



Cornell University
College of Agriculture and Life Sciences

New York Berry News

Volume 11, Number 6

June 21, 2012

Events Calendar

July 11, 2012. *Juneberry/Saskatoon Farm Tour*, Walworth, NY. Details follow below.

July 12, 2012. *Twilight Day Neutral Strawberry Meeting*, Linvilla Orchards, Media, PA. Details follow below.

July 24, 2012. *LOFT Summer Fruit Tour*. Details follow below.

August 14-15, 2012. *NASGA Summer Tour*, Halifax, Nova Scotia. Details follow below.

September 14, 2012. *Cornell Small Fruit Open House*, Cornell Orchard and Maple Avenue High Tunnels, 1-4 PM. SAVE THE DATE!

January xx-xx, 2013. *Empire State Producers EXPO*, OnCenter, Syracuse NY. SAVE THE DATES!

January 28-30, 2013. *Joint Conference, North American Raspberry and Blackberry/Strawberry Growers Associations*, Portland OR. SAVE THE DATE!

June 17-19, 2013 – Berry Health Benefits Symposium, in Concord, NC. Join leading researchers and industry leaders to learn about the newest research in this field. Held biennially; this fourth Symposium will be the first time the event has been held on the East Coast. For more information, contact catmc@peak.org. Info about the 2011 Symposium may be found at www.berryhealth.org.

Juneberry / Saskatoon Production Twilight Meeting

Wednesday, July 11, 2012

6:00 PM – 7:30 PM

G and S Orchards

825 Atlantic Avenue (Route 286), Walworth, NY 14568

This tour is for people interested in Juneberry production in the Northeast US. We will visit Stephanie and Gary Craft's farm to see Juneberry plants in a 100-plant demonstration area, plus another 100 planted for commercial sale.

During the twilight meeting, we will recap the status of Juneberry production and marketing in the Northeast US, hand out information sheets, and see the influence of grow tubes on plant development. The Juneberry plants at G and S Orchards were planted in May 2010, and initially had fruit set in 2012, but a hard freeze and snow event caused much of the fruit to abort, which is not unusual for younger plantings. They are not currently bearing fruit. These plants have been well-managed and are in good health and vigor due to the disciplined management approach. We will have dehydrated Juneberries on hand to enjoy and will assess the four different varieties for size and vigor after three years of growth.

Please register for this free twilight meeting by calling Cornell Cooperative Extension of Ontario County at 585-394-3977 x427 or e-mail Nancy Anderson at nea8@cornell.edu

Location: <http://gandsorchards.com/directions.shtml>

Website: <http://www.juneberries.org>

Twilight Day-Neutral Strawberry Meeting in Southeastern Pennsylvania - Scott Guiser (sg6@psu.edu), PSU

Linivilla Orchards was awarded a Pennsylvania Specialty Crops Grant to investigate the feasibility of commercial scale production of day-neutral, also known as everbearing strawberries. You are invited to see more than 4 acres of production, including 3 acres of the variety Seascape established in the spring of 2012. Harvest should be in full swing at the meeting date of July 12. There is no charge for the meeting but please call Linivilla Orchards at 610-876-7116 before July 11 so we can get a head count for refreshments. Linivilla Orchards is located at 137 West Knowlton Rd, Media, PA, Delaware County.

Norm Shultz, orchard manager, will discuss management practices he has used and his vision for day-neutral strawberry production in Pennsylvania. Kathy Demchak, Penn State Extension small fruit specialist will be on hand to discuss her research experiences with strawberries. Pesticide credits will be provided.

The meeting will begin at 5:30 with light refreshments. We will head to the fields at 6:00. In addition to strawberries, Linivilla grows approximately 30 acres of apples, peaches, pears, blackberries and blueberries and market them at their farm market in Delaware County, southeastern Pennsylvania.

Don't miss this opportunity to get a first-hand look at a new strawberry production system as well as a premier retail marketing operation at Linivilla Orchards.

2012 Lake Ontario CCE Summer Fruit Tour

Featuring New Technology in the Wayne Co. Fruit Industry

July 24, 2012

sponsored by Cornell Cooperative Extension and Cornell University

Get new ideas for your farm and have fun!

Thanks to Sponsors, there is no charge to attend!

Just drive in at registration and follow us!

Bayer Crop Science; Nichino America, Inc.; Summit Tree Sales; Valent USA; Adams County Nursery, Inc.; Dupont; Macroplastics; Dow AgroSciences; Mott's; HH. Dobbins, Inc.; NY Apple Association; and more...

