Cornell University Cooperative Extension

Eastern NY Commercial Horticulture Program

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Berry News

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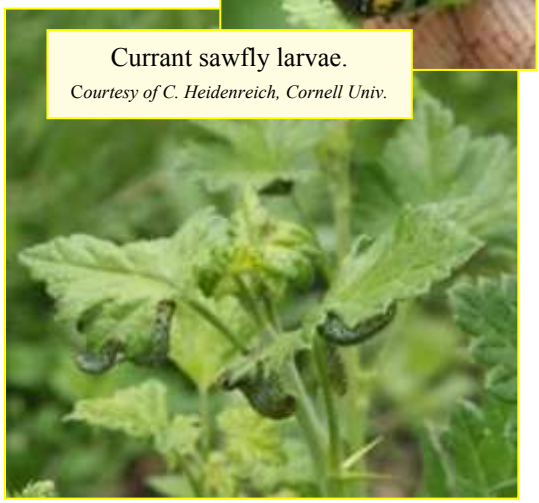
Regional Update

Strawberry harvest has commenced throughout the region – with the exception of the furthest north locations. By this weekend all locales should be picking if even lightly. By and large the crop looks excellent. Some growers have even noted that the set is so heavy they are concerned about sizing. I congratulate most growers – the Gray Mold control so far looks excellent! Tarnished plant bug has only been an issue for a small group of growers – by and large fairly non-existent it seems. Clipper also was not an issue this year. Lindsey Pashow and Amy Ivy have been looking throughout the region for strawberry weevil larvae and have found a few locations that are infested. Two spotted mites (article included in this newsletter) are also showing up.

Blueberry growers are looking at a very decent crop – which is of concern only because there are few leaves to support the fruit in a few cases. More information about managing around that in this newsletter. The recent rains will help shoot elongation and also contribute to more leaf development.

Currant sawfly larvae.
Courtesy of C. Heidenreich, Cornell Univ.



Cane berries look remarkably good from the prediction in late April. It looks like blackberry crop might be 40-50% of last year – a LOT better than originally thought. Some information about a cross arm trellis system that you might consider trying if your blackberries are some of those with no fruit. Cane borers are out – so keep your eyes out for them.

Ribes around the state have taken a bit of a hit by **currant sawfly.** This pest is not new, but we are seeing a lot more than in past years.

There have been no confirmed SWD found in traps in NYS as of yet. Michigan reported their first captures earlier this week. That is right about on target for dates in years past. One individual fly obviously does not trigger a spray program, but it indicates that the cold winter likely did little to decrease the overall population. Scouting reports will be included in this newsletter and can be received at the Cornell SWD blog – subscriber information in this newsletter.

Berry 'To Do' List

All crops

- Plan for SWD control – see article in this newsletter.
- Keep eyes out for evidence of voles – Zinc phosphide in traps works well.
- What are you going to do to prevent bird damage?

Blueberries

- Water blueberries (1-2" each week) in early season to encourage shoot elongation.
- Prune out winter injured dead wood to prevent canker. Scout for scale insects,

continued on next page

Berry 'To Do' List, continued from previous page

weevil notching, blueberry gall midge, crown gall, witches broom etc. while pruning.
- Apply bloom applications to prevent fruit molds.
- If leaf load is light, continue feeding plants through June and plan to do foliar analysis in July.

Blackberries
- If you have flowers – bring in bees if possible. They should be introduced at 10% bloom. Improving pollination will be worthwhile this year as there is so little crop out there.

Raspberries
- Make sure that you have thinned plantings adequately. Pest control in brambles depends on good air flow so a well pruned planting with excellent weed control is important.
- Scout for cane borers.

Strawberries
- Scout for root weevil adults – likely to see leaf notching before you see the insect.
- Apply slug bait – especially important if you didn't do this last fall.
- Scout for two spotted spider mites and cyclamen mites.
- Scout for aphids as they vector some major new virus diseases.

