

scaffolds

Update on Pest Management
and Crop Development

F R U I T J O U R N A L

July 5, 2011

VOLUME 20, No. 16

Geneva, NY

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MOTHS
A'SAP

ORCHARD
RADAR
DIGEST



Spotted Tentiform Leafminer

Approximate time 2nd generation
sap-feeding mines begin showing:
July 8 [G].

[M = Marlboro, Ulster Co.;
G = Geneva]

Roundheaded Appletree Borer

Peak RAB egg-laying period roughly: June 25
to July 9 [G].

Peak RAB hatch: July 2 to July 20 [M]/July 10
to 29 [G].

Codling Moth

CM development as of July 5: 1st gen adult
emergence at 100% [G] and 1st gen egg hatch
at 99% [M]/92% [G]. 2nd gen adult emergence
at 3% [M].

Lesser Appleworm

2nd LAW flight begins around: July 2 [M]/July
11 [G].

Obliquebanded Leafroller

Optimum sample date for late instar summer
generation OBLR larvae: July 4 [G].

Oriental Fruit Moth

2nd generation – first treatment date, if needed:
July 7 [G].

2nd generation – second treatment date, if needed:
July 8 [M].

Redbanded Leafroller

2nd RBLR peak catch and approximate start of
egg hatch: July 4 [M]/July 13 [G].



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PEST FOCUS

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BUG EYED

NY BROWN
MARMORATED
STINK BUG UPDATE
(Peter Jentsch,
Entomology, Hudson
Valley Lab, Highland)



❖❖ The impact of invasive insect species on NY tree fruit production dates back to the colonial propagation of fruit trees in Long Island and the Hudson Valley during the 17th century. These species, which continue to cause significant economic loss in commercial production, include such global notorieties as oriental fruit moth, European red mite, European apple sawfly, San Jose scale, codling moth, rosy apple aphid, and a host of other lesser known but sporadically damaging pests. With increasing global trade have come new immigrants such as the Emerald Ash Borer, Spotted Wing Drosophila, and Brown Marmorated Stink Bug, (BMSB), *Halyomorpha halys*. This last member of the group has caught our attention, causing us to second-guess predictions of whether, when, and how seriously it will make its way into NY orchards. Reports of this member of the pentatomid family, and the way it erupted throughout the Mid-Atlantic tree fruit industry last season, have made us all a bit contentious.

Since the summer of 2010, this insect has caused extensive damage to most major agricultural commodities south of the New York State border, achieving a high level of ill repute for several reasons. Relatively low numbers can cause economic injury, which caught many Mid-Atlantic producers off guard. Its reproductive potential is unhampered by natural biological controls that keep it in check in Korea, China and Japan, its native range. As such, it has been capable of occurring in very high populations, and overwintering very successfully in 2009–2010. Its ability to feed on a diverse forest, landscape and agricultural host plant complex provides various safe habitats and abundant food resources that supply sources of carbohydrates and proteins, which it uses for re-

producing throughout the season. The robust size of the BMSB adult provides it with significant body mass and prevents it from succumbing easily to reduced-risk insecticides. Its season-long pest status in tree fruit through continual migration into orchards, coupled with a low residual impact of most labeled insecticides, has resulted in continuous BMSB feeding and reproducing on tree fruit. Intensive late-season feeding, which this bug relies on to store reserves for the long overwintering period, cannot be easily prevented in orchards. Maximum seasonal limits for many active ingredients having the greatest effectiveness against BMSB often have already been reached during the growing