Please pre-register by July 20 so we have enough lunches and handouts.

Pre-registration form follows.

Call or email to register: 585-798-4265 x 26, or krh5@cornell.edu

Call for complete details of tour: **585-798-4265 x 26**. Or go to our website: <http://www.fruit.cornell.edu/lof/>

No rain date, bring raingear, hat and sunscreen and a seat if you have trouble standing.

Application for DEC recertification for Stop 2 only.

Highlights of the tour will include berry and odd fruit production and pest management issues, innovative CSA marketing, weed control treatment plots in young trees, alternative pollinators for fruit crops, update on strep-resistant fire blight in NY, controlling tree growth in a light crop year, climate, frost and crop protection methods, managing growth in grafted trees, using induction cones for safer pesticide mixing, using platforms and hedgers for increased labor efficiency in tall spindle plantings. Growers, industry, and Cornell faculty and specialists share new technology and better ways to produce fruit.



8:00-8:30 AM: Registration at G & S Orchards (825 Atlantic Avenue, Walworth, NY)

Stop 1 - 8:30 AM – 9:30 AM: G & S Orchards (825 Atlantic Avenue, Walworth, NY) Gary & Stephanie Craft will share production successes and challenges of berry production and some odd fruits such as Juneberries, gooseberries, and how they market through their CSA. Dr. Kerik Cox of the NYSAES in Geneva will talk about blueberry viruses and demo the survey procedure/effort in his current project. Dr. Greg Loeb of NYSEAS will discuss the Spotted Wing Drosophila, and detail how to monitor and control this invasive pest. Mario Miranda-Sazo (CCE-LOF) and Cathy Heidenreich (NYSAES) will discuss soil and leaf analysis how-to's , as the Crafts are cooperating growers in their NE SARE berry soil and nutrient management project. Dr. Marvin Pritts (Cornell) will also be on hand to answer small fruit questions as well.

Stop 2 - 10:00-11:00: Mason Farms (5875 Eddy Ridge Rd., Williamson, NY) have been collaborating with CCE-LOF on a NESARE ground cover management project for 2 seasons looking at performance of new herbicides in young trees and establishing different ground cover crops. Deborah Breth will show how each of these herbicide treatments perform and how it effects tree growth. She will talk about what persistent weeds come through the treatments and how to control them. Kerik Cox will present an update on the status of streptomycin resistant fire blight in NY for 2012. Fire blight samples have been collected around the state and tested for susceptibility to streptomycin, and you will hear preliminary results. Mia Park, Ph.D. candidate at Cornell University, will talk about identifying alternative pollinators for fruit crops, and talk about ways to preserve them in the fruit production system treated with many different types of insecticides.

Stop 3 - 11:30 – 12:00: Orbaker Fruit Farm (Lake Rd., across from Pultneyville Cemetery, Pultneyville, NY) have set up a McIntosh demonstration plot to control excessive shoot growth with the use of a root pruner (large coulter wheel type built by Jim and Adam Peters) and the use of Apogee. Gary Orkaber and Mario Miranda Sazo (CCE-LOF) will discuss the differences in limiting tree growth with a very light fruit situation. Several Mac trees were left untreated to compare with Apogee and/or root pruned treated trees. A few root pruned trees were excavated to monitor new root growth and will also be available for observation.

12:00 – 1:30 PM: Lunch and visit with sponsors at B. Forman Park, 4507 Lake Rd., Pultneyville, NY. (Pavilion 1 & 4)

Stop 4 - 2:00 – 3:00: Knapp Orchards (5180 South St., Sodus, NY) have significant acreage outside the zone of frost protection by Lake Ontario. They invested in an Orchard Rite wind machine - see and hear how it worked. Discussion on climate, frost and crop protection will be led by Mark Wysocki (Senior lecturer in the Dept. of Earth and Atmospheric Sciences, Cornell U.) and by Professor Dr. Alan Lakso (Dept. Horticulture, Cornell U.) Mario Miranda Sazo (CCE-LOF) will show additional frost protection results from other WNY sites where new wind machines were installed this year. They will discuss how wind machines work with consideration of topography and air drainage. Steve Knapp top-worked some trees in 2011 to Honeycrisp and Steve Hoying (CU, Hudson Valley Lab.) will show us how to manage the growth after the first year.

Stop 5 - 3:20 - 4:30 PM: VandeWalle Fruit Farms (Rte. 14, just 1 mile north of Ridge Rd., Alton, NY) will show improvements in their operation for mixing/loading pesticides. Dr. Andrew Landers and Mike Maloney will discuss how induction cones work and benefits of using them. Scott Van DeWalle and Mario Miranda Sazo (CCE-LOF) will talk about their current mechanization project for Tall Spindle using two platform types and one hedger.

