



Vol. 4, Issue 6  
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## Berry News

### Spring Berry "To Do" List

#### Blueberries

- Blueberry set looks SOOO much better than we thought it would back in early April. Early varieties are setting and they took the biggest freeze hit, but bloom and early set on mid-season varieties looks strong.
- Plan for bloom applications to prevent fruit molds. Botrytis blossom and twig blight can also be controlled at pink.
- Water is VERY important now as shoot development is occurring. 1-2" each week is mandatory.

#### Raspberries

- Raspberries are in full flower and growth looks strong. Blackberries unless they were on a swing arm trellis are mostly non-existent.
- Scout for twospotted mites – especially if you have raspberries in tunnels!!
- Water regularly! Caneberries don't need the same amount of water, but if you are hoping for good plant growth an 1" of water a week is recommended.



Raspberries that have tip burn likely caused by rapid onset of hot weather and lack of water. Photo courtesy of S. Schloemann, UMass.



Botrytis infecting blueberry blossoms. Photo courtesy of Ohio State University Plant Clinic

#### Strawberries

- Day Neutral strawberries and Earliglow are just beginning to ripen. Set looks decent but water will be needed unless you've been getting plenty of thunderstorms. Make sure to water regularly.
- Apply Botrytis gray mold cover sprays. 1-3 sprays will be needed throughout the bloom season – depending on the weather pressure. The mostly dry weather until last week helped, but now that humidity is up cover sprays are needed.
- As plants start to grow, watch for weak growing areas and check plants for weevil larvae, root rot and/or cold damage. Call us if you think there is an issue – we have support for diagnostic services.
- Scout for strawberry clipper - count the number of damaged flower trusses per yard of row. Treat when you have an average of more than 3 damaged buds per yard. Insecticides should not be applied during bloom.
- Scout for tarnished plant bug - If 4 or more flower clusters are infested with nymphs spray is recommended. We are just finding tarnished plant bug now. The pressure seems low, but this hot weather can really

**Help NARBA better understand U.S. raspberry and blackberry pricing – Answer the survey NOW!**

[Click here for the survey questionnaire.](#) If you are busy in the field call 919-542-4037 (evenings up to 10:00 pm) **Who should take this survey:** Growers who sell raspberries & blackberries by pick-your-own and direct retail sales (on-farm, farm stands, and farmers markets). We will also report local wholesale prices (such as to stores and restaurants) if you provide them. If you don't know your 2016 prices yet, you can just provide your 2015 prices or best estimates. Results will be reported in the June issue of our newsletter and also shared with all non-members who participate in the survey.

## Are You Warm Enough Yet?

Laura McDermott, ENYCHP

April wasn't hot in eastern NY, but according to the National Oceanic and Atmospheric Administration, April 2016 was the hottest April on record for the earth as a whole and these proclamations have been made for the last 12 consecutive months. NOAA's "global temperature dataset" records reach back to 1880. Despite the variable weather and the constant effort to adapt to it, scientists have found that farmers remain skeptical about climate change and the long-term risks posed.

The Cornell Institute for Climate Change and Agriculture on March 29, 2016 launched a new Research & Policy Brief series. The first Brief, "Understanding the Views and Actions of U.S. Farmers Towards Climate Change (March 2016)," provides an overview of a comprehensive literature review on agricultural stakeholder views and actions related to climate change in the U.S., undertaken by a team of social scientists at Cornell University and The Pennsylvania State University, in collaboration with the USDA NE Regional Climate Hub.

Key Findings of the Study Include:

- o Many U.S. farmers have noticed changes in weather patterns and an increase in extreme weather, yet remain skeptical about climate change and the long-term risks it poses.
- o Studies show that although levels of climate change belief varies among farmers in different regions, and the majority of farmers believe that climate change is

happening, fewer farmers believe that climate change is human-caused than those who believe that climate change is occurring.