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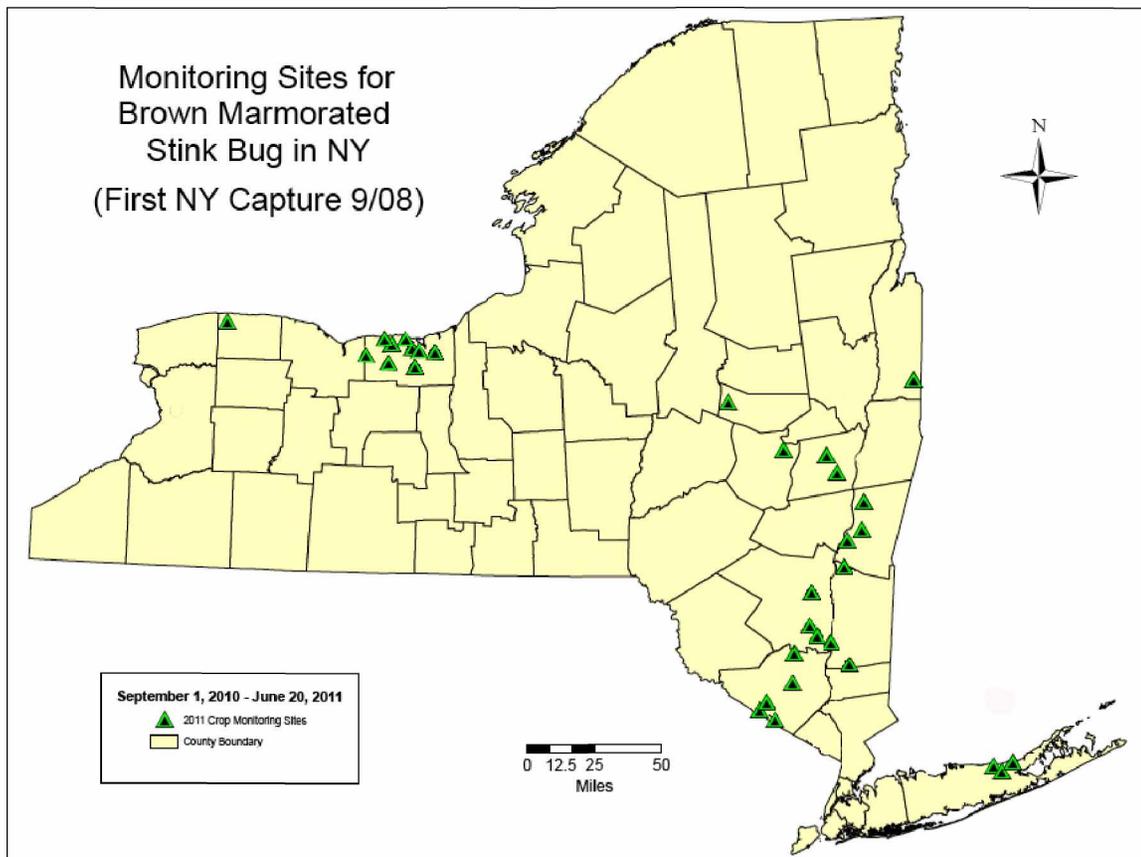
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season, or else the products cannot be used close enough to harvest due to PHI label restrictions, to control damage from late-season feeding.

The BMSB adult flies from overwintering sites to feed on deciduous trees such as American ash and various maple species in early spring. It begins to make its way to tree fruit during fruit set. During this period, is it very difficult to detect using conventional pheromone lures or black light traps. BMSB from both the overwintering and 1st summer generations continue migrating into tree fruit throughout the season. As the season progresses, adults appear to become more attracted to black light traps, while nymphs emerging in the orchard tend to be attracted to pheromone traps. Late in the season it has been observed moving in large numbers from one host to another, such as from soybean fields during harvest to orchards, or from woodlands to sweet corn.

Given the potential threat the BMSB poses to NY agriculture, we have begun a 3-year statewide monitoring program, funded through ARDP, NY Ag & Markets, CAPS and USDA SCRI, to detect the establishment of baseline populations in both urban and agricultural landscapes. We began during the fall and winter of 2010, submitting a "Most Wanted" article in regional print and digital newspapers throughout the Hudson Valley, and requesting BMSB specimens from homeowners. We received over 377 specimen submissions, from 186 individual locations in 64 distinct zip code locations, and representing 14 counties throughout the state; 65% from Ulster, 14% from Dutchess and 10% from Rockland Counties. The distribution map is located at the Hudson Valley Regional Fruit website, <http://hudsonvf.cce.cornell.edu/bmsbl.html>. There are presently 38 pheromone traps and 10 black light traps set up in multiple commodities throughout the Hudson Valley and in fruit growing regions of WNY (represented in the map be-

continued...