CCE-LOF Summer Tour, Jul 24

Registration Form: Please pre-register by July 20 or before.

Fax: 585-798-5191, email: krh5@cornell.edu, Kim Hazel at 585-798-4265 x 26.

Attending _____ Name(s) _____

Farm/Business _____

Address _____

Email _____ Phone _____ Fax _____

Dr. Kerik Cox Promoted to Associate Professor

Dr. Kerik Cox was promoted to the academic rank of Associate Professor in the Department of Plant Pathology and Plant-Microbe Biology at the Cornell College of Agriculture and Life Sciences this month after successful submission and acceptance of his tenure package.

Kerik joined the PP-PMB faculty in 2006. He received a BS degree from Furman University in 1998 in Biology. Kerik received both Master of Science and Doctorate degrees in Plant Pathology from the University of Georgia in 2000 and 2004, respectively on mummy berry disease of blueberry and Armillaria root rot of peach. He then took a postdoc at Clemson University where he taught mycology and worked on transgenic approaches to disease resistance and fungicide resistance in brown rot of stone fruit.



Since his arrival Kerik has been an invaluable member of the “Cornell Berry Team” comprised of Cornell faculty and extension staff supporting commercial berry growers in NY State. He is an active member of Cornell’s Tree Fruit and Small Fruit program work team (pwt) and works collaboratively with other small fruit faculty and extension staff.

Kerik’s research program focuses on integrating basic and applied research to develop improved management strategies for fruit diseases of concern to New York producers.

Small fruit research projects Kerik has worked on since coming to Cornell include:

- Blueberry viruses - Kerik is currently working with colleagues Marc Fuchs, Juliet Carroll, Marvin Pritts and Cathy Heidenreich to document the presence of and address recently identified blueberry virus issues in the state.
- Cane blight of currants and gooseberries – Kerik has established the molecular etiology of current cane blight, and management programs for minimizing impacts of the disease
- Mummyberry – Kerik has conducted several research trials evaluating mummy berry management practices for growers in the region.
- White pine blister rust and Gooseberry Anthracnose – Kerik has investigated several cultural and management programs (organic and conventional) for anthracnose and rust to determine the feasibility implementing soft fungicide products.



Kerik’s extension program develops educational programming and provides services for the diagnosis and management of fruit diseases in New York. The specific goals of that program are to work with stakeholders, cooperative extension, private consultants, and regulatory agencies to 1) develop educational material and tools to improve the diagnosis and management of fruit diseases in NY and promote pesticide stewardship practices, and to 2) provide services to help fruit stakeholders identify emerging disease concerns and overcome barriers to disease management specific to their operations. He feels there is considerable interrelation between the two goals as the products from his service oriented goal will improve the relevance and quality of the educational materials and tools developed in the first.

As the number of small diversified farms and interest in local farming increases, educational tools available to the stakeholder

and services that provide support specific to individual stakeholder operations will be of critical importance for the sustainability of fruit crops in NY, he indicates.

Small fruit-related objectives of Kerik’s program are to: 1) Provide comprehensive disease information and educational programming on pesticide stewardship for New York fruit stakeholders and the community at large; 2) Establish a program for field evaluating and refining cultural, organic, and conventional chemical management options for fruit diseases of concern to New York fruit stakeholders; and 3) Develop a program for the diagnosis of emerging disease concerns for both tree and small fruit stakeholders in New York.

Kerik is a contributing author to the “Cornell Pest Management Guidelines for Berry Crops”, “Production Guide for Organic Strawberries” and, “Production Guide to Organic Blueberries”, commercial grower publications updated on an annual basis each year and a regular

contributor to the New York Berry News. He is well liked and respected by NYS berry growers. His friendly and approachable manner and professionalism stand him in good stead with both colleagues and consultants.

Congratulations Kerik, and keep up the good work!

Editor's Note: Kerik resides in Geneva NY with his wife Rosemary and two children Kalin and Mira and a cat Buckle. When he is not out fighting berry diseases he enjoys working with computer hardware, Hi-Fi audio, & horror comedies.

NEW CCE Ulster AG Staffers to Cover Berry Crops

CCE Ulster has recently expanded their Ag staff, through a grant from the New World Foundation Local Economies Project. The addition of staff will enhance and expand current agriculture education programming and outreach efforts. Two of the new staff members have berry responsibilities.

