



## **“Fruit Facts” – Thursday, June 30 2022**

**Today Thursday June 30 at 7pm (EST) is the Third Nationwide Virtual Meetup about Labor and AG-Technologies – You can still register!**

The link to the one-page flyer is here: [https://rvpadmin.cce.cornell.edu/pdf/event\\_new/pdf96.pdf](https://rvpadmin.cce.cornell.edu/pdf/event_new/pdf96.pdf)

Please join us and heard from a group of **Pacific Northwestern** and **Northeastern fruit growers** describing a series of **AG-technologies** that they have used or tried at their respective farms in the past few years. The technologies to be discussed in the virtual meetup can be divided into **computer-vision/fruitlet counting technologies** and other **promising technologies** for **irrigation, nutrition, harvesting technologies, payroll apps**, etc.

**During the virtual meetup we will discuss the following:**

- What has made the biggest impact?
- What has been limiting and difficult to implement?
- How do you ground truth and know numbers are accurate?
- How do you determine it's helping? What's your break-even point?
- What other technologies or improvements would be useful? What is the most promising?

Please register for today meetup here: [bit.ly/orchardmeetups](http://bit.ly/orchardmeetups)

This series of virtual meetups (7pm, EST), are **Free!**

## **IPM Notes...Janet van Zoeren**

**Spotted wing drosophila** is at “sustained trap catch” (i.e., we have trapped swd two weeks in a row) on many farms. I highly recommend **anyone with any susceptible fruit to begin controlling for spotted wing now**. Fruits of susceptible crops can be attacked as soon as they begin to blush or soften. Susceptible crops include raspberries, blackberries, cherries, blueberries, peaches, and thin-skinned grapes.

Spotted wing can be managed using a combination of cultural and chemical practices. You will need to be diligent.

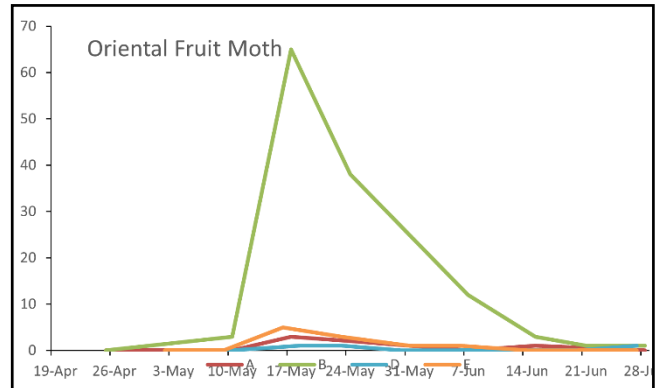
- **Sanitation.** Fruit should be harvested frequently and completely to prevent the buildup of ripe and over-ripe fruit. Unmarketable fruit should be removed from the field and either frozen, “baked” in clear plastic bags placed in the sun, or disposed of in bags off-site.
- **Cool berries immediately.** Chilling berries immediately after harvest to 32° – 34° F will slow or stop the development of larvae and eggs in the fruit. U-Pick customers should be encouraged to refrigerate fruit immediately to maintain fruit quality at home.
- **Open canopy and dripline irrigation.** Prune to maintain an open canopy, increase sunlight and reduce humidity. This will make plantings less attractive to SWD and will improve spray coverage. Repair leaking drip lines and avoid overhead irrigation when possible. Allow the ground and mulch surface to dry before irrigating.
- **Insecticide sprays.** Insecticide treatments should begin at first SWD trap catch when highly susceptible fruit crops, such as raspberries and blackberries, begin ripening. Insecticides should be re-applied at least every seven days and more often in the event of rain. Choose the most effective insecticides with pre-harvest intervals that work for your picking schedule. Rotate insecticides according to their modes of action. Quick reference guides:
  - [Tree Fruit and Grapes Guide](http://www.hort.cornell.edu/fruit/pdfs/swd/treefruit-grape-insecticides.pdf) <http://www.hort.cornell.edu/fruit/pdfs/swd/treefruit-grape-insecticides.pdf>
  - [Berries Guide](https://rvpadmin.cce.cornell.edu/uploads/doc_981.pdf) [https://rvpadmin.cce.cornell.edu/uploads/doc\\_981.pdf](https://rvpadmin.cce.cornell.edu/uploads/doc_981.pdf).

