Cornell Cooperative Extension | Eastern NY Commercial Horticulture Program

VOLUME 7, ISSUE 9
JULY 2019

# BERRY NEWS

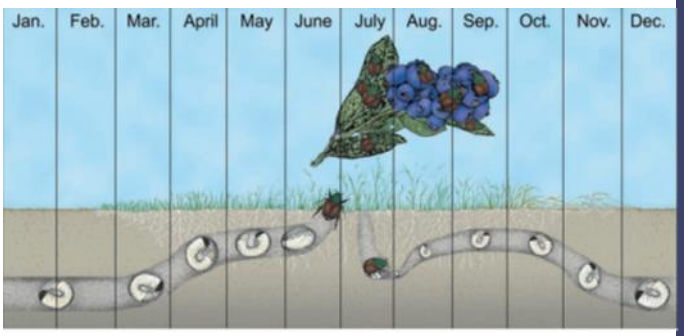
## Berry 'To Do' List

### —ALL CROPS—

- **Spotted Wing Drosophila** infestations remain the number one risk for berry growers this season. A quick reminder of how to do a salt water flotation test, plus some information about insecticides is in this issue.
- **Birds** remain a problem in most areas. Netting and constant management of distress calls, laser lights, scare eyes etc. is needed in order to win the battle against bird damage.
- **Foliar leaf analysis** should be done now and into mid-August.

### —BLUEBERRIES—

- Blueberry harvest is in full swing. Heat spikes are hastening ripening and discouraging pickers.
- **Japanese beetle** adults are everywhere. They emerge at exactly the right time to feed on blueberries. In large numbers they can cause fruit scarring – but the adults really won't cause long-term damage to the plant. The real threat is from the larvae which can damage feeder roots of plants. Japanese beetles are real problems in plantings with light soil – because the larvae thrive in that environment. Avoid planting in newly turned sod or near a large grassy field. Don't use the Japanese beetle traps as they actually will attract more beetles to your planting. Many insecticides can be used to control Japanese beetle adults including Admire Pro, Molt-X, Triple Crown.




*Japanese beetle life cycle in reference to blueberry crop. By Dr. Rufus Isaacs, MSU*

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Rotate chemistries to help avoid resistance.

- **Cane canker diseases** are showing up all over the region. That flagging in the planting is not because of heat or lack of water or winter injury. It's due to a canker disease. Make note of that while you remove damaged canes now. Spring is the time that you can control the spread. Also – canker diseases will infect stressed plants. Make sure that your nutrition is appropriate – both soil tests and foliar tissue tests are important – and the window for sampling is NOW.
- **Blueberry maggot flies** can still be controlled – but this is your last window of opportunity. Malathion, Lannate, Assail, etc. can be used to help control this pest.

*Blueberry Maggot fly and larvae. Photo: University of Minnesota*

## —Raspberries & Blackberries—

- Problems with sunscald abound. Some varieties are more prone to this – but the % damage is usually very low.

*Raspberry with sunscald. Photo: Whitney Cranshaw, Colorado State University*

- Lots of **potato leafhopper** damage out there! If your field is anywhere near hay fields that have just been mowed – or any large grassy areas that are only periodically mowed – you may see real spikes in damage. These insects are small and light green and the adults fly quickly when disturbed. The nymphs are flightless and they do the most feeding on the underside of the leaf. The damage looks like herbicide or nutrient damage. Assail, Malathion, Sevin, Admire Pro – all of these can be used to control leafhopper.

*Potato Leafhopper damage on raspberry. Photo: Laura McDermott*

- **Crown borers and cane borers**, both of which may be causing cane collapse.
- **Scout for twospotted mites** – especially if you have raspberries in tunnels, although this hot, dry weather is just what they love in all of the areas.