- o Farmers generally more widely accept adaptation than mitigation measures. Factors such as affirmative belief in climate change and personal experience with local extreme weather are related to increased likelihood to support and/or adopt adaptation practices.
- o Farmer likelihood of supporting mitigation practices seems to be related to factors such as belief in human causation of climate change, concern for negative impacts of climate change, and the presence of economic incentives.

*For more information on the CICCA Research & Policy Brief series, or this specific research project, contact [Dr. Allison M. Chatrchyan](#), or contact Jesse Strzok or Laura McDermott.*

For additional information on climate throughout the region and world, visit these websites.

[National Oceanic and Atmospheric Administration](#)

[Northeast Regional Climate Center](#)

[Cornell Institute for Climate Change and Agriculture](#)

[Network for Environment and Weather Applications \(NEWA\)](#)

## Spotted Wing Drosophila Monitoring

Laura McDermott, ENYCHP



For the 5<sup>th</sup> consecutive year, the ENYCH team is assisting with the NYS IPM Spotted Wing Drosophila statewide monitoring effort. The largest difference is that a new trap and lure has been chosen as the statewide tool for monitoring the invasive fruit fly. The Scentry trap that we

are using employs a chemical lure that is more consistent, longer lasting and much easier to handle. Research scientists Dr. Peter Landolt and Dr. Dong Cha from the USDA lab in Yakima, Washington have developed a chemical lure for the spotted wing drosophila that is more effective, consistent, and longer lasting than standard food baits and makes traps much easier to service. They did this by first identifying the components in wine and vinegar that SWD flies find so irresistible.

The primary drawback of using food based lures is that the

volatiles in the actual cider, wine and yeast dissipate quickly and renders the trap ineffective in a matter of a few days if it's very warm. Additionally, the food lures are not very insect specific, so while the traditional traps caught many insects, a majority of them were off target. This made separating and identifying SWD from the rest of the soggy mass of insects quite a tedious chore. Scientists discovered that the SWD flies are actually looking for sugar sources and the fermenting fruit products in apple cider vinegar or wine and even yeast, help the fly orient itself towards a food source using the receptors that are in the insects antennae.

According to an article in *Good Fruit Grower*, Landolt and Cha conducted the necessary experiments by mounting a tiny electrode against the neural lobes on the back of the severed head of a spotted wing drosophila or on a freshly plucked antenna so that electrical signals from the receptors could be recorded and magnified as they detected volatile chemicals in wine and vinegar.

At the same time, they used gas chromatography and mass spectroscopy to identify the

*continued on next page*



chemical components in the wine and vinegar that elicited responses from the antenna. The most attractive chemicals were acetoin and methionol, combined with pure ethanol and acetic acid.

During field trials across the country the lure was shown to be effective early in the season, when fly populations are low, as well as later in the season when ripening fruit competes for the fly's attention.. In addition to improving the

lures efficacy, the new bait also attracts fewer non-target insects. If you are interested in trying some of these traps and lures yourself, you can find them at Great Lakes IPM <http://www.greatlakesipm.com/> or Scentry Biologicals <http://www.scentry.com/Monitoring.htm>.

If you want quick and timely updates for the SWD survey results this year, visit the Cornell SWD blog <https://blogs.cornell.edu/swd1/about/>.

## Cranberry and Cherry Fruitworm– Blueberry Pests

Both Cranberry Fruitworm (*Acrobasis vaccinii*) and Cherry Fruitworm (*Grapholita packardii*) are native to North America,

as are the blueberries they infest. The adult forms of these fruitworms are small brownish-gray or grayish-black moths. Eggs are laid near the calyx of green fruit and are pale creamy color. Larvae found within blueberry fruit in June are small and pale yellowish or pinkish in color. CFW larvae have dark brown heads.