You can learn more about regional monitoring efforts for spotted wing, as well as tips for management of this pest, on the NYS IPM SWD webpage (<https://blogs.cornell.edu/swd1/>).

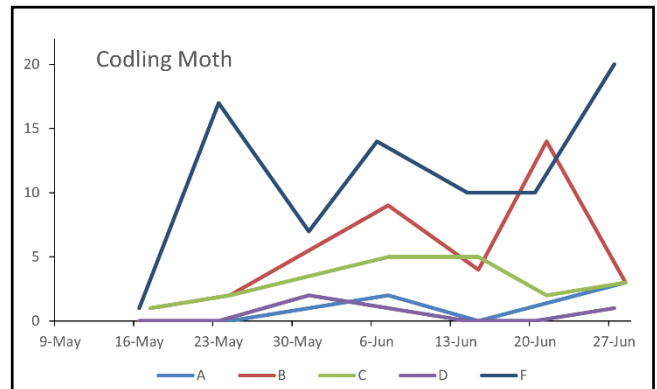
We need your input on the usefulness of the SWD blog posts. Please take a few minutes to complete our Value of the SWD blog Qualtrics survey about the SWD blog. This will help us improve our information delivery! Here is the direct url to the survey: [https://cornell.ca1.qualtrics.com/jfe/form/SV\\_3IOcXAL2ysRBSBM](https://cornell.ca1.qualtrics.com/jfe/form/SV_3IOcXAL2ysRBSBM).

### Internal Leps:

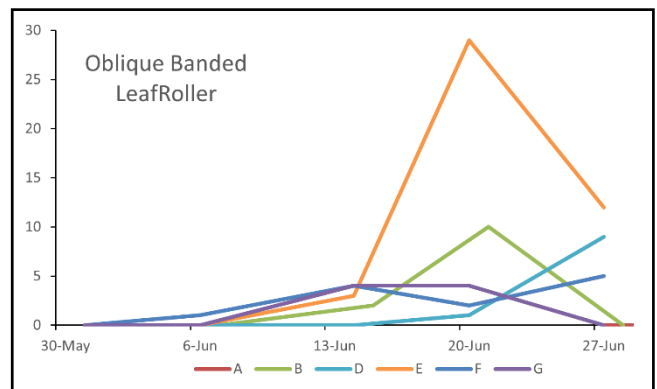
**Oriental Fruit Moth** trap catch is currently essentially zeros. **Codling moth** appears to have begun the second generation flight, although next week will make it more clear if this is truly the second generation, or just a continuation of that 'b peak'. **Oblique banded leafroller** DDs are now at ~350DD, so a lep cover spray may be necessary if populations are high in your blocks. However, in most orchards I am scouting this year, populations have not reached the ~15 per trap per week threshold for OBLR management.



**Wooly Apple Aphids** are showing up. The fuzzy colonies are usually found in the angle of a branch or twig crotch, or at pruning cuts. Some of the products that will help manage WAA include Assail, Beleaf, Senstar, Sivanto Prime, and Diazinon (if your market allows). **If you do find a WAA colony, please contact me – the Apple Rootstock Breeding Program in Geneva, NY is collecting individuals for genetic mapping of this pest.**



**Scab** lesions are beginning to show up in some blocks. If scab is present in your orchard, consider single-site products such as Aprovia, Cevya, Flint, Fontelis, Inspire Super, Luna Tranquility, Luna Sensation, Merivon, Miravis, Rally, Rhyme, etc.



**Bitter rot** management should begin about late June. ENY CHP recorded an excellent YouTube video with Srdjan Acimovic last summer, regarding the summer diseases:

- [Bitter Rot](#)
- [Sooty Blotch and Fly Speck](#)
- [Black Rot and White Rot](#)
- [Marssonina Leaf and Fruit Blotch](#)

**Fire Blight** continues to show up across the region. If you find oozing shoots, apply a labeled liquid copper (i.e. Previsto, CS 2005, Cueva, Badge SC) product to dry out the ooze. If you have a lot of FB in a block, you may want to consider applying prohexadione-calcium (i.e. Apogee, Kudos) at the highest rate for the planting (6-12 oz/100 gal, or 3-6 oz/100 gal for young orchards). This will shut down shoot growth, but may save the tree. Allow 5 days for the product to take effect, then prune out any shoot blight strikes. Contact me if you'd like a sample sent in for resistance testing.