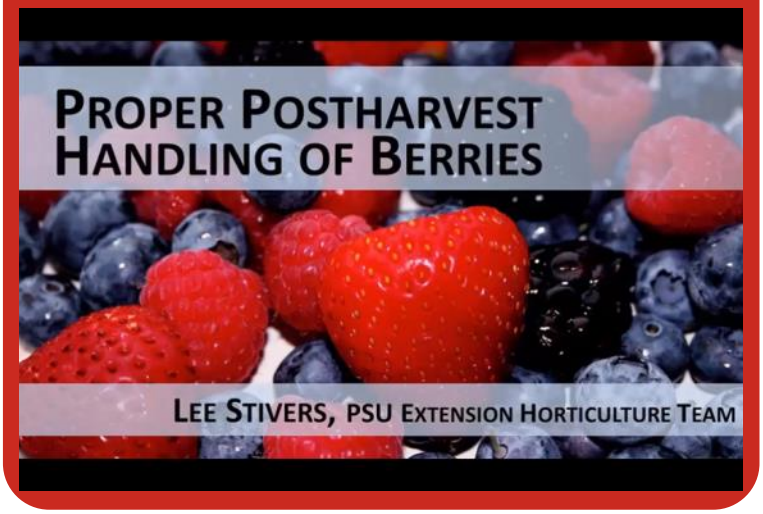
## —Strawberries—

- June bearers have all been renovated. Very short picking cycle on late varieties due to intense heat. Some growers reported poor growth from new plantings from last year. Ordering plants from known suppliers EARLY this year will help insure that you are getting the cultivar and quality that you need to establish that new planting.
- Make sure to sample renovated plants for foliar nutrition as leaves emerge and expand.
- Scout for **strawberry root weevil** and **black vine weevil** notching as plants regrow during August. Look for adult notching but also very poor regrowth in fields.
- **Potato leafhopper** damage especially on new plants, can really slow a planting down. Make sure that you are monitoring this, and take special care if fields border hay fields.
- Day Neutrals planted this year are beginning to fruit. Make sure they are getting plenty of fertilizer – between 3-5# of actual N per week – moving towards 5-7# N as the fruit starts to ripen. Some ground doesn't need as much Nitrogen, but you should be watching the plants and recording yield to determine the best rate for your soil.

## For Your Information

**Post-Harvest Berry Handling Video on YouTube**

Want to get the most out of your berries at the market? This video from Penn State University highlights important considerations for post-harvest berry handling. It's available in Spanish language as well, so it could be a great addition to your worker training. https://extension.psu.edu/post-harvest-berry-handling



## Monitor SWD Infestation Pressure Throughout Berry Season

**Laura McDermott, CCE Eastern NY Commercial Horticulture**

Blueberry, summer raspberry, day-neutral strawberry and blackberry harvest will all be in full swing by early August. Fruit quality thus far is excellent, and the current sunny weather promises excellent flavor, BUT growers need to pay attention to spotted wing drosophila (SWD) management recommendations.

SWD arrived early this season – all of eastern NY had consistent trap catches by July 4th which is almost 3 weeks ahead of the past few years. Our current weather pattern of warm, sunny days with cooler nights and interspersed with occasional showers is perfect for growing high quality berries – but it's also great for SWD reproduction.

To insure that you can harvest berries throughout the season, managing SWD throughout the entire berry harvest is required. The following steps will help growers achieve season-long success:

1. Early season monitoring is important. CCE ENYCHP has been monitoring traps in most counties in our region – but monitoring at your farm would be the best approach to management. Monitor SWD traps as frequently as possible to detect arriving SWD flies. The SWD trapping network has traps throughout the eastern NY region – but we are only able to monitor them weekly. Farmers should learn how to use these traps and begin monitoring in their own plantings.

2. Check the fruit before and after each insecticide application, and before taking the fruit to market. Use the salt flotation method to do this. I use a quart size Zip-loc bag, fill it half full of fruit that is ready for market (already graded and sorted), and pour a salt water solution (1 cup salt to 1 gallon warm water) over the fruit until it's covered completely. Remove air while closing bag and gently squeeze fruit – just enough to break some fruit skins. Then leave the bag for 10-15 minutes. View bag as it rests on a dark surface – the larvae are light colored and show up better with a dark background. You will be able to see them moving – they are small so a hand lens will help you see them. Keep track of how many larvae you are seeing – repeat this with each harvest.

