



# Ohio Fruit ICM News

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If you have articles for the newsletter that you would like to have considered to be included in upcoming issues, please submit to either Howard Siegrist at [siegrist.1@cfaes.osu.edu](mailto:siegrist.1@cfaes.osu.edu) or Melissa Swearingen at [swearingen.34@cfaes.osu.edu](mailto:swearingen.34@cfaes.osu.edu)

## Herbicide Drift Workshops - June 15, 17, 22 and 24

David Scurlock, Viticulture Outreach Specialist, Department of Horticulture and Crop Science  
OARDC and The Ohio State University

Four Herbicide Drift Awareness Workshops will be conducted in 4 locations around the State of Ohio to bring Grape Growers together for one common goal: to draw awareness on the damage and potential loss of yield to grape crops from drift of 2,4-D, dicamba and glyphosate herbicides and combinations of the 3 herbicides. The rationale is that soybeans resistant to dicamba and 2,4-D will potentially be on the market in 2014 and there were about 4.3 million acres of soybeans planted in 2009, scattered throughout Ohio. Herbicide drift from soybean fields is inevitable and imposes a significant threat to grapes, the most sensitive crop to 2,4-D and dicamba drift among major vegetable and fruit crops. Dr. Linjian Jiang will demonstrate the impact that herbicide drift can cause with examples of vines treated with extremely low doses of the above herbicides and combinations of each. A short discussion on timely vineyard practices will also be included in this workshop. Awareness and communication are the keys to co-existence. Each workshop will contain similar information, except that there will be a drift damage demo in the field in the last one. You can choose a workshop that is most convenient for you.

### The workshop sites, dates, times and directions are:

**The Winery at Otter Creek-Licking County-owners Mike and Jackie Evans, Jeff and Chris Chrisman, scheduled date 6/15/2010 6-8 pm**

<http://maps.google.com/maps?q=The%20Winery%20at%20Otter%20Creek@40.239489,-82.597768&hl=en>

**Valley Vineyards-Warren County-owner Kenny Schucter, scheduled date 6/17/2010 6-8 pm**

<http://maps.google.com/maps?q=Valley%20Vineyards@39.356932,-84.171174&hl=en>

**Dead Drop Vineyards-Seneca County-owners Tom Newcomb and Dee Jackson, scheduled date 6/22/2010 6-8 pm**

<http://www.mapquest.com/maps?city=Republic&state=OH&address=10615+E+Township+Road+8+%23+44867&zipcode=448679699&country=US&latitude=41.110224&longitude=-82.964776&geocode=ADDRESS>

**Ashtabula Agri. Res. Station- Ashtabula County-Greg Johns, AARS manager, scheduled date 6/24/2010 6-8 pm**

<http://www.oardc.ohio-state.edu/branches/branchinfo.asp?id=1>

These workshops are free and if you are interested in participating we would request that you register prior to the workshop by contacting Dave Scurlock at [scurlock.2@osu.edu](mailto:scurlock.2@osu.edu) or 330-263-3825 to reserve your space and insure we have enough handouts. The herbicide drift presentation also will be made at the Advanced Winegrape Production Workshop Friday, August 13, 2010 at the OSU South Centers in Piketon, Ohio.



**EMPOWERMENT THROUGH EDUCATION**

**North Central Ohio Tree Fruit IPM Program**  
**Report Prepared by**  
**Cindy Crawford (Erie County Adm. Assoc.)**

**Mike Abfall** – East District IPM Scout  
(Erie and Lorain Counties)

**Date – 5/17/10**

**Apples**

Spotted Tentiform Leafminer – 11.8 (down from 156.8)  
Codling Moth – 1.1 (down from 1.2)  
San Jose Scale – 0 (same)  
Oriental Fruit Moth – 0.5 (down from 1.28)  
Lesser Appleworm – 0 (same)

**Peaches**

Redbanded leafroller- 0 (same)  
Oriental Fruit Moth – 0 (down from 0.3)  
Lesser Peach Tree Borer – 1.3 (down from 3.7)  
Peach Tree Borer – 1.3 (up from 0)

**Date – 5/24/10**

**Apples**

Spotted Tentiform Leafminer – 6.85 (down from 11.8)  
Codling Moth – 6.2 (up from 1.1)  
San Jose Scale – 0 (same)  
Oriental Fruit Moth – 7 (up from 0.5)  
Lesser Appleworm – 0.8 (up from 0)

