permitted. Use recently manufactured materials, and those stored under proper conditions. Problems have been seen when old products that were subjected to poor storage conditions were used in the following seasons. Under high populations and no predators, alternate middle sprays do not work, but full cover (every middle) applications do work. If predatory mites are present at even .25 predators per leaf, then it is highly likely that they will help with mite control, and you can use an alternate middle application, then re-check 7 days later to see if you need further treatments. Do not use a single miticide chemistry more than once per season, and do not use any oils or penetrating surfactants (Regulaid, Silwet products) with or close to Captan applications. The following is a summary of available miticides.

Product	Active Material	Mode of Action	IRAC Class	Notes
Zeal	etoxazole	Mite growth regulator	10-10B	Mostly an ovicide with additional toxicity on early mite stages. Use early and on young populations.
Apollo	clofentazine	Mite growth regulator	10-10A	Active on eggs and other immature stages. No activity on adults. Use early on young populations.
Savey	hexythiazox	Mite growth regulator	10-10A	Active on eggs and other immature stages. No activity on adults. Use early on young populations.
Agrimek	abamectin	Nerve membrane activity	6	Breaks down rapidly in sunlight, but absorbed in new growth leaf tissue. Must be used early in season. The use of a spray penetrant is required. Do not mix with any sticker adjuvant.

Envidor	spirodiclofen	Lipid synthesis, mite, endocrine disrupter, mite growth regulator	23	Affects multiple stages including adults, but slow acting. Most effect on juveniles. Do not mix with oil. Not to be used as a quick knockdown material.
Acramite	bifenazate	Neuronal inhibitor but unknown mode of action	Un	Used against motile forms with some ovicidal activity. No rust mite activity.
Nexter	pyridaben	Blocks cellular respiration, METI inhibitor, complex 1	21A	Contact knockdown miticide effective on all motile stages.
Portal	fenpyroximate	Blocks cellular respiration, METI inhibitor, complex 1	21A	Contact knockdown miticide effective on all motile stages. Effective on juveniles and adults. Some effect on eggs. Wetting agents suggested. Do not use dormant oil.
Kanemite	acequinocyl	Blocks cellular respiration, METI inhibitor, complex III	20B	Similar to the 21A materials but active at a different cellular site. Effective on juveniles and adults. Some effect on eggs.
Kelthane	dicofol	Organochlorine, nerve poison, unknown mode of action.	Un	Older material but long lasting. Resistant populations may still exist. No ovicidal activity.
Vendex	fenbutatin oxide	Organo tin compound. Interferes with energy metabolism and ATP synthesis.	12B	Older material but long lasting. Resistant populations may still exist. No ovicidal activity.
Carzol	formetanate hydrochloride	Carbamate, acetylcholinesterase inhibitor, affects nerve system.	1A	Older contact material, fairly short lived. Do not apply after petal fall.

Grape

Grape Berry Moth (GBM): The next timing for grape berry moth sprays will be on or about 7/28-29. This is the timing to control the 3rd brood in southern counties (Atlantic, Gloucester and Salem Counties). The timing is also for the insect growth regulator, Intrepid, the Diamides (Altacor, Belt, Voliam mixes, and Turismo), and Delegate. The standard broad spectrum insecticides do not have as much longevity or residual, therefore should be applied 4-6 days later. These materials would include any of the pyrethroids, OP's or carbamates.

This is the generation that can do more damage than generations 1 and 2, since the fruit is closer to maturity. Berries that are injured by GBM larvae will be more susceptible to various bunch rot diseases. These may include Botrytis rot, or Rhizopus rot, but later may also include Penicillium and Aspergillus infections. GBM injury may eventually attract Drosophila fruit flies and increased incidence of Sour Rot from undesirable yeasts and bacteria. Injured and infected fruit can attract fruit flies close to harvest, and fruit flies may in turn serve to spread the pathogens.