Fruitworms overwinter as larvae in the duff around bushes or field edges and pupate in the spring, emerging as adult moths after the start of bloom and usually before early fruit set. Cherry Fruitworm (CFW) emerges earlier than Cranberry Fruitworm (CBFW). Once mated, moths move into blueberry plantings when fruit is small and green to lay eggs directly on the fruit. Larvae then tunnel into the fruit and begin feeding. Infested fruit turn prematurely blue making them easy to identify when scouting. Larvae will consume from 3-6 berries, filling them with brown frass, and web together fruit with silk. The frass from CFW remains inside the fruit whereas that from CBFW is pushed out and visible. Upon reaching maturity, larvae leave the berries and move to over-wintering sites. There is one generation per year. Larvae feed on ripening fruit. Feeding reduces the crop and spoils marketability of the berries.

### Management

**Monitoring:** Pheromone traps can be used to monitor male populations of these pests and helps to identify the initial flight into a blueberry planting. Lures are available for both species. Traps should be placed during bloom with a minimum 50' buffer between them. Monitor trap catches twice weekly and remove moths caught each time you check in order to identify when sustained captures occur. Secondary scouting can be done for egg laying by inspecting the calyx end of green fruit with a hand lens. Scout the periphery of the planting especially near woods and hedgerows. Finally, scout for infested fruit by looking for prematurely pigmented berries.

**Developmental Model:** Fruitworm development is closely



related to weather conditions for both species and can be predicted with reasonable accuracy using Degree Day accumulations. Cherry Fruitworm is thought to emerge at approximately 230 GDD Base 50°F from March 1. Cranberry Fruitworm emerges later, around 350 GDD Base 50°F. Emergence can be confirmed by using pheromone traps that capture male moths of each species during their first flight. Noting the start of sustained trap captures can be used as the biofix for the

developmental model.

The important stage to forecast for either species is egg-laying which, for CBFW, occurs during the period of 85-400 GDD Base 50°F after the onset of sustained adult activity or flight (biofix). Therefore CBFW egg laying is generally predicted to take place during the period of 435-750 GDD Base 50°F. Modeling for CFW egg-laying is not currently available but is likely somewhat earlier than CBFW.

### Control strategies

#### Cultural/Biological

Eliminate weeds and trash around plants to minimize protective overwintering habitat for larvae. Clean cultivate between rows to disrupt pupation sites and reduce the population of this pest.

Hand pick and destroy infested fruit in small plantings. Preserve natural enemies whenever possible by selecting spray materials that are less toxic to beneficials.

#### Chemical:

Apply recommended insecticides beginning 85 – 100 GDD base 50°F after sustained trap catches (biofix), which usually coincide with berry-touch or when degree day models reach the action threshold.

- If action threshold is reached while some bushes are still in bloom, use materials that are listed as relatively

safe for pollinators/parasitoids in chart below that are listed as relatively safe for pollinators/parasitoids.

- Avoid use of insecticides with seasonal use restrictions that may be needed for Spotted Wing Drosophila (SWD) control later in the season.
- Rotate insecticides from different IRAC groups to reduce the chance of resistance development in the pest.
- Use pesticides that are less toxic to predators (e.g., insect growth regulators or B.t. products) to promote populations of natural enemies.

**Table 1. Details of insecticide options and timing for fruitworm control in blueberry as of 2016.**

Trade Names***	Chemical Class	Life-stage activity	Optima Spray Timing	Pollinator/Parasitoid Toxicity Rating
Imidan	Organophosphate	Eggs, larvae, adults	100% Petal fall	Highly toxic
*Lannate/ Sevin	Carbamate	Eggs, larvae, adults	100% Petal fall	Highly toxic
Asana/ Danitol/ Mustang Max/Hero/ Bifenture	Pyrethroid	Eggs, larvae, adults	100% Petal fall	Highly toxic
Assail	Neonicotinoid	Eggs, larvae	100% Petal fall	Moderate toxicity
Entrust/ Delegate	Spinosyn	Eggs, larvae	Early fruit set over eggs	Moderate toxicity
⊗Dipel	B.t.	Larvae	Early fruit set over eggs	Relatively safe
Intrepid/ Confirm	Growth Regulator	Larvae	Early fruit set over eggs	Relatively safe
⊗Grandevo/ ⊗Venerate	Biologicals	Larvae	Early fruit set over eggs	Relatively safe
Exirel/Altacor	Diamide	Larvae	100% Petal fall	Relatively safe
Rimon	Growth Regulator	Eggs, larvae	Early fruit set under eggs	Relatively safe
Esteem	Growth Regulator	Eggs, larvae	Early fruit set under eggs	Relatively safe

Michigan State Univ. Fruit Crop Advisory, [Fruitworm Control in Blueberries](#) (R. Isaacs, J. Wise) 5/17/16.