Winter Injury to Blueberries Causes Poor Leaf to Fruit Ratio

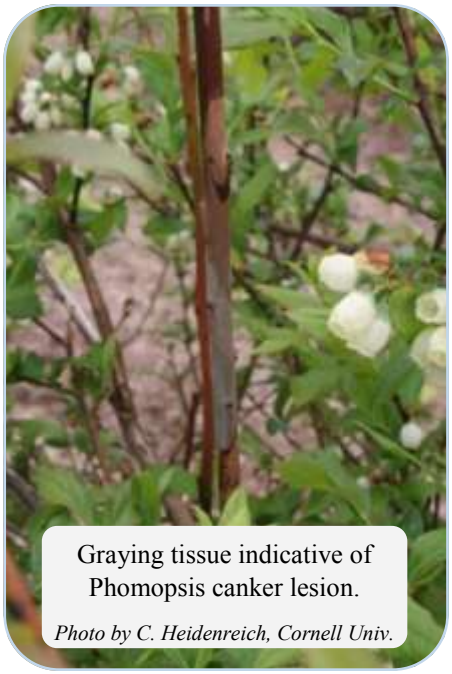
Many growers are noticing a real lack of leaves on blueberry bushes that by now are fully leafed out. This is undoubtedly due to winter injury. Winter injury predisposes plants to canker infections. If the canes are totally dead, they should be pruned out as soon as possible. But what to do with canes that just have a lot of blind buds but are still bearing fruit?

According to Carlos García-Salazar, Michigan State University Extension, "It is important that fields showing considerable winter damage maintain a regular nutritional program to alleviate the impact of the lack of foliage. Since a large portion of nutrients utilized by the plant during the early portion of the plants growth are those stored the previous year in canes and in the roots, in blueberry plants with extensive winter injury those nutrients will not be available. Therefore, we need to maintain a good nutritional program to prevent further delays in the recovering of the plant structure and productivity."

Winter injury in blueberry field.

Photo by C. Heidenreich, Cornell Univ.

Additionally, make sure to gather leaves for a foliar sample in late July/early August. Focus on those varieties that you notice now as being stressed.



Graying tissue indicative of Phomopsis canker lesion.

Photo by C. Heidenreich, Cornell Univ.

It will also be important to apply fungicides to prevent canker diseases. Quash or Pristine are labelled for use, and unlike lime sulfur, they can be applied after delayed dormant timing. *-LGM*

2014 - Spotted Wing Drosophila (SWD) Monitoring Traps

By Juliet Carroll, Fruit IPM Coordinator, NYS IPM Program Based on methods tested by Steven Alm, Dept. of Plant Sciences and Entomology, Univ. of Rhode Island, Richard Cowles, CT Agricultural Experiment Station and Greg Loeb, Dept. of Entomology, Cornell Univ.

Research continues, to improve SWD traps and baits. As improvements are made, this fact sheet will be updated and posted on www.fruit.cornell.edu/spottedwing/. Revision date June 16, 2014.

Materials for One Trap

- 16 oz Red Plastic Party Cup
- Plastic Drink Cup lid (*fragile, may need extras*)
- 4.5 oz Specimen Container graduated wide mouth with screw lid
- No-see-um fabric netting (*mesh size < 1 mm to prevent SWD from entering yeast solution*)
- 2-3 ft of plastic coasted wire (*twist tie wire on a spool with cutter is convenient*)

Fermenting Dough Bait recipe
– *enough for one specimen container*

- 1/2 tsp Sugar (2 g)
- 1/8 tsp dry active bread yeast (0.325 g)
- 2 TBsp whole wheat flour (17.25 g)
- 1/5 tsp apple cider vinegar* (1 mL)
- 1 fl oz water* (25 mL)

*The proportion of apple cider vinegar to water is 1:25. A stock solution can be made with 950 mL water plus 38 mL apple cider vinegar.

Vinegar Drowning Solution recipe
Apple cider vinegar
Drop of Unscented dish detergent

Place traps on shady side of row and inside canopy. Check them weekly. If you have questions about what you are looking at – please call. It is very difficult to ID the first SWD of the season as there are many mimics and the pest is actually few and far between during June and much of July.