low). An additional 32 pheromone traps are to be set up in the grape growing regions of NYS. Alongside trapping efforts, we have begun border and interior scouting of commodities to determine the presence of adult BMSB. In these locations to date, we have seen only 1 BMSB egg cluster on grape, 3 BMSB egg clusters on apple (these were only at the Hudson Valley Lab), and 3 adults – 1 in Marlboro and 2 in Highland. To date, we have not seen any populations that would warrant control measures. However, we have been receiving inquiries and samples of insect look-alikes, primarily as egg specimens, which confirm the presence of predatory native stink bugs in orchards during the early part of the season.

Work conducted in laboratory studies at Penn State (<http://extension.psu.edu/fruit-times/bmsb-slide-presentation>), USDA-ARS Kernysville WVA (<http://www.bmsb.opm.msu.edu/wp-content/uploads/2011/05/BMSB-Organic-Insecticides-Summary-1.pdf>) and Virginia Tech (<http://www.northeastipm.org/neipm/assets/File/BMSB%20Resources/ESA%20Eastern%20Branch%202011/04-Insecticide-Toxicity-Data-from-Virginia-and-Research-Plans-in-2011.pdf>) have shown both topical and feeding activity of currently registered insecticides. In field-based applications on apple, lab bioassay studies conducted at the HVL employed materials that have shown very high topical efficacy levels on adults (Note: refer to Scaffolds Issue No. 4, April 11, 2011, for a list of BMSB management options approved in New York State). We used 24-hour old residue of insecticides

applied to plots of ‘Ginger Gold’ apples and foliage. These demonstrated only moderate to low levels of residual efficacy 24 hours after application. The lack of significant insecticidal residual effectiveness against BMSB should be noted, so as not to make applications against BMSB unless adult populations are present in damaging numbers. There is no data to suggest that BMSB damage can be prevented using insecticide residues beyond 3–5 days, as we do with plum curculio or apple maggot.

If you are seeing stink bugs in the field and want to confirm the insect's identification, you can send specimens to the BMSB Project, Cornell's Hudson Valley Lab, P.O. Box 727, Highland, NY 12528 along with the application form from the website link <http://hudsonvf.cce.cornell.edu/bmsb1.html>. We will be able to reply quickly if you provide an e-mail address. If you have an iPhone, you can submit a focused and clear image to pjj5@cornell.edu, from which we can obtain GPS coordinates and identifying features.



TERMINAL REPORT

RED, WHITE, AND
OBLIQUE
(Art Agnello,
Entomology, Geneva)

Woolly Apple Aphid

❖❖ Just a repeated advisory to check your canopy sites for colonies of woolly apple aphids, which have been noted with increasing frequency in many orchards. They are now being observed moving into the outer portions of the apple canopies to establish aerial colonies. Green aphids, which are also present, will not be as difficult to control as woollies; depending on the species in question, your (or your buyers') tolerance for the insects, their honeydew, and damage, insecticide options include Assail, Beleaf, Diazinon (woolly aphid only), Movento, Provado, Thionex, pyrethroids and others. Refer to the June 6 issue of Scaffolds and the Recommends for an overview of some control options.

Obliquebanded Leafroller

Populations of OBLR have not been very high the last couple of years, but for whatever reason, they seem to be rebounding with renewed vigor in WNY this season. Pheromone traps in some Wayne Co. orchards have been catching upwards of 50–60 moths per week, and larger larvae are easily able to be found in growing terminals of certain apple varieties. From the generalized biofix period spanning June 1–14 (Hudson Valley to WNY, respectively), we have accumulated anywhere from about 460–850 DD base 43F. This represents egg hatch as being 25% to over 90% complete, and the timing for the larger (IV instars and beyond) caterpillars that are large enough to start doing noticeable damage to foliar terminals and, ultimately, the young fruits. Moreover, with the predicted week-long stretch of continued warm temperatures, we will be accumulating an additional 30 DD or so every day, which will further boost the progress of larval development. Sampling for evidence of a treatable OBLR infestation is recommended now

in orchards where a preventive spray has not already been applied; see p. 69 in the Recommends.