Researchers in different states have developed action thresholds of anywhere from 5 to 10% cluster injury. However, most of this work was focused on juice grapes and not wine grapes. If you wish to use this as a guideline, then sample 4 sites of 10 clusters on 5 vines for a total of 50 clusters per sample site. Half the sample sites should be on the vineyard edge or near the woods if there is one. An injured cluster is defined if one or more berries shows any GBM injury. Remember that what you are looking at now will be from the 2nd brood larvae. When you look at the fruit in mid August then you are looking at 2nd and 3rd brood damage.

Grape Root Borer (GRB): Grape root borer adults have been flying for about a month, and just recently showed a flight peak. These are mating and laying eggs now. If you think that you have had a problem with grape root borer in the past, then you should not delay treatment. The most effective GRB treatment continues to be Lorsban (various formulations). Apply a maximum of 2.25 lb ai on the soil around the base of the plant. The material should be watered into the soil to help move it to the roots where larvae are present.

Grape Trap Captures 2014		
Date	GBM	GRB
6/7	2	
6/13	1.6	
6/20	2.5	
6/28	1.5	
7/5	4.3	2.3
7/13	6.2	7.5
7/20	.25	18.5
7/26	.5	14

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	
6/14	0	17	6		5	99	0	75	52	
6/21	0	13	4		5	88	0	11	10	
6/28	13	4	4		5	82	2	3	31	
7/5	0	1	2	0	11	30	0	1	10	
7/12	0	1	2	0	0	23	0	0	30	
7/19	6	1	3	0	0	42	0	1	23	
7/25	34	2	13	0	1	41	1	1	16	8

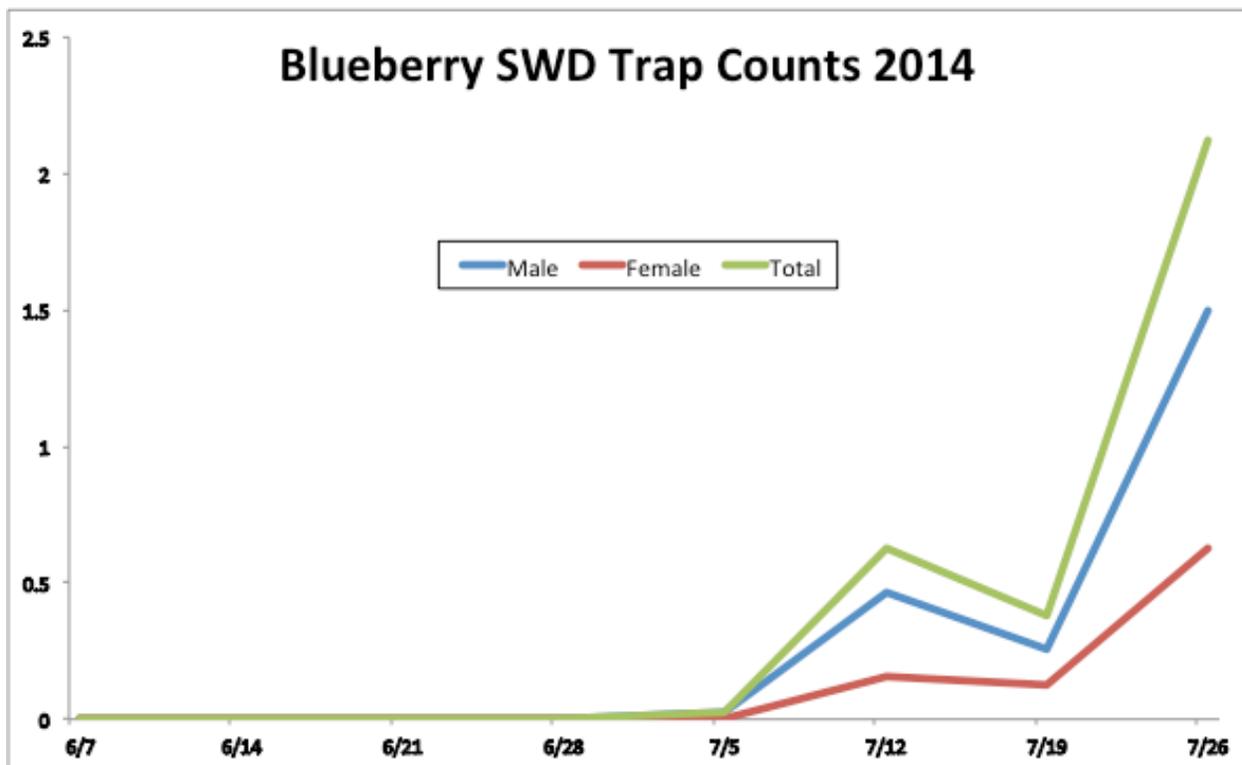
Tree Fruit Trap Counts – Northern Counties