3. Finally, selecting the appropriate insecticide according to current and forecasted conditions of rain and temperature is critical to a successful prevention of SWD larvae infestations at harvest time. So, before programing your next application check the weather conditions for the next 24-72 hours to determine what class of insecticide you need to use in your field. Remember pyrethroid insecticides are affected by high temperatures but are excellent tools at low temperatures and not affected by rain. Lannate and Brigade, and in a lesser degree Imidan, are not affected by high temperatures and remain in the fruit if rains occur after the application. Assail has been shown to have poor adult efficacy but does have a bit of larval impact, so it might be a good material to tank mix periodically.

The insecticide tables for strawberries, blueberries and brambles are included in this newsletter.

If you have any questions about SWD management, please contact Laura McDermott at 518-791-5038 or lgm4@cornell.edu.

## Reduce Inflammation by Adding Berries to Your Diet

**Laura McDermott, CCE Eastern NY Commercial Horticulture**

Inflammation is a natural process of our body's immune response that acts as a protective mechanism.

Without inflammation, our body would not be able to heal itself. During inflammation, specific pro-inflammatory hormones signal white blood cells to clear infection and damaged tissue.

When inflammation becomes uncontrolled, it damages the body. For example, when someone has Rheumatoid Arthritis, the body's immune system mistakenly attacks their joints causing inflammation and damage. Inflammation also plays a role in chronic diseases including heart disease, chronic pain, age-related diseases, memory loss, and autoimmune diseases.

Some foods can reduce inflammation. Brett Nance, Penn State Extension community health intern, explains how inflammation can be decreased by our food choices with this information from Penn State Extension.

Fruits and vegetables contain antioxidants, substances that inhibit damage to some types of cells, and consequently help reduce inflammation. The antioxidants, flavonoids which are commonly found in fruits and plant foods, protect the fluid portions of our cells. Of the fruits, berries are very high in flavonoids and are known to have beneficial effects on inflammation and cell damage. More specifically, anthocyanin pigments are the antioxidant that gives many fruits and vegetables their red, purple, and blue coloring. These pigments also give fruits and vegetables the ability to protect the body against chronic diseases. Some fruits that would fall into this specific category include blackberries, blueberries, raspberries, strawberries, cranberries, and tart cherries.

ORAC (oxygen radical absorptive capacity) is a way to measure antioxidant levels in fruits and vegetables. According to ORAC, berries have some of the highest antioxidant levels. So include berries in your diet to reduce inflammation in your body.

Berries can be eaten fresh or added to many foods including yogurt, granola, oatmeal, salads, and smoothies. Try this delicious smoothie recipe not only for good nutrition but also to reduce inflammation.

**Blueberry Smoothie**
¾ cup unsweetened 100% orange or pineapple juice
½ cup fruit-flavored low-fat yogurt
1 cup frozen, unsweetened blueberries
Blend all ingredients well in blender and drink!

## June 2019 - Labeled Insecticides for Control of Spotted Wing Drosophila in New York Berry Crops – Quick Guide

Compiled by Greg Loeb, Laura McDermott, Peter Jentsch & Juliet Carroll, Cornell University. Updated regularly.