Repeating our treatment guidelines from last week: Delegate, Belt, Altacor and Proclaim are our preferred choices in most cases; Rimon, Intrepid, a B.t. material or a pyrethroid are also options, depending on block history and previous spray efficacy against specific populations. If the average percentage of terminals infested with live larvae is less than 3%, no treatment is required at this time, but another sample should be taken three to five days (100 DD) later, to be sure populations were not underestimated. ❖❖

PEST FOCUS

Geneva: **Peachtree borer** 1st trap catch 6/16.
Spotted tentiform leafminer 2nd flight beginning.
Obliquebanded leafroller estimated start of egg hatch in DD base 43°F after biofix - 360 DD; 25% egg hatch - 450 DD; 50% egg hatch - 630 DD.
Current DD43 since biofix (June 13): 563.

Western NY: **Obliquebanded leafroller** DD43 since biofix (June 7): Sodus, 678; Williamson, 695; Farmington, 660. Albion (June 9 biofix): 640. Appleton North (June 14 biofix): 459.

Highland:
Potato leafhopper feeding observed. **Green apple aphid** feeding on foliage and fruit. **Leafroller** feeding damage observed on fruit.

INSECT TRAP CATCHES (Number/Trap/Day)						
Geneva, NY				Highland, NY		
	<u>6/23</u>	<u>6/27</u>	<u>7/5</u>		<u>6/27</u>	<u>7/5</u>
Redbanded leafroller	0.0	0.1	0.1	Redbanded leafroller	3.0	3.0
Spotted tentiform leafminer	8.5	16.6	17.0	Spotted tentiform leafminer	68.5	63.2
San Jose scale	0.5	0.0	0.2	Oriental fruit moth	3.2	5.5
Oriental fruit moth	0.3	0.0	0.1	Lesser appleworm	0.2	0.1
Lesser peachtree borer	0.0	0.0	0.0	Codling moth	1.9	1.5
American plum borer	0.2	0.4	0.1	Obliquebanded leafroller	6.9	4.2
Pandemis leafroller	0.0	0.3	0.0	Apple maggot	0.1*	0.1
Obliquebanded leafroller	0.0	0.0	0.4			
Peachtree borer	0.0	0.0	0.0			
Apple maggot	–	0.0	0.0			
Sodus Center trap catches:	<u>6/24</u>	<u>6/28</u>	<u>7/1</u>			
Oriental fruit moth	0.0	3.5	0.0			
Lesser appleworm	2.0	0.0	2.0			
Codling moth	3.0	0.0	2.0			
* first catch						

UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1–7/5/11):	1621	1070
(Geneva 1/1–7/5/2010):	1750	1155
(Geneva "Normal"):	1514	958
(Geneva 1/1–7/11 Predicted):	1799	1206
(Highland 1/1–7/5/11):	1742	1134
<u>Coming Events:</u>	<u>Ranges (Normal ±StDev):</u>	
Apple maggot 1st catch	1230–1632	785–1039
Apple maggot 1st oviposition punctures	1605–2157	1144–1544
Codling moth 1st flight subsides	1280–1858	811–1225
Codling moth 2nd flight begins	1569–2259	1023–1515
Comstock mealybug 1st flight peak	1505–1731	931–1143
Lesser appleworm 2nd flight begins	1418–2002	918–1326
Oriental fruit moth 2nd flight peak	1455–1995	924–1342
Redbanded leafroller 2nd flight begins	1244–1576	764–1028
Redbanded leafroller 2nd flight peak	1546–1978	991–1323
Pandemis leafroller flight subsides	1412–1644	880–1052
Obliquebanded leafroller 1st flight subsides	1612–1952	1048–1302
Spotted tentiform leafminer 2nd flight peak	1368–1798	852–1196
STLM 2nd gen. tissue feeders present	1378–2035	913–1182
American plum borer 2nd flight begins	1509–2043	997–1349
San Jose scale 2nd flight begins	1602–1948	1037–1307

NOTE: Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide.

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