**Peaches**

Oriental Fruit Moth – 0 (same)  
Lesser Peach Tree Borer – 1.3 (same)  
Peach Tree Borer – 6.7 (up from 1.3)

**Ted Gastier** – West District IPM Scout  
(Sandusky, Ottawa, Huron and Richland Counties)

**Date – 5/17/10**

**Apples**

Spotted Tentiform Leafminer – 4 (down from 8)  
Codling Moth – 2.1 (up from 1.9)  
San Jose Scale – 0 (same)  
Oriental Fruit Moth – 6.1 (down from 8)  
Lesser Appleworm – 0 (same)  
Dogwood Borer – 0 (same)

**Peaches**

Oriental Fruit Moth – 0 (down from 0.5)  
Lesser Peach Tree Borer – 1 (same)  
Peach Tree Borer – 0 (same)

**Ted Gastier** – West District IPM Scout  
(Sandusky, Ottawa, Huron and Richland Counties)

**Date – 5/24/10**

**Apples**

Spotted Tentiform Leafminer – 1 (down from 4)  
Codling Moth – 3.1 (up from 2.1)  
San Jose Scale – 0 (same)  
Oriental Fruit Moth – 10.3 (up from 6.1)  
Lesser Appleworm – 0 (same)  
Dogwood Borer – 2 (up from 0)

**Peaches**

Oriental Fruit Moth – 0.3 (up from 0)  
Lesser Peach Tree Borer – 2.7 (up from 1)

**Wayne County**  
**Insect Trap Reports**

**Ron Becker** -  
Program Coordinator

**Week of 5/24/10**

**Codling Moth -**

Avg. /trap , 3 traps per block  
Wayne-8.44  
Medina-7.09  
Holmes-1.04

**Oriental Fruit Moth -**

Wayne-3  
Medina-2  
Holmes-1

Light Tarnished Plant Bug in both apples and peaches.

Starting to find Potato leafhopper in alfalfa, but none in the apples yet. They often also become a problem in new strawberry plantings causing yellowing and puckered leaves.

Slugs are the main problem in strawberries so far, with some spittlebug.

Growers have rogued out rust infested brambles and are now applying Rally®.

## ADHD and Pesticide Exposure

### North American Blueberry Council

Media coverage of a recent study titled, "Attention-Deficit/Hyperactivity Disorder and Urinary Metabolites of Organophosphate Pesticides" published in the May 17, 2010 issue of *Pediatrics*, the official journal of the American Academy of Pediatrics, has been generating considerable media coverage. However, the study is not nearly as conclusive as the media stories portray. The following background information is provided to help you answer inquiries concerning this issue.

It is important to note that at this time this is an observational study. While the researcher found a statistically significant relationship between pesticide residue exposure and children with ADHD, causality could not be established. The study concludes "These findings support the hypothesis that organophosphate exposure, at levels common among U.S. children, may contribute to ADHD prevalence. Prospective studies are needed to establish whether this association is casual."

This study analyzed several data sets, looking for relationships in one snapshot in time. Most scientists agree that to determine a cause-and-effect relationship, research must be conducted over a number of years and consider relevant factors like diet and medical records review.

Dr. Robert Krieger from the University of California, Riverside has provided the following statement regarding the current study. Dr. Krieger is a pesticide scientist with a degree in environmental toxicology from Cornell University and currently heads the Personal Chemical Exposure Program at University of California, Riverside.

He is co-author of a study titled "DAPs in Fruits and Vegetable May Confound Bio-monitoring in Organophosphorus Insecticide Exposure and Risk Assessment" (*Journal of Agricultural and Food Chemistry*, Volume 56, 2008) which is one of the referenced studies in this ADHD study.

#### Statement by Dr. Robert Krieger

"It would be a mistake to conclude that a urine breakdown product of organophosphorous pesticides found on fresh fruits and vegetables caused ADHD. In fact, the authors clearly state their study does NOT conclusively find that association."

"As a toxicologist, I first want consumers to know that the breakdown products (DAPs) found in urine as part of this study are NOT pesticides and they are NOT toxic on produce."

"Measuring breakdown products in tiny amounts in urine is not a measurement of risk. Detectable levels are far below amounts that have any effects in well-designed toxicity studies."