\*= Restricted Use Material □= OMRI approved for Organic Production

**Summary Management Table:**

Conventional (PHI)	Organic OMRI listed (PHI)	Cultural Practices
*Asana XL (14) Assail 30SG (1) Avaunt (7) *Brigade WSB (1) Confirm 2F (14) Delegate WG (3) Esteem 35WP (7) Exirel (3) Imidan 70W (3) *Lannate 90 (3) Malathion 5E (1) Molt-X (0) Pyrenone .5EC (0) Sevin XLR (7)	⊗ Agree WG (0) ⊗ Aza-Direct (0) ⊗ Biobit 1.6 FC (0) ⊗ Deliver (0) ⊗ Dipel DF (0) ⊗ Entrust Naturalyte (3) ⊗ Grandevo (0) ⊗ Javelin WG (0) ⊗ Molt -X (0) ⊗ Pyganic (0) ⊗ Venerate XC (0)	<ul style="list-style-type: none"> <li>• Eliminate weeds and trash around plants to cut down on overwintering protection for larvae.</li> <li>• Clean cultivate between rows to disrupt pupation sites and reduce the population of this pest.</li> <li>• Hand pick and destroy infested fruit in small plantings.</li> </ul> Preserve natural enemies whenever possible by selecting spray materials that are less toxic to beneficials.

\*= Restricted Use Material □= OMRI approved for Organic Production

*Not all available formulations are listed. See the current 2016 Cornell Pest Management Guidelines for application rates and additional information. Read labels thoroughly for application rates and restrictions (REI, PHI, etc.)*

## Haskap Berry Project and General Berry Site Selection Workshop

Come join Jim O'Connell and Laura McDermott of the Cornell Cooperative Extension Eastern NY Berry Team at **Christopher Jacobs Winery at Pennings Vineyards, on June 22, 2016, at 4:00pm** where they will present the preliminary results from the Haskap berry trial.

Chris and Monica Pennings, will act as hosts as they are the owners of **Christopher Jacobs Winery at Pennings Vineyards, 326 Crawford Street, Pine Bush NY**, which was one of four sites selected for this trial. Plants were evaluated for how well they grow in Hudson Valley conditions, including their winter hardiness. Although there are no fruit available to sample, growers can come learn about some of the history of Haskaps, some of the health benefits associated with this fruit, and how the plants have responded thus far to Hudson Valley growing conditions. In addition to learning about Haskaps, growers will also learn about general site selection for berry crops. While Monica and Chris Pennings grow mostly grapes, they have expressed interested in expanding into berry crops.



### PESTICIDE UPDATES

#### Omission Alert to 2016 Cornell Pest Management Guidelines for Berry Crops

On page 160 of the 2016 Pest Management Guidelines, there is a significant omission. Dual Magnum is labelled for use in strawberries and caneberries, but in the strawberry section we neglected to include the application directions. This information will be on the product label, but should also be included in the Guidelines. The information is included in the Bramble section (page 125). If you are using Dual Magnum, please remember to have a copy of the Special Label Needs registration

(SLN NY-110004) in your possession while applying this material. Growers must sign off on the indemnification if they choose to follow the SLN registration. That agreement can be found by logging in to [www.farmassist.com](http://www.farmassist.com). For now, the application information provided for brambles is appropriate:

*Apply Dual Magnum in the early spring at 1.0–2.0 pts/A (0.67 – 1.3 lb ai/A) prior to weed emergence. The application should be directed to the soil surface to avoid direct contact with the crop foliage or crop injury may occur. Use the lower end of the Dual Magnum rate range for soils that are relatively coarse textured and the higher rates on fine textured soils. Dual Magnum will not control emerged weeds.*

