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Update on Pest Management and Crop Development
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COMING EVENTS

	43°F	50°F
Current DD* accumulations		
(Geneva 1/1-6/27):	1295.3	797.8
(Geneva 1/1-6/27/2015):	1297.1	848.1
(Geneva "Normal"):	1343.7	840.3
(Geneva 1/1-7/4, predicted):	1465.8	919.3
(Highland 1/1-6/27):	1676.2	1049.6

Upcoming Pest Events – Ranges (Normal +/- Std Dev):

American plum borer		
1st flight subsides.....	1200-1488	745-967
Apple maggot 1st catch	1249-1663	796-1072
Codling moth 1st flight subsides...	1254-1824	999-204
Comstock mealybug		
1st adult catch.....	1308-1554	809-1015
Dogwood borer flight peak catch .	1462-1878	920-1244
Lesser appleworm		
2nd flight start.....	1412-2090	912-1392
Obliquebanded leafroller		
summer larvae hatch	1038-1460	625-957

Oriental fruit moth
2nd flight peak 1444-1960 920-1316
Pandemis leafroller
flight subsides 1435-1693 897-1105
Peachtree borer 1st catch..... 799-1331 462-824
Redbanded leafroller
2nd flight start..... 1219-1567 752-1020
Spotted tentiform LM 2nd gen
tissue feeding mines present 1378-2035 913-1182
White apple leafhopper
1st gen adults peak 1162-1414 765-987
*[all DDs Baskerville-Emin, B.E.]

Insect model predictions for Highland[H]/Geneva[G]
[Source: NEWA Apple Insect Models, http://newa.cornell.edu/index.php?page=apple-insects]
Obliquebanded Leafroller 50% hatch @630 DD43; 90% hatch @810 DD43 (currently @ 805[H] / 615[G]).

TRAP CATCHES
Geneva (Number/trap)

	6/16	6/21	6/24	6/27
Redbanded Leafroller	0.0	12.5*	1.5	9.0
Spotted Tentiform Leafminer	9.0	19.5	31.5	78.0
Oriental Fruit Moth	0.0	0.0	0.5	4.0

Lesser Apple Worm	2.0	1.0	1.0	1.5
Codling Moth	2.0	7.5	0.0	11.5
American Plum Borer	0.0	0.0	0.0	0.0
Lesser Peachtree Borer	3.0	3.5	0.0	0.5
Obliquebanded Leafroller	3.0	27.0	8.5	7.0
Pandemis Leafroller	1.5	8.5	1.5	3.0
Dogwood Borer	1.5	5.0	8.0	15.5
Peachtree Borer	1.0*	7.0	4.5	1.0

Highland (Peter Jentsch)

	6/6	6/13	6/20	6/27
Redbanded Leafroller	0.0	0.5	8.5	39.0
Spotted Tentiform Leafminer	60.0	96.0	327.0	255.5
Oriental Fruit Moth	1.0	0.0	0.5	3.5
Lesser Appleworm	4.0	1.0	7.5	21.5
San Jose Scale	0.0	0.0	0.5	10.0
Codling Moth	44.5	35.5	48.5	31.5
Obliquebanded Leafroller	21.0	41.5	62.5	63.0
Dogwood Borer	2.0	1.1	0.0	1.5
Brown Marmorated Stink Bug	0.0	0.0	0.0	0.0

* 1st catch

ORCHARD RADAR DIGEST

[Box Text: THE SUMMER WIND]

Geneva Predictions:

Roundheaded Appletree Borer

RAB Peak egglaying period roughly: June 23 to July 8.

Peak RAB egg hatch roughly: July 8-28.

Dogwood Borer

Peak DWB egg hatch roughly: July 29.

Codling Moth

Codling moth development as of June 27: 1st generation adult emergence at 98% and 1st generation egg hatch at 77%.

Obliquebanded Leafroller

Optimum sample date for late instar summer generation OBLR larvae: July 2.

Oriental Fruit Moth

2nd generation OFM flight begins around: June 27.

2nd generation first treatment date, if needed: July 5.

Redbanded Leafroller

2nd RBLR flight begins around June 27.

Peak catch and approximate start of egg hatch: July 12.

Spotted Tentiform Leafminer

Rough guess of when 2nd generation sap-feeding mines begin showing: July 5.

[Section: INSECTS]

SHOWING ITS STRIPES

(Art Agnello, Entomology, Geneva; ama4@cornell.edu)

[Box Text: FLY IN THE FACE]

We are again at the time of year to expect the first appearance of apple maggot (AM) flies in wild apple trees and abandoned orchards, which begins first in eastern N.Y.; western N.Y. could be about a week later, depending on what kind of temperatures and rainfall we get over the next week or two. Crop scouts and consultants have used traps to monitor AM populations for many years, but this approach, useful as it is, nevertheless is not recommended in all cases. Some orchards have such high or such low AM populations that monitoring for them is not always time-efficient. That is, in some blocks, sprays are necessary every season, often on a calendar basis; however, in some blocks the populations are so low that they are rarely needed at all. However, most commercial N.Y. orchards have moderate or variable pressure from this pest, so monitoring to determine when damaging numbers of them are present allows growers to apply only the number of sprays necessary to protect the fruit from infestation.