Emily Cook joins Ulster County Cooperative as our new Organic Production Resource Educator. Emily has over 10 years production experience on farms in Pennsylvania, New Jersey, and most recently Virginia. She studied Environmental Science at Connecticut College and is currently completing her Masters in Horticulture from Penn State University. Now a Kingston resident, Emily looks forward to working with growers in and around Ulster County.



Emily's activities include: farm visits meeting growers, becoming familiar with the scope of operations in Ulster County, assessing grower needs, fruit and vegetable disease diagnosis, and responding to grower questions for various pest issues. So far she has assisted growers with production issues including: bloat nematode and Fusarium on garlic, black cherry aphid on tunnel cherry trees, angular leaf spot on squash, downy mildew on lettuce, cutworms and armyworms.

One of Emily's latest newsletter articles was on Blueberry fertility management: Tools for Nutrient Management on Organic Farms. She is doing research and monitoring of Codling moth, Oriental fruit moth, and Oblique banded leaf roller in organic orchards.

She is also working on Spotted-wing *Drosophila* trapping in small organic fruits, nutrient leachate collection from greenhouse transplants, garlic post-harvest evaluations, and nutrient management studies. This summer and fall Emily will initiate a nitrate monitoring project.



Jim O'Connell is the newest member of the CCEUC Ag team, having started in his position as a Fruit Resource Educator on June 4, 2012. Jim's background in Horticulture began at the University of New Hampshire as a research assistant working on fruit (blueberries and strawberries) and vegetable crops (tomatoes and cucurbits). He graduated from UNH in 2001 with a Bachelor's Degree in Environmental Horticulture. Jim then worked at the University of Massachusetts Cranberry Station as a research technician in the Plant Nutrition Lab, where he collaborated with growers on many fertilizer and herbicide trials, as well as a road salt intrusion project. In 2010, Jim graduated from UMass Amherst with a Master's Degree in Plant and Soil Science. His thesis topic focused on controlling dodder (*Cuscuta gronovii*), a parasitic weed, with short term floods.

Jim's responsibilities with CCE will include serving as a subject matter resource for berry and grape growers relating to horticulture, integrated pest management, harvest and post-harvest practices, pesticide safety and food security. Currently, he is developing a database of berry and grape growers in Ulster County, and making farm visits to learn about the local grower community and its production practices. Jim will soon begin monitoring and scouting local farms for pests of strawberry, blueberry, raspberry and grapes in order to provide growers with timely information on insect and disease issues. Later this summer, Jim plans to conduct on-farm surveys of weed pests in fruit crops under different production practices to identify what weeds species are major problems. This will allow him to conduct field trials next season to look at control practices for important weed pests. Jim is looking forward to working with local growers, and encourages them to contact him with questions and to invite him out for a site visit.

Please Complete Your 2012 Ag Census! Anu Rangarajan, Cornell

This is a reminder to make sure that beginning farmers are signed up to be included in the 2012 Ag census. July 1 is the sign-up deadline for farms to voluntarily register. This is very important to get farms included that were not the 2007 survey. Have new farmers go to <http://www.agcensus.usda.gov/index.php>, and click "Make your voice heard. Sign up" green box.

Tips to Stay Safe in the Heat - Kelly Ewalt, AgrAbility Educator, MSU Extension

With the hot summer weather upon us, heat related issues can sneak up on people who work outdoors, especially farmers who may not have access to shade or air conditioning to cool down.

June 18, 2012. Heat cramps, heat exhaustion and heat stroke are the three types of heat illnesses that you may be at risk of if you don't notice the warning signs and symptoms. The first two types, while less serious than heat stroke, are still very dangerous and should be

remedied quickly. Heat cramps, the least dangerous type, are painful cramping of muscles that occurs during exercise or work in hot environments. According to the [Mayo Clinic website](#) they are more intense and last longer than the average night cramps. Below is a list of remedies:

- Drink fluids including water or sports drinks to rehydrate
- Get to a cool environment
- Stretch and/or massage the area gently

Heat Exhaustion is a more serious condition that comes after heat cramping, and is the inability of the body to cool itself down in hot, humid weather. Factors contributing to heat exhaustion include dehydration, alcohol use and wearing too many clothes for the temperature. [Symptoms](#) can include profuse sweating, dizziness/fainting, nausea/fatigue and cool, clammy skin. Headaches and a weak pulse can also be symptoms. Heat exhaustion is treated the same as heat cramps, but also remedies include:

- Cool the body by misting with cool water or a shower
- Loosen tight fitting clothing to allow the skin to breathe

If any symptoms of heat cramps or exhaustion persist for more than an hour, get prompt medical attention to avoid a more serious condition such as heat stroke.