**Powdery mildew** management continues until terminal bud set, which I have begun seeing at some orchard blocks.

### Pear.

**Pear psylla.** If you had any signs of psylla this spring, remove water sprouts from your pears trees in late June in blocks susceptible to or at threshold for psylla. This will remove their best summer food source, keeping populations in check.

Any questions about pest management, please call or email me: [jev67@cornell.edu](mailto:jev67@cornell.edu), 585 797 8368.

**Urgent irrigation call! - especially for those sites located in the West side of the city and with access to trickle irrigation (Figure 1):** Don't be afraid to turn on the irrigation in young blocks and mature plantings if rainfall doesn't occur at your site the next few days, or if hot conditions suddenly arrive in WNY.

- Focus irrigation on small fruited varieties like Gala, Empire, Macoun, and continue "babysitting" NY1 with frequent but small amounts of water applied at least 2-3 times per week, providing 2-3 gallons per tree as minimum.
- New Honeycrisp plantings (and those 'green trees' orchard projects to be established soon) without trickle should be watered with tanks and a hose, 2-3 times per week (same amount of water/tree as previously suggested).
- Please remember that any lack of rainfall coupled with a heat can affect growth of a weak tree and fruit growth rate at this stage.
- **Remember, if irrigation fails, fails nutrition (including the needed soil calcium uptake for Honeycrisp!).**



**Figure 1.** Honeycrisp, Gala, and NY-1 fruit producers, especially those located in the west side of Rochester, should not be afraid to turn on trickle irrigation in young blocks and mature plantings with the current drought being experienced in that part of our region. Please notice the good irrigation practices being conducted in a Honeycrisp block located in Medina this past Monday June 27.

**Know the Water Holding Capacity of your soils if you receive good rains at your site, hopefully!:** Under hot weather conditions, mature trees can use until one inch of water a week or even more. It depends also on soil type and rooting depth. Clay and loamy soils will hold more water than sandy soils (see next table).

Soil Type	Inches of Water per Foot of Soil Depth
Clay	2 - 2.5
Loam	1.5 – 2
Sand	1 – 1.5

**Increased water holding capacity is an important characteristic for high yields of high quality fruit in Western NY:** It is even more crucial in blocks without trickle irrigation.

- At the beginning of this 2022 summer, a mature spindle tree needs around 4-5 gallons of water per day to keep up with tree evapotranspiration needs.
- Water stress can lead to small-sized fruit and calcium disorders, like bitter pit in Honeycrisp.
- Young trees need only small @ 2-3 gallons/tree/day, 2-3 times per week, but frequent doses of water for additional tree growth this year.

**‘Honeycrisp’ fruitlet collection for peel sap analysis is planned to start on Monday July 11 (inland sites) and should be completed by Friday July 15 (lake sites) in the WNY region:** Early this week ‘Honeycrisp’ fruitlets collected in inland and lake sites averaged 41.68 gr/fruit and 37.4 gr/fruit, respectively (review Table 1). At this time of the year, fruitlets can grow at a rate of 1-1.5 grs/day (under ideal soil moisture conditions to satisfy tree evapotranspiration needs). A few key points to consider today:

- Growers should **target an average fruit weight of 55-60 gr/fruit for the Cornell peel sap analysis**
- The majority of the inland sites were at the 40-42 grs/fruit/site early this week
- A few inland sites with a very low crop load reached more than 50 gr/fruit
- Premier HC fruitlets weighed above 42 gr/fruit and were heavier than regular and colored strains of Honeycrisp
- We urge growers to monitor their blocks and collect samples at the optimal fruit weight as we approach the ideal timing for best peel sap results and future recommendations
- Due to the multiple effects of crop load (low/medium/high), tree health, vigor, rootstock, and current soil moisture conditions (very dry in the West side of the city at this time), fruit weight can vary considerable.
- Please review a coming statewide peel sap article in our CCE LOF newsletter describing this year’s efforts. Call us if you need any assistance with sample collection method or have any doubt next week (Mario, cell 315-719-1318; Craig, cell 585-735-5448).