Spider Mites – Significant Pests to Raspberries and Strawberries

Sources: 2014 Cornell Berry Crop Guidelines and High Tunnel Raspberries and Blackberries and High Tunnel Raspberries and Blackberries Department of Horticulture Publication No.47 (2012 rev)available online at: http://www.fruit.cornell.edu/berry/production/pdfs/hightunnelsrasp2012.pdf

Two spotted spider mites were found this week in a June bearing plasticulture planting and in a cane berry high tunnel. In both cases the problem took only a few days to exceed threshold and become a significant infestation.

Figure 44a. Adult female two-spotted spider mite.

Mites begin feeding on the undersides of new strawberry leaves in early spring. Symptoms may be seen as yellow spots on the upper leaf surface, but often I see a characteristic bronzing appearance. Damage is most prevalent in dry areas of a field.

The scouting threshold for mites are five mites/leaf or 15 out of 60 mature (fully expanded) leaflets infested with 1 or more mites. Regular leaf monitoring is necessary for assessing population growth.

Continued on next page

Spider Mites, continued from previous page

There are no known resistant cultivars. Overfertilization exacerbates mite infestations, so go easy on spring fertilizers.

Mites are fast – both in how they move around and in how they reproduce. Good coverage of the plants, particularly the undersides of the leaves, is critical for control.. Use adequate water (200-300 gal/A) for best results. Repeat at 7- to 10-day intervals as necessary unless otherwise noted on label.

Materials that are labelled for strawberries include:

- Agri-Mek 0.15 EC (16 fl oz/A), applied twice, 7-10 days apart)
- Kanemite 15SC (21-31 oz/A). Apply in at least 100 gallons of water.
- Acramite 50WS (0.75-1.0 lb/A)
- Brigade WSB (16-32 oz/A)
- Zeal Miticide1 (2-3 oz/A). Zeal is primarily an ovacide/ larvicide and should be used early in the life cycle of mites.
- Danitol 2.4 EC (16-21-1/3 oz/A). *Danitol has a maximum single application rate of 0.3 lb AI per acre and a maximum seasonal application of 0.6 lb AI per acre. Do not exceed more than 2 consecutive applications of *Danitol totaling 42-2/3 fl oz/A (0.8 lb AI/A) to the same planting in 12 consecutive months.
- Portal (2.0 pints/A). Apply in sufficient water to ensure good coverage. Contact miticide that stops feeding and egg laying but does not kill mites outright.
- Vendex 4L (1.5-2.0 lb/A) Do not exceed 4 lb/A per season. OR
- Savey 50DF (6 oz/A). Savey 50DF is registered in New York for control of spider mites on caneberries and strawberries. This product needs to go on early in the infestation (2-3 mites per leaf) to be effective since it is primarily toxic to eggs and immature stages of the mites. Because of this, it is most suitable for plantings with a chronic spider mite problem. You are only allowed one application per season. Do not use in strawberry nurseries. Savey is not very hard on beneficial predatory mites.
- SuffOil-X (1 – 2 gal/100 gal); apply as needed
- Organic JMS Stylet Oil (3-6 qt/100 gal). Apply for optimum coverage of leaf surfaces. Use at least 200 PSI pressure to ensure proper coverage.

The most significant and frequent arthropod pest occurring in high tunnel raspberries is two-spotted spider mite (Figures 44a and 44b).

Stylet oil may be applied as plants are emerging from dormancy to reduce mite pressure. Biological control

Figure 44b. Bronzing of foliage caused by adult mite feeding.

options are available for two-spotted spider mites and if applied while populations are at or below threshold levels, may be used with good success under high tunnel conditions. Management of two-spotted spider mites on brambles often requires only two releases of predatory mites during the life of the planting. *Neoseiulus fallacis* is a native species that does well in brambles and can survive without mite prey.

Scout for mites and mite damage twice a week with a 10x hand lens. Check the undersides of leaves in several locations throughout the tunnel. Mites are most often seen first in the lower to middle canopy. Be sure to examine the lower sides of leaves for the presence of mite adults and eggs. Introduce mite predators as soon as mites are observed. Recommended applications rates for predatory mites are usually given per unit area. Predatory mites generally come packaged in a hard plastic breathable container, usually mixed with a bran carrier. They should be applied to leaf surfaces immediately to help ensure good survival and establishment. Follow recommended application instructions and conditions carefully. A very slight misting of leaf surfaces may help the bran carrier adhere. Be careful not to over-mist as there is risk of drowning the mites! Sprinkle the mites' carrier gently over leaf surfaces. Predatory mites will move from point of contact to lower leaf surfaces and from leaf to leaf in search of spider mite prey.