(This article was originally published by [MSU Extension](#). For more information, visit <http://www.msue.msu.edu>.)

Recognize The Signs Of Heat Stroke Before It's Too Late- *Kelly Ewalt, Michigan State University Extension*

Heat stroke is a serious condition that many farmers are at risk of experiencing, especially during the hot, humid days of a Michigan summer.

June 18, 2012. If you are working out in the hot sun all day and forget to bring cool, re-hydrating drinks with you, you are at risk of developing a condition called heat stroke. Defined by the [Mayo Clinic](#) as a core body temperature of 104 degrees or higher, heat stroke needs immediate attention to avoid serious complications. Other than the high temperature, symptoms include:

- No longer sweating
- Headache/Nausea
- Rapid breathing and pulse
- Confusion
- Passing out

While working or exercising outside is a major contributor to heat stroke, genetic factors, medications, age and weight can all play a role in developing the condition. Visit the [Mayo Clinic website](#) for a full list of factors.

To prevent heat stroke: avoid sitting in parked cars where the temperature can raise quickly, wear temperature-appropriate clothing, drink plenty of hydrating fluids, avoid working in the hottest part of the day, and know the signs of heat cramping and exhaustion.

If heat stroke is suspected, immediate medical attention is required, so a doctor can reduce the internal body temperature of the afflicted person to avoid any internal damage.

(This article was originally published by [MSU Extension](#). For more information, visit <http://www.msue.msu.edu>.)

NYS News

USDA Issues Disaster Declarations for Farm Areas Impacted by Sudden Weather Changes

The United States Department of Agriculture has officially issued Disaster Declarations for the Wayne-Finger Lakes Region and other Upstate agricultural regions impacted by recent unseasonable temperature extremes. Under the disaster declarations, farmers in the affected areas will be able to apply for federal assistance and special loans to offset the cost of their crop losses.

Last month, Senator Nozzolio and more than 20 of his Senate colleagues from across Upstate New York wrote to Governor Cuomo to alert him of the serious damage to fruit crops resulting from the unexpected early thaw in March and April followed by sudden freezing temperatures. The quick response by Governor Cuomo and State Agriculture Commissioner Darrel Aubertine was instrumental in bringing about this federal assistance.

Farmers who are interested in applying for disaster assistance are advised to contact their local Farm Service Agency Office. For more information, contact the Farm Service Agency at (315) 477-6303 or go to www.fsa.usda.gov.

NYS Legislators Call for Family Farmers and Apple Growers Relief Act - State Senator Hugh T. Farley

June 3, 2012. State Senator Hugh T. Farley (R, C, I - Schenectady), Assemblyman Jim Tedisco (R,C,I-Schenectady-Saratoga), Assemblyman George Amedore (R,C,I-Rotterdam) and Assemblyman Pete Lopez (R,C,I-Schoharie) today joined with Senate Agriculture Chair Patty Ritchie (R,C-Oswegatchie) and farmers to announce new legislation, the “*Family Farmers and Apple Growers Relief Act*” to help apple growers and farmers who have lost a significant amount of their crops due to the extreme weather state area has experienced this year.

At the beginning of the 2012 growing season, New York farmers experienced widespread damage and loss to their crops as a result of an extremely rare and severe frost.

Preliminary damage estimates indicate that New York has experienced one of the worst statewide, multi-crop losses ever witnessed in the State. Cornell’s Lake Erie Regional Research Laboratory has estimated crop losses for grapes at 40 percent-50 percent, cherries at 100 percent, peaches at 90 percent, and apples at 50 percent. While the level of crop loss varies based on the region of the state, elevation, and the crop’s stage of growth, there is no doubt that there is a high probability that many farmers will face severe economic losses.

New York is the second largest apple-producing state in the nation and the state’s 694 family apple farms employ 10,000 people and support another 7,500 jobs indirectly that depend on a robust apple crop, according to the New York Apple Association <http://www.nyapplecountry.com/fastfacts.htm>. The apple industry’s economic impact on the state’s economy is valued at \$233 million <http://www.cce.cornell.edu/Pages/Default.aspx>.

The “Family Farmers and Apple Growers Relief Act” would establish a specialized tax credit for the 2012 tax year that will allow a farmer to claim 35 percent of their crop losses.