Sticky yellow panels were some of the first trpas for AM, and have been in use for over 50 years; these can be very helpful in determining when AM flies are present. The

insects emerge from their hibernation sites in the soil from mid-June to early July in New York, and spend the first 7–10 days of their adult life feeding on substances such as aphid honeydew until they are sexually mature. Because honeydew is most likely to be found on foliage, and because the flies see the yellow panel as a "super leaf", they are naturally attracted to it during this early adult stage. A few of these panels hung in such an orchard can serve as an early warning device for growers if there is a likely AM emergence site nearby.

Many flies pass this period outside of the orchard, however, and then begin searching for fruit only when they are ready to mate and lay eggs. That means that growers don't always have the advantage of this advance warning, in which case the catch of a single (sexually mature) fly indicates that a spray is necessary immediately to adequately protect the fruit. This can translate into an undesirable risk if the traps are not being checked daily and are used to signal an immediate response, something that's not always possible during a busy summer.

To regain this time advantage, more effective traps have been developed, which are in the form of a "super apple" — large, round, deep red, and often accompanied by the scent of a ripe apple — in an attempt to catch that first AM

fly in the orchard. Because this kind of trap is so much more efficient at detecting AM flies when they are still at relatively low levels in the orchard, the traps can usually be checked twice a week to allow a 1–2-day response period (before spraying) after a catch is recorded, without incurring any risk to the fruit. Research done in Geneva over a number of years indicates that some of these traps work so well that it is possible to use a higher threshold than the old "1 fly and spray" guidelines recommended for the panel traps. Specifically, it has been found that sphere-type traps baited with a lure that emits apple volatiles attract AM flies so efficiently that an insecticide cover spray is not required until a threshold of 5 flies per trap is reached.

The recommended practice is to hang three volatile-baited sphere traps in a 10- to 15-acre orchard, on the outside row facing the most probable direction of AM migration (towards woods or abandoned apple trees, or else on the south-facing side). Then, the traps are periodically checked to get a total number of flies caught; dividing this by 3 gives the average catch per trap, and a spray is advised when the result is 5 or more. Be sure you know how to distinguish AM flies from others that will be collected by the inviting-looking sphere. There are good photos for identifying the adults on the Apple Maggot IPM

Fact Sheet; check the web version at:
http://hdl.handle.net/1813/43071

In home apple plantings, it is theoretically possible to use these traps to "trap out" local populations of AM flies by attracting any adult female in the tree's vicinity to the sticky surface of the red sphere before it can lay eggs in the fruit. Research done in Massachusetts suggests that this strategy can protect the fruit moderately well if one trap is used for every 100–150 apples normally produced by the tree (i.e., a maximum of three to four traps per tree in most cases), a density that makes this strategy fairly impractical on the commercial level.

A variety of traps and lures are currently available from commercial suppliers; among them: permanent sphere traps made of wood or stiff plastic, disposable sphere traps made of flexible plastic, and sphere-plus-panel ("Ladd") traps. The disposable traps are cheaper than the others, of course, but only last one season. Ladd traps are very effective at catching flies, but are harder to keep clean, and performed no better than any other sphere trap in our field tests. Brush-on stickum is available to facilitate trap setup in the orchard. Apple volatile lures are available for use in combination with any of these traps. These tools are

available from a number of orchard pest monitoring suppliers, among them:

- Gempler's Inc., 100 Countryside Dr., PO Box 328, Belleville, WI 53508; 1-800-382-8473, Fax, 1-800-551-1128 <http://www.gemplers.com/product/R16102/Disposable-Red-Sphere-Traps-Olson-Box-of-100>
- Great Lakes IPM, 10220 Church Rd. NE, Vestaburg, MI 48891; 800-235-0285, Fax 989-268-5311 <http://www.greatlakesipm.com/balltraps.html - redball>
- Ladd Research Industries Inc., 83 Holly Court, Williston, VT 05495; 800-451-3406, Fax 802-660-8859 <http://www.laddresearch.com/apple-maggot-fly-trap-kit>

By preparing now for the apple maggot season, you can simplify the decisions required to get your apples through the summer in good shape for harvest.