"It should also be noted that human exposure to organophosphates from all sources has declined significantly over the past 20 years as a result of reduced and discontinued use of this pesticide class by farmers, industry and in the home. Therefore, it is highly unlikely that any reported increase in ADHD could be attributed to increased exposure to organophosphates."

The North American Blueberry Council feels it is important to note that:

- As an industry that strives to deliver a healthy and nutritious product to the consumer, we agree that this is an important area of concern and encourage additional studies in this area.
- More research needs to be done to determine cause and effect before any causal relationship can be established.
- Exposure to pesticides can be through air, water or food and the origins of the exposure can only be postulated. Even if it is reasonable to assume that most of the exposure is food-borne, actual food patterns of these children were not determined in the study.
- According to the FDA, you can reduce and often eliminate pesticide residues if they are present on fresh fruits and vegetables by washing them with cold or warm tap water.
- The study discusses organophosphate use in agriculture and references the 2008 USDA Pesticide Data Report noting that the organophosphate malathion was found in 28 percent of frozen blueberry samples, 25 percent of strawberry samples and 19 percent of celery samples. It is important to note that the percentage for frozen blueberries was based on a very small sample size of just 18 samples. Of the 18 samples collected in 2008, a total of five had detection of malathion (27.8 percent of samples as noted in the ADHD study) with a range of values detected at from 0.003 parts per million to 0.005 parts per million, which is well below the EPA tolerance level of 8 parts per million. For reference, a total of 22 samples were collected in 2007, which was the first year that blueberries were added to the USDA report, and only one sample of frozen blueberries had a detection of malathion at 0.005 parts per million.

### Continued from Page 3: ADHD and Pesticide Exposure

- According to the USDA Pesticide Data Report, "*Pesticide Data Program laboratory operations are designed to detect the smallest possible levels of pesticide residues possible, even when those levels are well below the safety margins established by EPA. It is important to note that the mere presence of a pesticide on food does not indicate the food is unsafe.*" (PDP Annual Summary Calendar Year 2008- Executive Summary Page XI)
- Major health organizations as well as scientific and health authorities agree the health benefits of eating fruits and vegetables far outweigh any hypothetical risk that may be associated with pesticide residues.
- As an industry, we care about providing a healthy and safe food to the consumer. Research is showing that our fruit, which consumers enjoy, is providing unique contributions to a healthy diet, especially through its antioxidant content.
- The blueberry industry strives to provide consumers with safe, high-quality products. The industry supports growers in following standards/guidelines that ensure the safe application of pesticides with a careful eye to tolerance levels, worker safety and environmental sensitivity.

Right now, it takes safe application of chemicals to produce a healthy, economical pest-free blueberry crop. The blueberry industry believes in using Integrated Pest Management techniques and other new technologies will continue to be adopted into our management practices as they become available. Organic blueberries are also an option for consumers who wish to purchase them.

### 2010 Upcoming Events:

**Wednesday, June 30** - OPGMA Summer Tour & Field Day – <http://www.opgma.org/>

**Wednesday, July 7** - Central Ohio Twilight Fruit Field Meeting - Mark Schmittgen Farm, Thornville. Sponsored by Licking and Muskingum OSU Extension Offices. Mark your calendars, details to follow.

**August 18-21** - North American Fruit Explorers (NAFEX) Annual Meeting and Midwest Fruit Showcase. Lafayette, IN. See <http://www.nafex.org> for details.

**August 19-20** - Apple Crop Outlook Conference, US Apple Association, Ritz-Carlton Hotel, Chicago. See [www.usapple.com](http://www.usapple.com) for details.

**December 7-9, 2010.** Great Lakes Fruit Vegetable and Farm Market EXPO, DeVos Place Convention Center, Grand Rapids, Michigan. For more information: <http://www.glexpo.com> .

### Central Ohio Poison Control Number

**(800) 222-1222**  
**TTY # is (614) 228-2272**

## Michigan Pollinator Short Course Offered at No-Cost June 24

Diane Brown-Rytlewski, Extension Educator  
Michigan State University Extension

The 2008 Farm Bill makes pollinators and their habitat a conservation priority for every USDA land manager and conservationist. This training session provides an overview of pollinator-specific language within the Farm Bill, and how to translate that language into on-the-ground conservation. This day-long short course will equip conservationists, land managers, farm educators and agricultural professionals with the latest science-based approaches to increasing crop security and reversing the trend of pollinator decline, especially in heavily managed agricultural landscapes. Introductory topics include the basic principles of pollinator biology, the economics of insect pollination, recognizing native bee species and assessment of pollinator habitat.