“The wild weather we’ve experienced over the past year has taken a big bite out of the big apple of New York’s economy: our family farmers and apple growers. Our ‘Family Farmers and Apple Growers Relief Act’ sends the message that our state government has the backs of our family farmers who are small businesses that are creating and supporting jobs across New York State,” said Tedisco, former Minority Leader and current Assistant Minority Whip.

“Farmers are such hard-working people, but their efforts can be undermined by the unpredictable weather,” said Senator Farley. “Farmers are major contributors to our economy, and they help preserve the land and open space. New York State needs to work with our farmers and assist them during difficult times.”

“Because of this year’s rare frost, farmers in New York State experienced one of the worst multi-crop losses ever,” said Senator Ritchie. “This legislation will help farmers who have been hurt by the frost get back up on their feet financially. At the same time, it will ensure that the farming industry—one of New York’s largest and most important industries—continues to grow.”

“New York State agriculture is one of the more significant engines driving our economy. With so many livelihoods dependent on these goods, particular the fruit crop, we cannot allow one catastrophic year to decimate the entire industry. Making these resources available to growers will be a tremendous aid during this difficult time and ensure the longevity of New York’s fruit producers,” said Amedore.

“Our family farms are a high priority,” said Assemblyman Pete Lopez who serves on the Assembly Food, Farm and Nutrition Task Force. “This spring’s weather pattern has put our fruit growers particularly at risk. I’m committed to doing everything possible to help them overcome this hurdle.”

“Clifton Park’s heritage is deeply rooted in agriculture and farming remains a thriving industry in town today,” Clifton Park Town Supervisor Phil Barrett said. “This is a common sense proposal that will support working farmers during this challenging time. I fully support legislation to provide tax relief to our local farms.”

“Apple farmers are very dependent on the weather for a good crop. When the weather fails them, they have no control over it. Two out of three years with crop failure from frost can be quite devastating,” said Isabel Prescott, owner of Riverview Orchards in Clifton Park, which has lost about 75 percent of its apple crop due to the wild weather.

“Growing up on and continuing to be part of a 5th generation family farm, we are thankful for Assemblyman Tedisco and Senator Farley’s leadership to put forth a bill that brings meaningful help for our farmers in New York State. The continued economic downturn of the past few years, the unusual hurricane season last fall and the unseasonably warm weather this winter and spring have put many of our farms in financial peril. People who enjoy eating locally grown produce and seeing open spaces should support this bill. Our farms are important to

the vitality, the sustainability and the character of our local communities. We cannot take it for granted that they will always be there. We all need to support them," said Craig Hayner, Halfmoon Town Councilman and owner of Hayner Family Farm in Halfmoon.

"While farmers have certainly been hard hit by last year's floods and this year's freeze events, there will be lots of local product available for consumers to purchase in grocery stores and on U-pick operations this fall. Now, it's more important than ever to support local farmers, and our organization of family farmers greatly appreciates this tool of an added tax credit to help in recovery efforts," said Dean Norton, President of New York Farm Bureau.

"Many businesses, especially the vitally important agri-business industry, were hurt tremendously by the tropical storms in the fall of 2011. It is critically important that the State take necessary and effective action to help these businesses. I applaud both members of the Senate and Assembly that have made this a legislative priority and look forward to seeing this issue through and providing the relief that is needed," said Mike Durant, State Director of NFIB.

"We certainly appreciate all the help and assistance from the Legislature to apple growers to ease the pain that they might endure this year," said Jim Allen, President of the New York Apple Association.

"The concern showed by Senator Farley and Assemblyman Tedisco for our local produce farms and orchards is much appreciated," says Pete Bardunias, President/CEO of the Chamber of Southern Saratoga County based in Clifton Park. "These family owned, independent businesses are vital to not only our food supply but the vibrancy of our communities. Agriculture remains the #1 industry in Saratoga County even with the dawn of Tech Valley, fueled greatly by these multi-generation enterprises often dating back to the early days of our nation." (Published on New York State Senate <http://www.nysenate.gov>)

Armyworms Invade Parts of New York

June 12, 2012. New York State Agriculture Commissioner Darrel J. Aubertine today warned crop growers of the presence of armyworms in several parts of New York State, including western and northern New York counties. The Department has received numerous reports from farmers and the New York State Integrated Pest Management (IPM) Program have verified that true armyworms have severely impacted parts of New York State, especially in western New York counties. Additional reports have established the presence of armyworms in Northern New York, the Finger Lakes and Eastern New York.

New York's last significant infestation was in 2008 and prior to that 2001. By some accounts, this year's infestation is surpassing those experiences. The moth overwinters in the South and in some years, flies up to New York laying eggs that hatch into worm-like caterpillars. It is a migratory pest and the unusual spring weather may be responsible, at least in part, for this infestation.