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
6/14	19.5	39.9	4.9		0	0.3	0	0.2	39.2	15.4	1
6/21	110.3	54.7	3.5		0	0.8	7.5	0.3	47.7	12.5	1.3
6/28	92	42.4	2.1		0	4	16	1.6	43.7	7.2	1.7
7/5	143	32.8	1.8		0.8	2	3.5	5.9	15.7	7.7	3.5
7/12	110	14.7	2.4	0	1	1	1.5	4.1	7.1	7	3.3
7/19	74	4.7	3	0	0	4	1	3.3	1.9	6.7	1.4
7/25	116	0.7	4.6	0	0	1.3	0	1.6	1.2	4.6	0.2

Blueberry

Spotted Wing Drosophila (SWD): We have 30 trap locations throughout blueberries in Atlantic and Burlington Counties. In 24 of these locations we have comparison tests set up to look at the trap captures between the new Trecé duel lure trap, Suzukii[®] bait, and the standard apple cider vinegar (ACV). The remaining 6 locations have Trecé traps alone. As of 7/25 13 of 30 traps were positive for SWD adults. Most were single captures with some doubles. At one location a trap was found with 22 adults. Since we are collecting traps twice a week, this was a 3 day capture. This was the first day that any trap besides the Trecé units had captures. At that site the Suzukii trap had 2 flies and the ACV trap had 0. There was about a 2X increase in the number of traps that caught SWD in the later part of the week compared to the earlier part of the week. Fly populations are starting to increase just at the time when all Bluecrop are off. This means the Elliott are going to be more exposed to SWD populations than the earlier varieties. Growers with Elliott fields should take extra caution in keeping to a 7 day insecticide schedule as long as berries remain to be harvested. The graph of the most recent trap captures is below:

Larval infestations: Salt water tests for SWD larvae in fruit have all been negative except for 1 sample last week in fruit where spraying had stopped. This sample had 5 larvae per qt. of fruit. Therefore this indicates that even though trap counts have been low in even the best of traps, fruit infestation happens in the absence of a protective spray program or when spray intervals are stretched.



Sharpnosed Leafhopper: Leafhoppers adults have started to mature. The first adult trap captures were noted this past week in Burlington County. Remember that this is the insect that transmits Stunt disease, and since it's the adults that can fly from infected wild hosts to cultivated plants that stage is responsible for most disease transmission. Since this is a disease vector SNLH populations should not be tolerated. One or 2 post harvest treatments will be required as more adults mature. Future newsletters will outline the SNLH flight and insecticide timing.

Putnam Scale: Second generation crawlers have not yet emerged, but should be visible in the very near future. Therefore it is still too early to apply insecticides that target second generation scales.

Blueberry Maggot (BBM): BBM fly captures increased slightly this past week in Atlantic county. Populations are still very low on most farms. Most treatments being applied should cover BBM in unpicked fields.

Blueberry Trap Captures

Week Ending 7/26	BBM	SNLH
Burlington Co.	0.06	0.06
Atlantic Co.	0.33	0.0