If serious outbreaks occur and are not caught early enough for biological control measures to be effective, follow conventional field recommendations for mite reduction and control. Select products based on mode of action and compatibility with predatory mites. For example, hexythiazox is not very hard on beneficial predatory mites, but must be applied early in the infestation (2-3 mites/leaf) in order to be effective since its mode of action affects primarily eggs and immature mite stages.

Mites can be particularly bad when tunnels are covered year round and kept hot during the summer.

Cross Arm Trellis Proves Successful in Wintering Over Blackberries

By Dr. Fumi Takeda, USDA–ARS, W. Virginia

Winter injury of blackberries is commonplace throughout the eastern seaboard. No matter if the patch is located in North Carolina or upstate NY, we have all seen blackberries burned back due to winter cold. Some varieties are less susceptible than others, but all can succumb to frigid temperatures – and that's what we had last year.

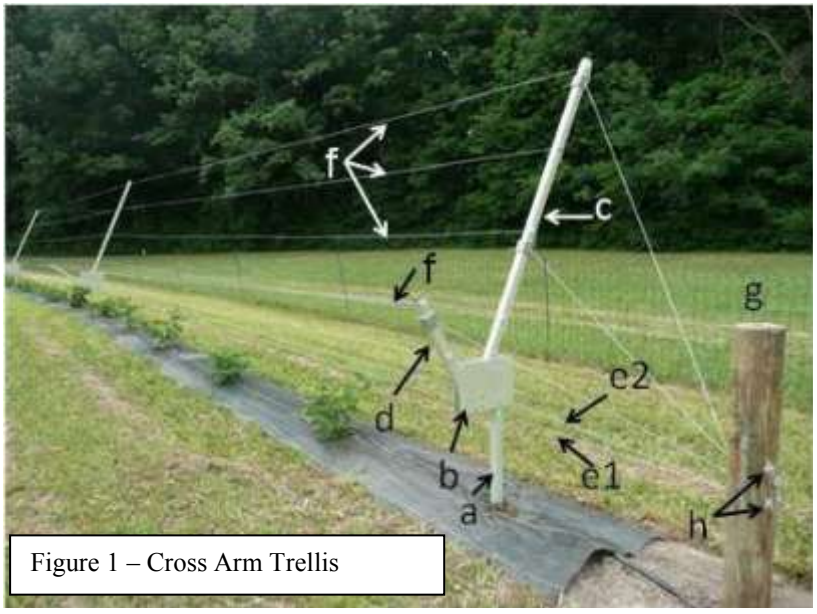


Figure 1 – Cross Arm Trellis

The rotating cross-arm (RCA) trellis is constructed of fiberglass reinforced plastic components manufactured by the pultrusion process. Figure 1 shows the trellis consisting of a post (~50 cm) (a) which has two plates (b) attached at the top.

A long (c) and a short (d) cross-arm is secured between the two plates with detent pins. Both cross-arms are rotatable. There are two cane training wires (e1 and e2) that are threaded through holes in the plates. Additional trellis wires (f) are threaded through both cross-arms and secured to end trellis assembly arms. The wires in the foreground are connected to a wooden tie-back post (g). The primocanes are placed on the training wire below the short cross-arm (e1). Wires terminate at the wooden tie-back post and on end trellis assembly arms on the first and last posts of each row with a "Quik-End tensioner (h) which has internal spring-loaded clamps.

In winter the canes are pushed over to the training wire under the long cross-arm (e2). For details on primocane training see Figure 3.

Primocane training on the rotatable cross-arm (RCA) trellis in spring is shown in Figures 2A-C.