**Table 1. ‘Honeycrisp’ fruit weights (gr/fruit) at several sites in WNY**

HC fruit Collection Dates	Average Fruit Weight (gr/fruit)	Location/IDs	Notes
June 27, 2022	45	Inland – NR45	Low CL
June 27, 2022	37.4	Inland – NR51	
June 27, 2022	34.2	Intermediate – PR2	
June 27, 2022	45.5	Intermediate – Wilson Burt Rd	
June 27, 2022	35.41	Intermediate – BLO, packinghouse	
June 27, 2022	38.83	Inland – Medina	
June 27, 2022	43.45	Inland – Bates Rd	Premier HC
June 27, 2022	35	Intermediate – Marshall Rd	
June 28, 2022	44.77	Inland – Fairville	
June 28, 2022	42.44	Inland – Cornell AgriTech B20R4	
June 28, 2022	42.32	Inland – Fairville	Premier HC
June 28, 2022	46.53	Inland - Fairville	Premier HC
June 28, 2022	51	Inland – JHS H2	Low CL
June 28, 2022	35.3	Lake – Brick Church Rd	
June 28, 2022	39.5	Lake – Clover Rd	

**Tart cherry growers should consider the use of ethephon to promote fruit loosening for mechanical harvest this week:**

- Ethephon loosens the cherries from the stem, which results in a gentler “shaking” of the tree to remove the fruit.
- Please remember that in the past, we have observed ethephon-induced damage in hot and dry weather. Ethephon can have excessive activity under hot and dry conditions, which can result in tree injury.
- If temperatures are in the high 70s to mid- or upper 80s and sunny during the 72 hours following application, this weather could be conducive for causing Ethrel damage; the magnitude of ethephon response is increased at higher temperatures following application.
- Tree vigor also influences the degree of response achieved by an ethephon application.
- Trees low in vigor or under stress due to drought, cold damage, San Jose scale infestation, disease, virus, phytotoxic injury, etc. will respond to a greater extent, and gumming and leaf abscission may result.
- Growers may choose to reduce rates in orchards that are stressed, particularly if temperatures will be higher with the potential to cause injury.

**Use of Ethephon to promote fruit loosening for mechanical harvest in WNY region.**

Timing	Product	Concentration Product	Rate of Formulated Product
<b>Tart Cherries</b>			
7-14 days before anticipated harvest	Ethephon	150ppm	0.5 pt/100gal Apply with a nonionic surfactant. Do not apply to weak trees under heat or moisture stress
<b>Sweet Cherries</b>			
7-14 days before anticipated harvest	Ethephon	300-450ppm	1-1.5 pt/100gal Apply with a nonionic surfactant. Do not apply to weak trees under heat or moisture stress

**Time to finish hand thinning Honeycrisp:** Fruitlets measured this week are now above 38-42mm in WNY, and are now at a point where we should finish hand thinning. Early hand thinning will help somewhat to mitigate biennial bearing in Honeycrisp, where floral initiation is earlier than the rest of the cultivars. Once you get through Honeycrisp, hand thinning will also improve fruit size in small fruited varieties like **NY-1 and Gala**. Take advantage of your platforms to get hand thinning done quickly and more efficiently this season.

**We recommend that you count total fruit per tree on 5-10 representative trees** in each block and reduce fruit number (via hand thinning, ideally with a platform) to the most profitable crop load (your targeted fruit number per tree). Hand thinning will be necessary in blocks where final fruit set (desired number of fruit/tree at harvest) is still relatively high in the tops of the trees.

**Avoid the common mistake of excessive crop loads in years 2 to 4 which leads to too little tree growth** (varieties differ in their biennial bearing tendency and this must be incorporated into the crop loads allowed on young trees).