Advanced modules will cover farm management practices for pollinator protection, the development of pollinator habitat enhancements, incorporating pollinator conservation into NRCS programs, selection of plants for pollinator enhancement sites, management of natural and urban landscapes and the additional funding sources and technical support available to land managers. Throughout the workshop these training modules are illustrated by real case studies of pollinator conservation efforts across the country. The first 30 registrants will receive the Xerces Society's Pollinator Conservation Toolkit that includes published farm and habitat management guidelines, fact sheets and nest construction plans, relevant Extension and NRCS publications. Additional toolkits will be available for purchase (\$20.00).

The short course will be held Thursday, June 24 in East Lansing. The course will be led by Jennifer Hopwood, Midwest Pollinator Outreach Coordinator.

### To register

Contact Jennifer Hopwood, Midwest Pollinator Outreach Coordinator  
The Xerces Society for Invertebrate Conservation  
P.O. Box 299, St. Louis, MO 63166-0299  
Tel: 913-579-5241 Email: [jennifer@xerces.org](mailto:jennifer@xerces.org)

### Course training skills and objectives

- Awareness of various federal programs and funding available for pollinator conservation.
- Identify approaches to increase and enhance pollinator diversity on the land.
- Knowledge of the current best management practices that minimize land-use impacts on pollinators.
- Ability to identify bees and distinguish them from other insects.
- Understand the economics of insect-pollinated crops, and the effects of pollinator decline.
- Knowledge of the 2008 Farm Bill pollinator conservation provisions and how to implement those provisions in programs such as WHIP, EQIP, and CSP.
- Ability to assess pollinator habitat and to identify habitat deficiencies.
- Ability to make recommendations to farmers and land managers that conserve pollinators (including subjects such as tillage, pesticide use, irrigation, burning, grazing, and cover cropping).
- Ability to design and implement habitat improvements, such as native plant restoration and nest site enhancements.

### Acknowledgements

These Pollinator Conservation Short Courses are supported by the supported by the Natural Resources Conservation Service (NRCS) and the Sustainable Agriculture Research and Education (SARE) program. Since 1988, SARE has helped advance farming systems that are profitable, environmentally sound and good for communities through a nationwide research and education grants program. The SARE program is supported by the National Institute of Food and Agriculture (NIFA), U.S. Department of Agriculture. More information about SARE is available at [www.sare.org](http://www.sare.org).





## Fire Blight Alert

Dave Rosenberger, Plant Pathology

Cornell University - NYS Agricultural Experiment Station - Cornell Cooperative Extension

On May 19, we found the first blossom blight symptoms of fire blight in one of our orchards at the Hudson Valley Lab. Early symptoms of blossom blight include blackening of the flower/fruitlet stems, dying cluster leaves, and ooze droplets on the surface of affected tissues (Fig. 1). Blossom clusters with fire blight generally remain attached to the tree and do not drop off as would be expected for non-pollinated flowers. Eventually, bourse shoots arising from blighted flower clusters will be killed, the subtending twigs will be girdled by the infection, and the terminal shoots farther out on affected twigs or limbs will develop the classic “shepherd’s crook” symptoms that occur when fire blight kills shoots (Fig. 2).

The blight infections we found presumably resulted from the ideal blossom blight infection conditions that occurred May 1 to 3 in the Hudson Valley when trees were at full bloom. Warm weather (near 80°F) over the past weekend and predicted for the

Fig 1. Blossom blight symptoms on a flower cluster from a Royal Court tree found at the Hudson Valley Lab on May 19. Note the light tan droplets of ooze at the base of the flower stems.