## FOR YOUR INFORMATION

- o **Veggie Compass Update** - Veggie Compass 2016 was released earlier this year with major changes including the ability to calculate gross and net income per square foot (or acre) for all crops as-well-as an average across all crops. Along with the software update the new user manual is available as a pdf. Go to [www.veggiecompass.com](http://www.veggiecompass.com) to download the latest update. For more information, contact Jesse Strzok – [js3234@cornell.edu](mailto:js3234@cornell.edu).
- o **Update on Zika-breeding mosquitos in farm ponds:** According to Dr. Laura Harrington, Professor of entomology at Cornell University and a mosquito expert: *“Fortunately, the Asian tiger mosquito does not breed in ponds. It is a container breeding mosquito, so advice about cleaning up containers with standing water once per week is the best. Right now Ulster county is farther north than we’ve detected the Asian tiger mosquito as well (it’s range limit seems to be in south Rockland and Westchester counties this summer so far)- so the risk is very low. The only species that they might get breeding in ponds associated with algae are Anopheles mosquitoes which aren’t considered important vectors.”* [Dr. Harrington has a Zika virus FAQ video](#)



**Solid Set Canopy Pesticide Delivery System:** This system is very similar to the system that has been on trial locally at the Berry Patch in Stephentown, NY for high tunnel raspberries. It might be of interest to some of you.



2016 Weekly and Seasonal Weather Information						
Site	Growing Degree Information Base 50° F			Rainfall Accumulations		
	2016 Weekly Total 5/24-5/31	2016 Season Total 3/1-5/31	2015 Season Total 3/1-5/31	2016 Weekly Rainfall (inches) 5/24-5/31	2016 To- tal Rain- fall (inches) 3/1-5/31	2015 Total Rainfall (inches) 3/1-5/31
Albany	176.6	418.5	554.0	0.3	4.79	4.46
Castleton	166.1	398.3	530.3	2.05	7.66	4.29
Glens Falls	159.6	339.6	442.5	1.06	6.11	6.83
Griffiss	147.6	311.2	390.5	1.35	9.37	11.86
Guilderland	147.6	374.0	477.0	0.38	9.66	9.98
Highland	171.8	480.6	574.2	1.91	9.56	9.89
Hudson	179.0	446.2	571.3	1.94	7.68	9.39
Marlboro	170.2	438.6	524.3	0.68	6.42	7.62
Montgomery	167.5	419.1	540.5	0.33	6.26	7.34
Peru	152.3	310.2	412.2	0.53	4.97	5.98
Red Hook	173.0	429.0	529.3	0.76	5.29	5.88
Willsboro	148.7	301.4	390.7	0.62	5.04	7.53
N. Adams, MA	149.3	297.1	381.5	2.08	8.7	7.19

## Upcoming Events

**June 22 - Haskap (Honeyberry) Production Workshop** – See article in the newsletter for more information. But register here to attend.

**June 28th– ENYCHP Canada Bus Toura**– Limited seats are still available, please contact Abby Henderson, aef225@cornell.edu, for more information.

**July 20 – Cornell Fruit Field Day**, NYSAES, Geneva, NY. Will spotlight work being conducted on all tree fruit and small fruit crops, grapes, and hops and will feature plot visits and presentations. A trade and equipment show will also be available. To register, <https://app.certain.com/profile/web/index.cfm?PKwebID=0x831574809f&varPage=home>

**August 13-17 – International Strawberry Symposium** in Quebec, Canada. <http://www.iss2016-quebec.org/> This meeting is research oriented, but it might be a once in a lifetime kind of event. Follow it up with a much more farmer appropriate educational event below.

**August 17-18 – North American Strawberry Growers Summer Tour**, Quebec, Canada. Several years ago Laura attended this event in the greater Montreal area. It was a FANTASTIC opportunity and I would strongly encourage growers to try and make time. Bring a spouse or partner and have some fun! <http://www.nasga.org/>

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