| BLUEBERRIES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **PRODUCT** | **AI[1]** | **IRAC group[2]** | **EPA#** | **Rate/A** | **REI[3]** | **DTH[4]** | **Max. Prod/A/yr (ai)** | **Total applic's** | **Spray Interval** | **Probable efficacy** |
| ^@Entrust Naturalyte (2ee)[a] | spinosad | 5 | 62719-282 | 1.25-2 oz | 4 hr | 3 d | 9 oz (0.45 lb) | 3 per crop | > 6 d | Good to Excellent# |
| ^@Entrust SC[a] | spinosad | 5 | 62719-621 | 4-6 fl oz | 4 hr | 1 d | 29 fl oz (0.45 lb) | 3 per crop | > 6 d | Good to Excellent# |
| @Delegate WG | spinetoram | 5 | 62719-541 | 3-6 oz | 4 hr | 3 d | 19.5 oz (0.305 lb) | 6 | > 6 d | Excellent# |
| @Delegate WG (suppl. label) | spinetoram | 5 | 62719-541 | 3-6 oz | 4 hr | 1 d | 17.9 oz (0.281 lb) | 3 | 6 d (1st-2nd) 12 d (3rd-4th) | Excellent# |
| *Exirel | cyazypyr | 28 | 352-859 | 13.5-20.5 fl oz | 12 hr | 3 d | 61.5 fl oz (0.4 lb) | 3 | > 5 d | Excellent |
| Bifenture 10DF | bifenthrin | 3 | 70506-227 | 5.3-16 oz | 12 hr | 1 d | 80 oz (0.5 lb) | - | > 7 d | Excellent |
| *Brigade WSB (2ee) | bifenthrin | 3A | 279-3108 | 5.3-16 oz | 12 hr | 1 d | 80 oz (0.5 lb) | - | > 7 d | Excellent |
| *Danitol 2.4EC | fenpropathrin | 3A | 59639-35 | 16 fl oz | 24 hr | 3 d | 32 fl oz (0.6 lb) | 2 | - | Excellent |
| *Mustang Maxx Insecticide | zeta-cypermethrin | 3A | 279-3426 | 4 fl oz | 12 hr | 1 d | 24 fl oz (0.15 lb) | 6 | > 7 d | Excellent |
| ^Pyganic EC 1.4 | pyrethrin | 3A | 1021-1771 | 1 pt-2 qts | 12 hr | 0 d | - | - | - | Fair to Poor |
| ^Pyganic EC 5.0 | pyrethrin | 3A | 1021-1772 | 4.5-18 fl oz | 12 hr | 0 d | - | - | - | Fair to Poor |
| Assail 30SG (2ee) | acetamiprid | 4A | 8033-36-70506 | 4.5-5.3 oz | 12 hr | 1 d | 26.7 oz (0.5 lb) | 5 | > 7 d | Good# |
| *Lannate SP | methomyl | 1A | 352-342 | 0.5-1 lb | 48 hr | 3 d | 4 lb (3.6 lb) | 4 | > 5-7 d | Excellent |
| *Lannate VP | methomyl | 1A | 352-384 | 1.5-3 pts | 48 hr | 3 d | 12 pts (3.6 lb) | 4 | > 5-7 d | Excellent |

*Refer to label for details and additional restrictions.
#Adding sugar (sucrose) at 2 lb/100 gal water as a feeding stimulant will increase efficacy.
^Approved for organic use in NY.
@After two consecutive applications must rotate to different mode of action.

[1] Active Ingredient.
[2] Mode of Action, based on IRAC group code (UN = unknown).
[3] Re-entry Interval (hr = hours).
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| *Imidan 70W | phosmet | 1B | 10163-169 | 1.33 lb | 24 hr | 3 d | 7.125 lb (5.0 lb) | 5 | - | Excellent |
| Malathion 5EC (2ee) | malathion | 1B | 19713-217 | 2 pts | 12 hr | 1 d | 6 pts (3.75 lb) | 3 | > 5 d | Good |
| Malathion 8 Aquamul (2ee) | malathion | 1B | 34704-474 | 2.5 pts | 12 hr | 1 d | 3.75 pts (3.75 lb) | 1 | > 5 d | Good |
| Malathion 57 (2ee) | malathion | 1B | 67760-40-53883 | 2 pts | 12 hr | 1 d | 6 pts (3.75 lb) | 3 | > 5 d | Good |
| ^AzaSol | azadirachtin | UN | 81899-4 | 6 oz in 50 gal | 4 hr | 0 d | - | - | - | Fair to Poor |
| ^Grandevo | *Chromobacterium subtsugae* strain PRAA4-1 and spent fermentation media | UN | 84059-27 | 2-3 lb | 4 hr | 0 d | - | - | ≤ 7 d | Fair# |
| ^Venerate XC | *Burkholderia* spp. strain A396 and spent fermentation media | UN | 84059-14 | 2-4 qts | 4 hr | 0 d | - | - | ≤ 7 d | Poor |

[a] In organic production, Entrust must be rotated with different IRAC insecticides, consider Grandevo or products containing the AI's azadirachtin or pyrethrin.