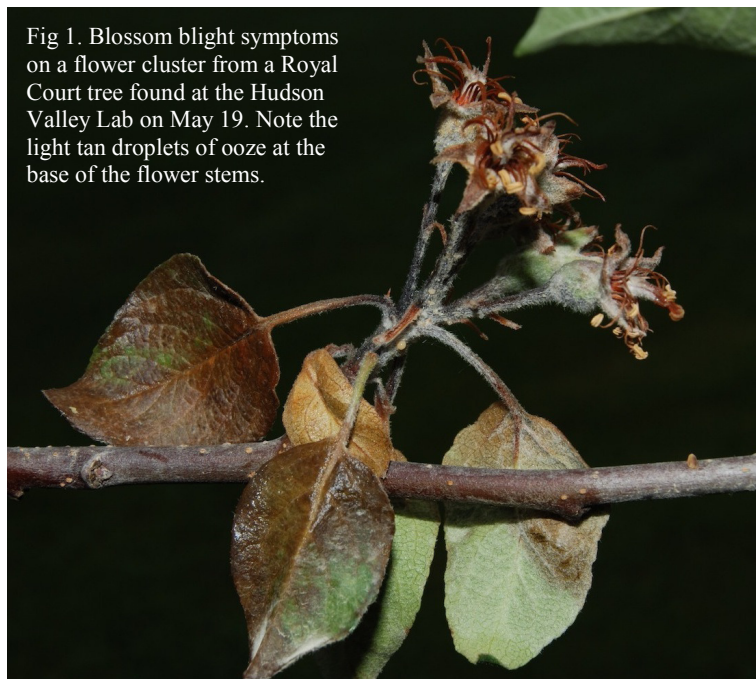
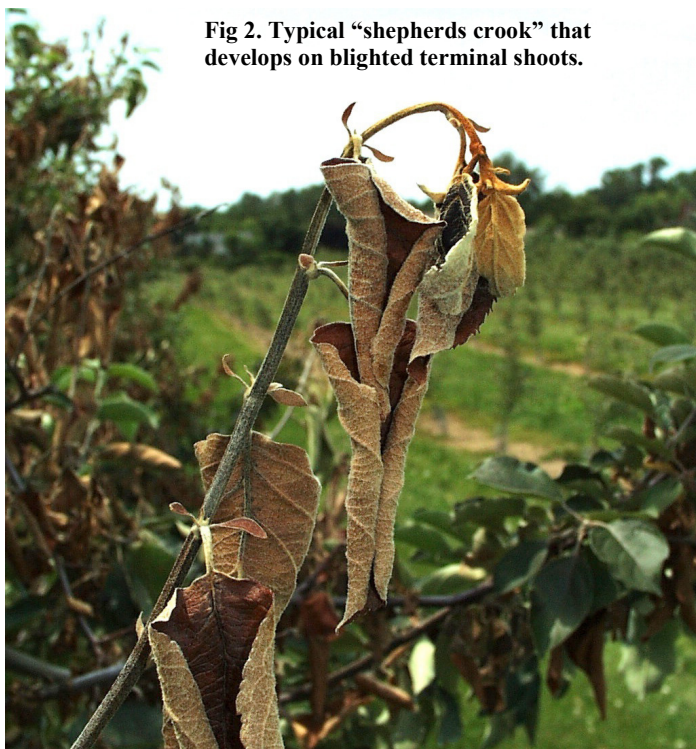


Fig 2. Typical “shepherd’s crook” that develops on blighted terminal shoots.



early part of this week will likely cause blight strikes to “pop out” during the next few days in Hudson Valley orchards that were not adequately protected from fire blight during bloom.

In orchards with only an occasional infection here and there, scouting and immediate removal of the blighted shoots can significantly reduce secondary spread that occurs when blowing rain or pesticide applications distribute bacteria to susceptible shoot tips. Careful scouting and removal of infections is especially critical for orchards less than seven years old because the blight bacteria that enter through blossoms can rapidly move downward into branches, scaffold limbs, and rootstocks in young trees. Bud pinching or any other tree training work that might create wounds should be discontinued for the next several weeks in any orchards where fire blight is active because the bacteria can also enter through man-made wounds.

With inoculum now being produced by blossom clusters that were infected in early May, there will be an abundance of inoculum for infecting flowers on newly planted trees if new orchards are located within a

half-mile of older orchards that have active fire blight. Flowers on newly planted trees generally open two to six weeks after established trees have completed bloom. Open flowers on newly planted trees should be protected using streptomycin if weather is conducive for blossom blight. Cougar blight infection periods for fire blight can be found on the NEWA website at <http://newa.cornell.edu/index.php?page=apple-diseases-fire-blight>. More than one application of streptomycin may be needed to cover the flowering period in new plantings, especially where orchards contain multiple cultivars that may bloom at slightly different times. Flowers that open after a strep spray is applied will not be protected from subsequent infection, so repeated streptomycin sprays may be required if conditions favoring fire blight persist as flowers continue to open.