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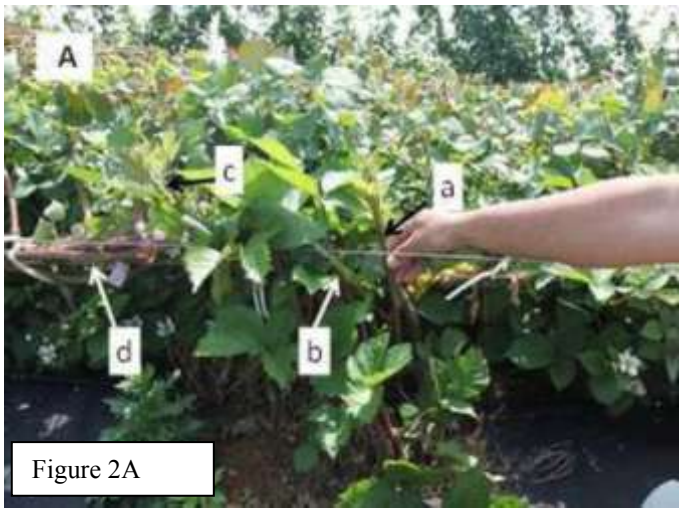


Figure 2A

Figure 2A: Up to three primocanes are trained. The **primocane (a) has grown about 15 cm above** the training wire and is ready for bending. The succulent tip portion of the primocane is carefully bent and tied to the training wire as shown below the hand to force it to grow horizontally (b). The tip portion of horizontally trained primocanes must be tied periodically to the training wire or it will revert back to growing upward (c). The floricanes have been bundled and secured to the second training wire on the RCA trellis the previous fall (d).

Figure 2B

Figure 2B: Bent primocanes (a) have grown about 1.7 m on the training wire. The portion must be secured on the training wire (b). Each primocane is tipped when the growing point reaches the adjacent plant. Secondary shoots (e.g. lateral canes) (c) develop from axillary buds on the primocanes. All lateral canes that emerge from nodes below the bend point are broken off. A floricane (d) and its lateral canes (e) that bear current year's crop can be seen behind this year's primocanes (a).

Cross Arm Trellis Successful in Wintering Over Blackberries, continued from previous page

Assembly and installation instructions are available from Trellis Growing Systems, Inc. http://trellisgrowingsystems.com/. Photos provided by Trellis Growing Systems, Inc.

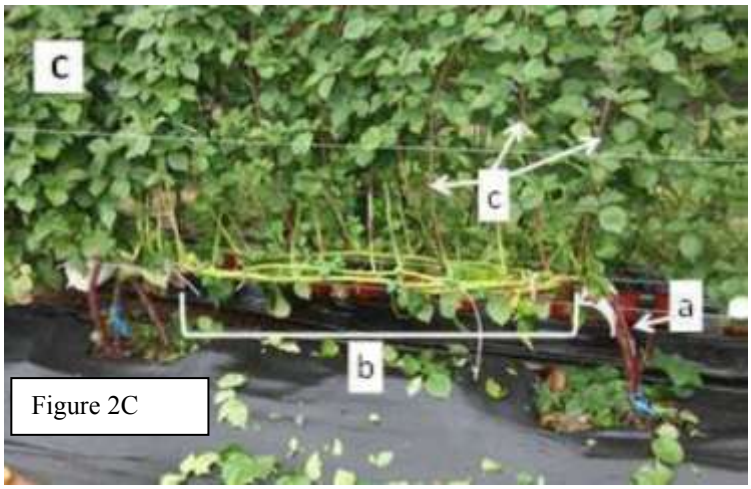


Figure 2C: Primocane growth on the RCA trellis in late summer. Three primocanes (a) have been secured to the training wire. The section of these canes that is oriented horizontally (b) has a length of about 1.7 m. Note many lateral canes (c) have developed from this cane section. The leaves have been removed to reveal the origin of lateral canes.

Figure 3: Winter protection of blackberry plants trained on the rotatable cross-arm trellis. Research plots at the Appalachian Fruit Research Station. In the row on left, the cross-arms have been rotated down to position the lateral canes close to the ground then covered with floating rowcover and secured with bags of stones.