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| @Delegate WG | spinetoram | 5 | 62719-541 | 3-6 oz | 4 hr | 1 d | 19.5 oz (0.305 lb) | 6 | > 4 d | Excellent# |
| Bifenture 10DF | bifenthrin | 3 | 70506-227 | 8-16 oz | 12 hr | 3 d | 32 oz (0.2 lb) | 1 pre- & 1 post-bloom | > 7 d | Excellent |
| *Brigade WSB (2ee) | bifenthrin | 3A | 279-3108 | 8-16 oz | 12 hr | 3 d | 32 oz (0.2 lb) | 1 pre- & 1 post-bloom | > 7 d | Excellent |
| *Brigade EC (2ee) | bifenthrin | 3A | 279-3313 | 3.2-6.4 fl oz | 12 hr | 3 d | 12.8 fl oz (0.2 lb) | 1 pre- & 1 post-bloom | > 7 d | Excellent |
| *Danitol 2.4EC | fenpropathrin | 3A | 59639-35 | 16 fl oz | 24 hr | 3 d | 32 fl oz (0.6 lb) | 2 | - | Excellent |
| *Mustang Maxx Insecticide | zeta-cypermethrin | 3A | 279-3426 | 4 fl oz | 12 hr | 1 d | 24 fl oz (0.15 lb) | 6 | > 7 d | Excellent |
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| Malathion 8 Aquamul (2ee) | malathion | 1B | 34704-474 | 2 pts | 12 hr | 1 d | 6 pts (6.0 lb) | 3 | > 7 d | Good |

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| Malathion 57 (2ee) | malathion | 1B | 67760-40-53883 | 3 pts | 12 hr | 1 d | 9 pts (6.0 lb) | 3 | > 7 d | Good |
| ^AzaSol | | UN | 81899-4 | 6 oz in 50 gal | 4 hr | 0 d | - | - | - | Fair to Poor |
| Molt-X | azadirachtin | UN | 68539-11 | 10 fl oz in 50 gal | 4 hr | 0 d | - | - | - | Fair to Poor |
| ^Grandevo | *Chromobacterium subtsugae* strain PRAA4-1 and spent fermentation media | UN | 84059-27 | 2-3 lb | 4 hr | 0 d | - | - | ≤ 7 d | Fair to Poor# |
| ^Venerate XC | *Burkholderia* spp. strain A396 and spent fermentation media | UN | 84059-14 | 1-4 qts | 4 hr | 0 d | - | - | ≤ 7 d | Poor |

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| @Radiant | spinetoram | 5 | 62719-545 | 6-10 fl oz | 4 hr | 1 d | 30 fl oz (0.305 lb) | 5 | > 3 d | Excellent[#] |
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| *Danitol 2.4EC | fenpropathrin | 3A | 59639-35 | 16 fl oz | 24 hr | 2 d | 42.7 fl oz (0.8 lb) | 2 | - | Excellent |
| ^Pyganic EC 1.4 | pyrethrin | 3A | 1021-1771 | 1 pt-2 qts | 12 hr | 0 d | - | - | - | Fair to Poor |
| ^Pyganic EC 5.0 | pyrethrin | 3A | 1021-1772 | 4.5-18 fl oz | 12 hr | 0 d | - | - | - | Fair to Poor |
| Assail 30SG (2ee) | acetamiprid | 4A | 8033-36-70506 | 4.5-5.3 oz | 12 hr | 1 d | 13.8 oz (0.26 lb) | 2 | > 7 d | Good[#] |
| Malathion 5EC (2ee) | malathion | 1B | 19713-217 | 3 pts | 12 hr | 3 d | 12.8 pts (8 lb) | 4 | > 7 d | Good |
| Malathion 8 Aquamul (2ee) | malathion | 1B | 34704-474 | 2 pts | 12 hr | 3 d | 8 pts (8 lb) | 4 | > 7 d | Good |
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# August 15, 2019 – Spotted Lanternfly – NYS IPM Conference

8:30 am – 4:30 pm
Broome County CCE Farmers Market
840 Front Street
Binghamton, NY

**Who should attend?** Because this invasive pest affects horticultural and agricultural crops, ornamentals, landscape, forests, and shade trees, Growers, Landscapers, Greenhouse and Nursery Operations, Christmas Tree Growers, Foresters, Master Gardeners and Master Foresters will benefit.