Streptomycin should NOT be applied to mature orchards after petal fall unless it is needed to protect rattail bloom or to prevent trauma blight immediately following a hailstorm. In other parts of the country, repeated applications of streptomycin after bloom have consistently resulted in development of strep resistant strains of fire blight. Streptomycin remains the most effective tool for controlling fire blight. If we select for strep-resistant strains of fire blight, it will be much more difficult to control fire blight in the future.

## Take Time to Check Orchard Blocks for Internal Fruit Damage from Freezing Temperatures that Occurred after Fruit Set

Dr. Rob Crassweller, Department of Horticulture  
Penn State University

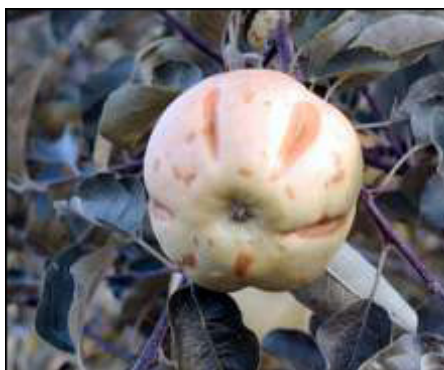
Last week we were out in the western end of Pennsylvania for twilight meetings. At orchards around the Pittsburgh area we saw some extensive frost/freeze damage (see images). This is the most unusual injury I have ever seen. Normally when I have seen frost damage it occurs when the center pistil area is dead as indicated by blackened tissue or the seeds may be damaged and brown colored. In the damage we saw last week it was actually the cortex of the developing fruit that was injured with generally green pistils and healthy seeds. My expectation would be that fruit showing the damages in the images would likely drop in the next few weeks. We also saw frost damage that will likely lead to scarring and russetting. You may also see —pumpkin-shaped || fruit where growth continues (see image from 2002). This occurs from damage to either the sepals or to the vascular bundles in the outer edge of the cortex. Fortunately, I do not think the frost/freeze damage is too widespread although some educators indicated they had some in the northeastern section of Pennsylvania and on some high ground in Adams County. The damage most likely occurred on the morning of May 17 but some growers also indicated damage back in April. The early bloom (as much as 3 weeks earlier than normal) has resulted in the potential for the observed damage. Growers would be advised to check their blocks to ensure the damage is not present in other areas. The orchards at Rock Springs seem to have avoided any of the frost damage as well as golf ball size hail that hit about 4 miles east.



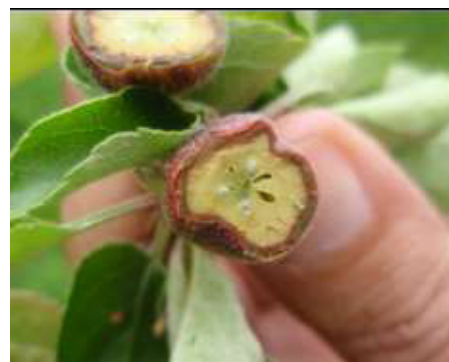
**2010 freeze damage to apples.**



**2010 green centers with cortex damage.**



**Frost crevices from early damage in 2002**



**2010 cross section of damage**

## New Cornell Strawberry Variety to be Unveiled at Field Day

New York Berry News  
Cornell University

Cornell University's New York State Agricultural Experiment Station will host a strawberry field day from 4 p.m. to 7 p.m. on Thursday, June 17, 2010 at the Darrow Farm outside Geneva. Dr. Courtney Weber, Cornell small fruits breeder and meeting host, will be unveiling the newest strawberry variety to be released from the Cornell University strawberry breeding program.

The new variety, which has been tested as NY99-21, is featured in a trial with leading regional varieties and advanced selections from the Cornell University strawberry breeding program. Fruit will be available for evaluation and tasting. Additionally, a comprehensive program on strawberry production and pest management will be presented by Drs. Courtney Weber, Marvin Pritts, Kerik Cox, and Greg Loeb and Extension Specialist Cathy Heidenreich.