FYI:

Come join a new farmers' market for Chenango and surrounding counties and sell your locally grown, made and crafted wares! The Bullthistle Famers' Market managed by the Norwich Business Improvement District and the Bullthistle Farmers' Market board happens every Saturday from 9am-1pm in downtown Norwich, with many vendor spaces available, live music, demonstrations and activities for kids. Something new every week! Contact the Norwich B.I.D at **607.336.1811 or bid@frontiernet.net $60 per booth space per season and plenty of parking.**

Videos of 2014 SWD trap contents! This year's monitoring has begun and Anna Wallingford, Postdoctoral Associate in Greg Loeb's lab at the Experiment Station in Geneva, created a youtube channel, SWD monitoring network, for weekly video updates (every Monday) on what the Loeb lab is finding in traps in and around Geneva. The videos will aim to inform the novice, pointing out various insects that can be found in the traps but also concentrating on those SWD look-a-like drosophilid species that pose challenges when trying to ID the rare, first SWD female(s).

To subscribe to the Cornell SWD blog, visit this website: http://blogs.cornell.edu/swd1/about/. If you include your email you will get notices about updates to the blog which will include up to the minute reporting of SWD finds in the state.

Enrollment Reminder — **Don't Miss Out!**

Thank you to those of you that have enrolled in CCE Eastern NY Commercial Horticulture Program—we appreciate your support. You should have received your complimentary Cornell University Integrated Pest Management Guidelines and the seasonal newsletters you chose as part of your enrollment.

For those of you that have not enrolled, we invite you to do so as soon as possible by completing the enrollment forms that were mailed to you in early April. If you do not think you received them or misplaced them, contact Marcie Vohnoutka at 518-272-4210 or mmp74@cornell.edu for a copy.

Unless we receive your enrollment information by June 20th, any publications that you are currently receiving from the ENYCHP will end. If you have questions about enrollment please contact one of the educators listed on the cover of this publication or call Chuck Bornt at 518-272-4210 or email cdb13@cornell.edu

Resources Available To Prevent Heat Illnesses for Outdoor Workers

Thousands of employees become sick each year and many die from working in the heat. In 2012, there were 31 heat-related worker deaths and 4,120 heat-related worker illnesses. Labor-intensive activities in hot weather can raise body temperatures beyond the level that normally can be cooled by sweating. Heat illness initially may manifest as heat rash or heat cramps, but can quickly escalate to heat exhaustion and then heat stroke if simple preventive measures are not followed. Heat illness disproportionately affects those who have not built up a tolerance to heat (acclimatization), and it is especially dangerous for new and temporary workers.

Workers harvesting strawberries.

Photo courtesy of www.findfarmcredit.com.

The U.S. Department of Labor's Occupational Safety and Health Administration launched its annual Campaign to Prevent Heat Illness in Outdoor Workers. For the fourth consecutive year, OSHA's campaign aims to raise awareness and educate workers and employers about the dangers of working in hot weather and provide resources and guidance to address these hazards. Workers at particular risk are those in outdoor industries, such as agriculture, construction, landscaping, and transportation.

"Acclimatization is a physical change that the body undergoes to build tolerance to heat, and it is a critical part of preventing heat illnesses and fatalities," said Dr. David Michaels, assistant secretary of labor for occupational safety and health. "Over the past three years, lack of acclimatization was the cause in 74% of heat-related citations issued. Employers have a responsibility to provide workplaces that are safe from recognized hazards, including outdoor heat."

Some early signs of heat illness are:

- Headache, dizziness, or fainting
- Weakness and wet skin
- Irritability or confusion
- Thirst, nausea, or vomiting

Last year, OSHA issued 11 heat-related citations. In some of these cases, the employer and staffing agency were cited because they involved temporary workers.

OSHA has developed heat illness educational materials in English and Spanish, as well as a curriculum to be used for workplace training, also available in both English and Spanish. Additionally, this site provides information and resources on heat illness — including how to prevent it and what to do in case of an emergency — for workers and employers.