In fact, every resident of New York, especially those who own a business or travel to any quarantine zones, should understand how to be compliant with New York State's External Quarantine.

Expert Penn State research faculty and Extension staff working with the Pennsylvania Department of Agriculture since 2014 will provide updates from Southeast Pennsylvania's quarantined areas.

Representatives from the NYS IPM Program, Cornell University, NYS Department of Ag & Markets, NYS Department of Environmental Conservation, and Finger Lakes Partnership for Regional Invasive Species Management (PRISM) will discuss what is being done to prevent SLF's establishment in New York, including how nature can assist in management.

**Featured Speakers**

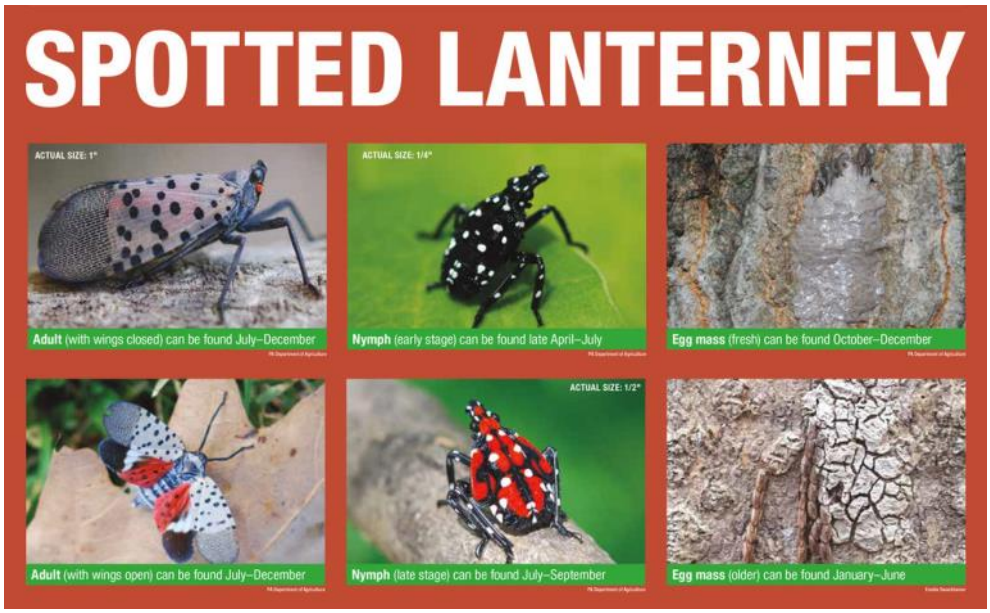
Julie Urban, Penn State University
Emelie Swackmaer, Penn State Ext
Shane Phillips, Pennsylvania DAM
Margaret Kelly, NYS DAM
Ethan Angell, NYS DAM
Eric Clifton, Cornell University
Patty Wakefield-Brown, Finger Lakes PRISM
Emma Antolos, NYS DEC
Tim Weigle, NYS IPM Program

**Cost**: $50, which includes all breaks and a catered lunch. Please e-mail Kate Robinson at kjr45@cornell.edu with any dietary needs or restrictions.

An application has been made for 6 New York State pesticide recertification credits in the following categories; 1A, 2, 3A, 6A, 21, 22, 23, 24, 25. An application for recertification credits for Pennsylvania pesticide applicators has also been submitted.

Register at: https://lergp.cce.cornell.edu/event.php?id=416

Sponsored by New York State Departments of Agriculture & Markets, and Environmental Conservation, and Finger Lakes PRISM.