[Section: GENERAL INFO]

EVENT ANNOUNCEMENTS

[Box text: FIELD REVEALED]

The Cornell Fruit Field Day will be held in Geneva on Wednesday, July 20. This event, being organized by Cornell University, the NYS Agricultural Experiment Station, CALS Fruit Program Work Team and Cornell Cooperative

Extension, will feature ongoing research in berries, hops, grapes, and tree fruit. All interested persons are invited to learn about the fruit research under way at Cornell University. Attendees will be able to select from tours of different fruit commodities. It will be based at the NYSAES Fruit and Vegetable Research Farm South, 1097 County Road No. 4, 1 mile west of Pre-emption Rd. in Geneva, NY. Admission is $50/person ($40 for additional attendees from the same farm or business). Lunch is provided, including beer tastings by **War Horse Brewing**. Pre-registration is required; walk-in registration may be available for a $10 surcharge on the day of the event. Please use the registration link below to register via credit card: http://events.cals.cornell.edu/ffd2016

CORNELL AND CCE EMPLOYEES get free admission, but please pre-register using the same link; there's a **Cornell Staff** tab at the top of the home page, which will take you to a page to pre-register and select your lunch option.
To participate as a sponsor, see the website page or contact Shelly Cowles (315-787-2274; mw69@cornell.edu).

NOTE: This year's IFTA (International Fruit Tree Association) Summer Study Tour is taking place in western NY and will focus on the Cornell Fruit Field Day, with complementary tours on the day before and after (July 19, Orleans Co. and

July 21, Wayne Co.) For more information on this tour, see their website: http://www.ifruittree.org

2016 Cornell Fruit Field Day
Program Presentation List

Tree Fruits (AM)

1 - Jaume Lordan, Poliana Francescatto - Strategies to control bitter pit
2 - Lailiang Cheng, Mario Miranda Sazo - Bitter pit of Honeycrisp: Physiological causes & mitigation strategies
3 - Poliana Francescatto, Terence Robinson - Precision chemical thinning – A useful and practical guide for apple growers
4 - Jaume Lordan, Poliana Francescatto, Terence Robinson - 2010 NC-140 Honeycrisp apple rootstock trial
5 - Andrew Landers, Tomas Palleja - Precision spraying the orchard
6 - Jaume Lordan, Poliana Francescatto, Terence Robinson - 2013 NC-140 Pear systems and rootstock trial
7 - Amelia Zhao, Kerik Cox - Fire blight management using biological control, SARs, and antibiotics
8 - Matthew Boucher, Kerik Cox, Greg Loeb - The role of insects in spreading fire blight in apples

Tree Fruits (PM)

1 - Susan Brown, Kevin Maloney - Cornell apple breeding

and genetic studies
2 - Betsy Bihn - FSMA Produce Safety Rule
3 - Katrin Ayer, Kerik Cox - Chemical management of apple scab and powdery mildew
4 - Kenong Xu - Apple genomics studies
5 - Amy Tabb - A robotic system for 3D tree architecture phenotyping
6 - Jaume Lordan, Poliana Francescatto, Terence Robinson - 2010 NC-140 Cherry systems and rootstock trial
7 - Juliet Carroll, Terence Robinson, Thomas Burr, Steve Hoying, Kerik Cox - Bacterial canker of sweet cherries
8 - Thomas Chao, Gregory Peck - *Malus* selections for potential use in cider production
9 - Art Agnello - Ambrosia beetle management trials

Berries (AM)

1 - Courtney Weber - High Density Training for High Tunnel Black Raspberry Production
2 - Amara Dunn, Kerik Cox - Management of multi-fungicide resistance in *Botrytis cinerea* of strawberry
3 - Greg Loeb, Dale Ila Riggs, Laura McDermott, Stephen Hesler - A potential push/pull strategy for managing spotted wing drosophila in red raspberry
4 - Stephen Hesler, Greg Loeb, Dong Cha, Peter Jentsch, Faruque Zaman, Juliet Carroll, Jan Nyrop - Monitoring spotted wing drosophila for management decisions in

summer raspberry and blueberry crops

5 - Anna Wallingford, Greg Loeb - A potential push/pull strategy for managing spotted wing drosophila in red raspberry

6 - Julie Carroll - Spotted wing drosophila update; hummingbird use, monitoring network

7 - Heather Grab, Katja Poveda, Bryan Danforth, Greg Loeb - Managing farms and landscapes for both biological control and pollination services

8 - Marvin Pritts, Kaspar Kuehn - Day-neutral strawberries/low tunnel production

Grapes & Hops (PM)

1 - David Gadoury - Management of powdery and downy mildew in hops

2 - Tim Weigle - Hops weed management; mite biocontrol

3 - Gary Bergstrom - Update on malting barley research

4 - Tim Martinson, Chrislyn Particka - Early leaf removal on Rieslings for manipulating cluster size at bloom

5 - Bruce Reisch - The *Vitis*Gen project: Impact on the development of new grape varieties

6 - Greg Loeb, Marc Fuchs, Miguel Gomez - Managing the spread of leafroll virus in *Vinifera* grape using insecticides and vine removal

7 - Andrew Landers, Tomas Palleja - Precision spraying in the vineyard

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