The program is free and open to the public but pre-registration is strongly encouraged to ensure adequate handouts and refreshments. The Darrow Farm is located at 3227 Gates Rd., approximately 3 miles west of the Experiment Station off County Rd. 4 (North St. in Geneva) and 1 mile south on Gates Rd.

### Registration is by email, phone, or mail to:

Lou Ann Rago, Cornell University-NYSAES, Dept. of Horticultural Sciences  
630 W. North St. Geneva, NY 14456.

email: [lar38@cornell.edu](mailto:lar38@cornell.edu) phone: (315) 787-2394

Questions may be directed to Dr. Courtney Weber at 315-787-2395 or [caw34@cornell.edu](mailto:caw34@cornell.edu).





## Temperature Measurement and Frost/Freeze Damage on Berry Crops

Kathy “Still-Learning” Demchak, Department of Horticulture  
Penn State University

What was it someone told me the other day? Oh yeah. Maybe it was in response to my daily mutterings that the older I get, the less I know. The comment went something like —Yep, once you have a degree, all you *really* can be sure of is that you have a degree. Well, I’m still learning about frost protection, among other things.

Those low temperatures the morning of May 10 resulted in damage to various berry crops, mostly in colder areas of the state, and this time things were a little different. The need to protect strawberry blossoms from cold temperatures is not unusual, but the fact that plant growth was 2 to 3 weeks ahead of schedule, coupled with really cold low temperatures, was a perfect setup for causing problems.

Even though many of us thought we had done a sufficient job of frost protecting, we had damage anyway. Why might this have been? In at least a couple of instances, I think there probably was some damage from evaporative cooling when the irrigation was started. At Rock Springs, the dew point was about 24° (lower than we usually expect for this time of year). With a dew point that low, assuming a critical temperature of 30°, the recommended temperature at which to start irrigating would have been 37°. Not many of us start irrigation at temperatures that high. The temperature also dropped like a rock, so until the irrigation was fully running and the foliage was completely wetted, the temperatures could have dropped another couple of degrees. Finally, it’s possible that the actual blossom temperature was colder than growers thought. Most of us still just use a good old fashioned thermometer for temperature measurements. If you use a min-max thermometer, the bulb is at the top of the thermometer, and that is probably good, as the bulb is exposed if the thermometer is placed vertically in the field at strawberry level. If you are using a typical porch thermometer, the bulb is at the bottom, and if it’s placed vertically in your strawberry foliage (which is good, but...), the bulb could be nestled in a nice bed of straw or could be protected by the strawberry foliage itself. So, you might want to consider placing your thermometer in such a way so that the bulb is located at the same height as the strawberry blossoms, and is as exposed as possible.



There can be quite a difference in readings between different thermometers, and it appears that the readings can change a bit over time. I had checked ours in a crushed ice and water slurry 2 years ago. It turns out that checking them every few years isn’t good enough. One of my min-max thermometers was reading 3° too warm, and the other one was reading 2° too cold. They would have averaged out to about right, but I didn’t want an average reading – I wanted a reading that I could trust.

Someone asked me what the critical temperature was for pea-sized blueberries. I didn’t know (and still don’t), but observationally, it seems that pea-sized or larger green blueberry fruit may be more sensitive to freeze damage than smaller green fruit. If you noticed your previously-fine blueberries shriveling up as they were thawing out, there might have been a temperature problem.

Also, I generally tell folks that they don’t need to worry about frost-protecting raspberries, since they don’t bloom until after the last frost. Wrong again. Frost-damaged raspberry blossoms look just like frost-damaged strawberry blossoms. Nice and black in the center. Just thought you might want to know... I can’t find any information on



### Nitrogen Fertilization for Berry Crops

Laura McDermott, Regional Agricultural Specialist,  
Capital District Vegetable and Small Fruit Program of Cornell,  
New York Berry News  
Cornell University Extension

The most important time for thinking about small fruit crops fertility is the year prior to planting. Soil pH phosphorus and potash plus some micronutrients can be added to the soil, if needed, in a pre-plant incorporation. Oftentimes, that may be the only time you need to address these nutrients during the life of the planting. Small adjustments can be made as the planting matures using foliar leaf sampling. Berry crops still have nitrogen needs that must be met annually. For all berry crops except strawberries, add the N in a 3' band in the row – for strawberries concentrate the N in a 1' band over the row. The [following recommendations](#) are also listed in the [2010 Pest Management Guidelines for Berry Crops](#) along with information for less common berry crops like currants, elderberries and cranberries. All of the rate information is for pounds of actual N per acre. Thus you will need to know the % of actual N in the type of fertilizer that you are using. Also, if you need to convert lb/A to lbs/100 sq feet, then multiply the per acre rate by 0.0023 to get the rate in terms of 100 sq feet. (More of these handy conversions are also in the Guidelines).