# Calendar of Events

**Post-Harvest Washing and Cooling Workshop**
**August 1, 2019 - Pleasant Valley Farm, Argyle, NY**

workshop will feature FSMA compliant workstations that you can use on your small vegetable and berry farms. Chris Callahan from UVM Extension Ag Engineering program will be leading the workshop. Excellent chance to get in-person guidance for your own wash station!! Templates, personal whiteboard prompts, as well as Extension and peer support will allow you to leave this workshop with a plan, and with the knowledge and resources needed to follow through.

Pizza lunch included

1.0 NYS DEC Pesticide applicator re-certification credit in categories 1a, 10, 22 and 23 will be available.

Cost: $10 for ENYCHP enrolled farms, $25 for all others (enroll before registering and save money!)

Call Laura McDermott at 518-791-5038 for more information about the agenda.

Call Chelsea Truehart at 518-746-2553 for information about registering or enrolling in ENYCHP.

Enroll online here: bit.ly/PostHarvestEfficiency

**VT Berry Growers Workshop**
**August 8, 2019 - Sunshine Valley Berry Farm, 129 Ranger Rd, Rochester, VT—4pm-7pm**

Rob Meadows and Patricia Rydle invite you to a tour of their 6-acre PYO organic blueberry and raspberry farm. Come see, and possibly try out, their new Easy Harvester for blueberries. Rob will explain his laser and distress call systems for bird control, and we will see their farm store and cool room setup. The farm is open until 6 pm so please park so as not to compete with customers. Attendance is free for members of the Vermont Vegetable and Berry Growers Association. The cost is $10 per-person for non-members, payable on-site. Refreshments will be served. For more information: www.uvm.edu/vtvegandberry/meetings/2019VegandBerryFarmWorkshops4-16-19.pdf

**IPM in Tomato Production**
**August 19, 2019 - Davenport Farms, 3072 US Route 209, Stone Ridge, NY 12401**

Dr. Margaret McGrath and ENYCHP Vegetable production Specialist Teresa Rusinek will lead a one-hour workshop for growers to discuss and learn how to integrate techniques in managing tomato diseases. The meeting is taking place in the field at Davenport Farms where a disease resistant tomato variety trial is hosted. Growers will have an opportunity to tour the trial, taste fruit, and provide feedback for plant breeders. 1 DEC recertification credit in categories 10, 1a, and 23 will be available to those who attend for the entire duration of the meeting.

**Biocontrol Trial and IPM Field Meeting**
**August 20, 2019 - Eli Martin's Farm, 388 Brookman Corners Rd, Fort Plain, NY 13339**

4-5 pm: Dr's Amara Dunn and Meg McGrath will discuss powdery mildew control using biocontrols and organic and conventional fungicides. Crystal Stewart from the ENYCHP will provide a tour of the biocontrol trial and additional squash and pumpkin mini-variety trial.

5-6pm: Walk the farm fields with Dr's Dunn and McGrath and with CVP specialist Elizabeth Buck to talk about integrated strategies to control pests, diseases, and weeds on the vegetables farm. Bring samples and questions! 2 DEC credits have been applied for in categories 1a and 23.

**Willsboro Farm High Tunnel Twilight Meeting**
**August 27, 2019 - 5:00pm-7:00pm**
**Cornell Willsboro Research Farm, 48 Sayward Lane, Willsboro**

Join vegetable specialists Elisabeth Hodgdon, Jud Reid, and farm manager Mike Davis for a high tunnel and field tour at Cornell's Willsboro Research Farm, where they will share research results for the following projects:

- Striped cucumber beetle management using netting and row cover
- Varietal differences in cucumber susceptibility to striped cucumber beetle
- Ground cherry and goldenberry production in field and high tunnel environments
- Overwintered high tunnel spinach nitrogen fertility

Depending on availability, a taste-testing of the different cucumber, ground cherry, and goldenberry varieties will be held. This free program is made possible through funding by the Northern NY Agricultural Development Program.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