Cultivar <sup>1</sup>	Growth Habit	Biennial bearing tendency	Crop load per tree after hand thinning
Honeycrisp <sup>2</sup>	Weak growing cultivar	Biennial	2 <sup>nd</sup> year: 12-18 apples 3 <sup>rd</sup> year: 20-35 apples 4 <sup>th</sup> year: 40-70 apples
Fortune, Fuji, Golden Delicious <sup>2</sup> , Jonagold, Mutsu, Spy	Strong growing cultivar	Biennial	2 <sup>nd</sup> year: 16-20 apples 3 <sup>rd</sup> year: 25-40 apples 4 <sup>th</sup> year: 65-80 apples
Gala, Empire, Mac, Rome, Idared	Medium growing cultivar	Annual (more reliable bearer)	2 <sup>nd</sup> year: 20-25 apples 3 <sup>rd</sup> year: 30-50 apples 4 <sup>th</sup> year: 80-100 apples

<sup>1</sup> For **NY1 trees** which had moderate or poor growth in the first year or were planted on a weak rootstock, these trees should be de-fruited because fruits will outcompete with overall tree and shoot leader growth for carbohydrates and water.

<sup>2</sup> Please remember that hand thinning in Honeycrisp @ 38-42mm is critical and should be done by now for good return bloom next year.

**What should you do at this moment if you intentionally delayed the hand thinning job for Honeycrisp until this week:** At this time the smallest fruit should be targeted for removal in the hand thinning process and quickly. Don't wait until the end of July because return bloom for next year will be affected even more.

**You can make a potentially big apple small but you cannot make a small apple big. Why?** Apple fruits grow first by cell division and then by cell expansion. The cell division phase continues for the first 5 to 6 weeks after bloom. Large fruit have more cells than smaller fruit, indicating that the fruit size potential is determined within 5 to 6 weeks after bloom.

- Fruit growth can still be limited after the cell-division phase by factors which will slow cell expansion, such as excessive crop load or drought (or a severe attack of European red mites).

- Fruit are weaker sinks than shoots, and the weakest fruits are more likely to drop, either in response to adverse environmental conditions (cloudy days and/or warm nights) or to a chemical thinner.
- You can make a potentially big apple small but you cannot make a small apple big.
- The smallest fruit should be targeted for removal in the hand thinning process if you have not done it yet.

**Leaf sampling collection for Honeycrisp starts tomorrow Friday July 1<sup>st</sup>:** In the last two years we have recommended that growers collect Honeycrisp leaf samples for nutrient analysis about one month earlier than traditionally suggested dates for other apple varieties in early to mid-August. This season the optimal timing for leaf sampling collection starts **tomorrow Friday July 1 through Sunday July 10 in WNY**. Specific dates for inland and lake sites may change based on crop load, rootstock choice, the onset/severity of zonal leaf chlorosis, etc. There are two reasons for this early leaf sampling:

- Honeycrisp trees typically stop their shoot growth by the third week in June, earlier than many other apple varieties.
- Development of zonal leaf chlorosis affects leaf nutrient concentrations, particularly leaf nitrogen status.

**This week we should start thinking about mechanical summer pruning of 2-D Tall Spindle Premier Honeycrisp trees:** We encourage growers to target their mechanical summer pruning time based on the fruit size characteristics of the apple cultivar instead of the exact number of leaves per shoot at a particular time during the growing season. This timing approach to mechanical summer pruning has become a more practical method. Therefore, for large fruited varieties like **Honeycrisp** (where we intentionally want to control or reduce an excessive fruit size at harvest) we recommend an “early” timing for mechanical summer pruning. Under current WNY weather conditions, a mechanical summer pruning program should be started for Premier Honeycrisp next week (after the summer solstice this past Tuesday).

- A “late” timing should be used for small fruited varieties like **NY-1** and **Gala** to avoid a negative effect on crop size reduction before harvest. Varieties like Gala, Ambrosia, NY-1, and NY-2 should be done approximately 2 to 3 weeks before harvest to facilitate the use of harvest platforms and/or equipment for harvest.
- Medium fruited varieties should be mechanically summer pruned after Honeycrisp and before Gala to have the same controlling effect on fruit size (from about July 15 until early August).

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 still possible. These recommendations are not a substitute for pesticide labeling. Please read the label before applying any pesticide. Copyright 2022. All rights reserved. No part of this material may be reproduced or redistributed by any means without permission. Cornell Cooperative Extension provides equal program and employment opportunities.

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