Fertilizer	% actual N in fertilizer
Ammonium nitrate	34.0
Ammonium sulfate	20.5
Calcium nitrate	15.0
Diammonium phosphate	17.0
Potassium nitrate	13.0
Urea	46.0

**June-bearing strawberries:** Transplant year – use calcium nitrate or ammonium nitrate. Make sure that plants are growing well before applying fertilizer and then add 30#N/A in early June and again in early Sept. For bearing years - Do not fertilize bearing strawberries until renovation because adding N in the spring leads to poor berry quality and contributes to fruit rot diseases. Add 70# N/A at renovation and then add 30#N/A again in early September (adjust this rate depending on foliar leaf analysis). You can use urea or calcium nitrate or ammonium nitrate as N sources for established berries.

**Raspberries:** For newly planted summer and fall raspberries, use calcium nitrate at the rate of 25#N/acre and apply 4 weeks after transplanting. If your actual area of 3' wide rows is 0.25 acre and calcium nitrate is 15% N, you will calculate the amount of fertilizer to apply by dividing the desired amount of actual N (25#) by the %N in the fertilizer (15) and then multiply by 100. For this case it will be 167 pounds per acre or ¼ of that for 42 pounds (yes, I do round up!). For bearing summer and fall raspberries, split an application of urea or ammonium nitrate between May and June, or apply it all in May. Rates will vary depending upon the age of the planting and the type of soil that you have.

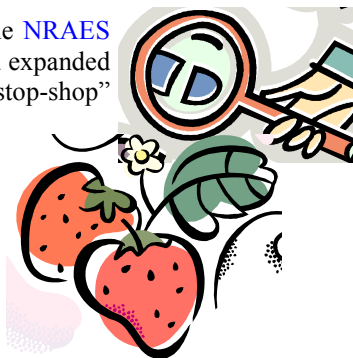
Please see the guidelines or call me for more specific information.

**Blueberries:** Do not fertilize newly planted blueberries. When fertilization is appropriate, after the transplant year, N applications should be split between May and June and only **non-nitrate** forms of N should be used, like ammonium sulfate or urea. Rates vary depending upon age with 1 year old plants only needing 15#N/A per year and 7 year old plants needing 65#N/A per year. Still blueberries are not heavy nitrogen feeders.

## New Version of Cornell Berry Tool A “One Stop Shop” for Berry Pest Management

New York Berry News  
Cornell University

The [berry diagnostic tool](#), designed in 2001 by [Dr. Marvin Pritts](#) as a compliment to the [NRAES](#) berry production guides, has a brand new look. The 2010 version, extensively revised and expanded by Dr. Pritts and Extension Berry Specialist [Cathy Heidenreich](#), now provides a “one-stop-shop” for berry pest diagnosis and management information. There’s more on biotic and abiotic diseases, more on insects and mites, more on wildlife damage.



Berry Crop CSI is now a snap for growers, consultants and extension personnel, who using the on line tool, work through a series of questions to reach potential diagnoses for the berry problem they may be encountering. Detailed descriptions and photos are included in all sections of the decision tool to help with decision-making. Once a final diagnosis is reached, the “More information” tab takes them to links to other descriptive on line information. On that same page they can also follow links directly to the “Cornell Pest Management Guidelines for Berry Crops” management information for that particular pest and/or plant development stage for that pest. Pest management links are also provided for organic growers and growers outside NYS.

For those who are new to Berry Crop CSI, there is a section on [visual assessment of berry crop health](#). Also available is as section on [how to use the berry diagnostic tool](#) for new users. Visit the Berry Diagnostic Tool here: <http://www.fruit.cornell.edu/berrytool/>.

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