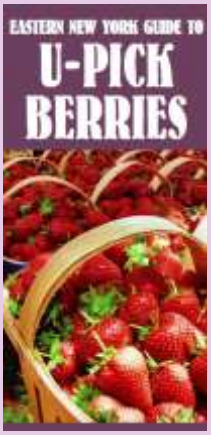
OSHA also has released a free application for mobile devices that enables workers and supervisors to monitor the heat index at their work sites. The app displays a risk level for workers based on the heat index, as well as reminders about protective measures that should be taken at that risk level. Available for Android-based platforms and the iPhone, the app can be downloaded in English and Spanish - https://www.osha.gov/SLTC/heatillness/heat_index/heat_app.html.

Additional training resources can be downloaded in English and Spanish by clicking here: https://www.osha.gov/SLTC/heatillness/trainingresources.html. A University of California, Berkley publication, "Heat Hazards in Agriculture" can be downloaded here: http://www.lohp.org/docs/pubs/heat/heat-agriculture.pdf.

Source: OSHA news release

The Eastern NY Guide to U-Pick Berries is out!

Hard copies of this bulletin are being sent to all CCE and Tourism offices of counties in the region. Maire Ullrich, who headed up the effort, is also trying to get them placed at Thruway and Northway stops. We also have them available for download at http://counties.cce.cornell.edu/orange/U-PIck_Berries_14.pdf. If you missed this opportunity this year, please look for it – or give Maire or me a call and we can make a note of your interest. *-LGM*



Summer Berry Workshops

- Tuesday or Wednesday, July 15 or 16th (TBD), Lawrence's Farms Orchards, 39 Colandrea Road, Newburgh, NY 12550, 3:00 – 5:00 PM
- Monday, July 21, Rulf's Orchard, 531 Bear Swamp Road, Peru, NY 12972, 4:00-6:00 PM
- Wednesday, July 23, Bohringer's Orchard, 3992 NY 30, Middleburgh, NY 12122, 3:00 – 5:00PM

Monitoring for SWD, designing an effective pesticide rotation program, understanding when and how to collect leaves for a nutrient analysis and general troubleshooting will all be part of this workshop.
2 DEC Pesticide Re-certification credits will be available.

Please pre-register with Marcie Vohnoutka at 518-272-4210 or mmp74@cornell.edu.

2014 Weather Table—This chart is compiled using the data collected by Northeast Weather Association (NEWA) weather stations. For more information about NEWA and a list of sites, please visit http://newa.cornell.edu/. This site has information not only on weather, but insect and disease forecasting tools that are free to use.

2014 Weekly and Seasonal Weather Information

	Growing Degree Information Base 50^{O} F			Rainfall Accumulations		
Site	**2014 Weekly Total** 6/9 –6/15	**2014 Season Total** 3/1 - 6/15	**2013 Season Total** 3/1 - 6/15	**2014 Weekly Rainfall** 6/9 –6/15 (inches)	**2014 Season Rainfall** 3/1 - 6/15 (inches)	**2013 Total Rainfall** 3/1 - 6/15 (inches)
Albany	**112.7**	**629.7**	**586.5**	**1.52**	**8.91**	**16.10**
Castleton	**106.9**	**601.0**	**589.6**	**1.74**	**10.35**	**12.67**
Clifton Park	**98.4**	**568.1**	**541.7**	**0.31**	**9.26**	**19.18**
Glens Falls	**106.1**	**595.1**	**502.5**	**2.45**	**10.94**	**13.90**
Guilderland	**101.5**	**584.0**	**529.0**	**0.31**	**1.62**	**3.44**
Highland	**107.9**	**666.3**	**660.6**	**1.41**	**11.61**	**11.23**
Hudson	**103.9**	**654.9**	**603.1**	**1.23**	**9.83**	**12.89**
Marlboro	**101.7**	**608.2**	**619.0**	**1.28**	**12.78**	**13.64**
Montgomery	**116.6**	**634.3**	**596.5**	**2.41**	**14.46**	**13.69**
Monticello	**86.4**	**446.4**	**445.0**	**N/A**	**N/A**	**N/A**
Peru	**106.4**	**533.7**	**534.2**	**2.17**	**10.13**	**9.20**
Shoreham, VT	**106.5**	**548.5**	**559.8**	**1.68**	**9.22**	**11.41**
Wilsboro	**101.5**	**499.4**	**506.0**	**0.12**	**4.26**	**12.25**