Homeowners and farmers are encouraged to watch grass and corn fields for signs of infestation. Close monitoring is important if this pest is found. According to New York State IPM Livestock & Field Crops IPM Coordinator, Keith Waldron, a second generation can be expected and may result in further damage in July.

Armyworms got their name because they can move in a mass, marching in lines from one destroyed field to their next feeding ground. They have been found in New York in small grains, corn, mixed stands of alfalfa, turf grass, grass and hay fields, but have been known to also infest various vegetables, fruits, legumes, and weeds, including beans, cabbage, cucumbers, lettuce, onions and peas.

In their early stages, armyworm larvae appear smooth, cylindrical in shape and are pale green to brownish. Mature larvae are smooth and marked with two orange, white-bordered strips on each side. True armyworm ranges in size from 1/8 inch to 1.5 inches long and overwinter as partly grown larvae.

Preferring to feed at night, armyworms devour succulent foliage. By feeding on leaves and occasionally stems, they can severely damage seedling stands. Because they feed at night, armyworms may inflict much injury before they are detected. Having exhausted a current food supply, the worms migrate as an "army" to new host plants. Fields adjacent to or harboring lush grass are most commonly attacked.

Parasites, various diseases, insect predators, and birds usually keep armyworms under control except after cold, wet springs. When practical, cultural methods, such as disking large areas, can help reduce future armyworm populations by exposing the pupae to natural enemies and hot weather. However, since armyworm moths are strong fliers, most areas will be subject to constant reinfestation.

Armyworms are easily controlled chemically when buildup occurs, but to be consistent with State law, it is important that both the armyworm pest and the specific crop be labeled on the insecticide before using the product. Monitoring is important prior to spraying as treatment should be sought only when pest levels would cause economic damage.

For more information regarding armyworms in New York and how to detect or combat them, contact your local Cornell Cooperative Extension agent (www.cce.cornell.edu). (Article follows below in "Focus on Pest Management" with more information)

USDA News

USDA Designates Counties in New York as Primary Natural Disaster Areas with Assistance to Farmers and Ranchers in Adjacent Counties and States

WASHINGTON, June 6, 2012—Agriculture Secretary Tom Vilsack today announced disaster designations for various New York counties that have experienced losses caused by frosts, freezes, high winds, hail, snow, and unseasonably warm temperatures and excessive heat.

“Our hearts go out to the farmers and growers who are dealing with the loss of crops due to recent severe weather,” said Agriculture Secretary Tom Vilsack. “President Obama and I are committed to using the resources at our disposal to reduce the impact of these disasters on New York producers and to help get those affected back on their feet.”

In the first announcement, USDA has designated 28 counties in New York as primary natural disaster areas due to losses caused by frosts and freezes that began March 1. The counties are:

Albany	Erie	Onondaga	Saratoga
Broome	Fulton	Ontario	Schoharie
Cattaraugus	Greene	Orange	Schuyler
Cayuga	Madison	Orleans	Seneca
Chautauqua	Monroe	Oswego	Ulster
Columbia	Montgomery	Rensselaer	Washington
Dutchess	Niagara	Rockland	Yates

Farmers and ranchers in the following counties in New York also qualify for natural disaster assistance because their counties are contiguous. Those counties are:

Allegany	Genesee	Oneida	Tioga
Chemung	Hamilton	Otsego	Tompkins
Chenango	Herkimer	Putnam	Warren
Cortland	Jefferson	Schenectady	Wayne
Delaware	Lewis	Steuben	Wyoming
Essex	Livingston	Sullivan	

Farmers and ranchers in the following counties in Connecticut, Massachusetts, New Jersey, Pennsylvania and Vermont also qualify for natural disaster assistance because their counties are contiguous. Those counties are:

Connecticut

Fairfield Litchfield

Massachusetts

Berkshire

New Jersey

Bergen Passaic Sussex

Pennsylvania

Erie Pike Warren
McKean Susquehanna Wayne

Vermont

Addison Bennington Rutland

In the second announcement, USDA has designated two counties in New York as primary natural disaster areas due to losses caused by frosts and freezes, high winds and hail that occurred March 26 – April 30, 2012. The counties are:

Orange Rockland

Farmers and ranchers in the following counties in New York also qualify for natural disaster assistance because their counties are contiguous. Those counties are:

Dutchess Putnam Sullivan Ulster

Farmers and ranchers in counties in New Jersey and Pennsylvania also qualify for natural disaster assistance because their counties are contiguous:

New Jersey

Bergen Passaic Sussex

Pennsylvania

Pike

In the third announcement, USDA has designated 3 counties in New York as primary natural disaster areas due to losses caused by frosts and freezes unseasonably warm temperatures and excessive heat that occurred March 1-April 30. The counties are:

Allegany Wayne Wyoming

Farmers and ranchers in the following counties in New York also qualify for natural disaster assistance because their counties are contiguous. Those counties are:

Cattaraugus Cayuga Erie
Genesee Livingston Monroe
Ontario Seneca Steuben

Farmers and ranchers in counties in Pennsylvania also qualify for natural disaster assistance because their counties are contiguous:

Pennsylvania

McKean Potter

In the fourth and final announcement, USDA has designated Tompkins County in New York as a primary natural disaster area due to losses caused by excessive snow and freezes that occurred April 1 – April 30, 2012.

Farmers and ranchers in the following counties in New York also qualify for natural disaster assistance because their counties are contiguous. Those counties are:

Cayuga Cortland Seneca
Chemung Schuyler Tioga

All counties listed above were designated natural disaster areas June 5, 2012, making all qualified farm operators in the designated areas eligible for low interest emergency (EM) loans from USDA's Farm Service Agency (FSA), provided eligibility requirements are met. Farmers in eligible counties have eight months from the date of the declaration to apply for loans to help cover part of their actual losses. FSA will consider each loan application on its own merits, taking into account the extent of losses, security available and repayment ability. FSA has a variety of programs, in addition to the EM loan program, to help eligible farmers recover from adversity.

USDA also has made other programs available to assist farmers and ranchers, including the Emergency Conservation Program; Federal Crop Insurance; and the Noninsured Crop Disaster Assistance Program. Interested farmers may contact their local USDA Service Centers for further information on eligibility requirements and application procedures for these and other programs. Additional information is also available online at <http://disaster.fsa.usda.gov>.

Secretary Vilsack also reminds producers that the department's authority to operate the five disaster assistance programs authorized by the 2008 Farm Bill expired on Sept. 30, 2011. This includes SURE; the Livestock Indemnity Program (LIP); the Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish (ELAP); the Livestock Forage Disaster Program (LFP); and the Tree Assistance Program (TAP). Production losses due to disasters occurring after Sept. 30, 2011, are not eligible for disaster program coverage.

All Roads Lead to Portland!

Make plans to attend NARBA's Annual Conference in Portland, Oregon in late January, 2013. This special conference, in the heart of a major caneberry production region, is a joint conference with the North American Strawberry Growers Association (NASGA). Our host hotel in downtown Portland is the Doubletree by Hilton, with a rate of only \$79/night, an excellent rate for a full-service hotel in a major city.

Here's how the schedule works:

Sunday, January 27 – Opening reception, board/committee meetings.

Monday, January 28 – All-day tour, including farm, processing, nursery, and research sites.

Tuesday January 29 and Wednesday, January 30 – Joint Conference of NARBA and NASGA, with joint plenary sessions and several tracks of educational breakouts.

The dates we've chosen will also allow you to take in two other great events: The Northwest Ag Show, also in Portland, runs January 29-31, so NARBA attendees can catch this leading regional show on Thursday, January 31 after our conference. Then, the North American Farmers Direct Marketing Association holds its conference, also at the Double Tree, on February 1-6, starting with overnight tours that will travel throughout the region.

Hold the dates and start making plans to come together in Portland, Oregon!



NASGA 2012 Summer Tour

Halifax, Nova Scotia



Host Hotel: Quality Inn Halifax Airport Hotel

1-800-424-6423 or 902-873-3000

August 13, 2012. 7:00pm to 9:00 pm

Registration and Reception

DAY 1 – Tuesday August 14th, 2012

Burgess Baskets – Manufacturers of wooden boxes and baskets. Tour of Factory

Webster Farms - Matted row strawberry production, biennial raspberry production, Raspberry variety trial, new Kentville selections, Raspberry trellising

Vital Berry - Strawberry plasticulture, day-neutrals and June-bearers, compost and fertigation research trial, tomatoes, beans.

G.W. Allen Nursery- Nursery packing house and northern variety screenhouse; “Southern” certified strawberry nursery field; Raspberry certified nursery field; “Northern” certified strawberry nursery field

C.O. Keddy Nursery - Northern and Southern Nursery Production; Supper

Return to Quality Inn at 8:30 pm

DAY 2 – Wednesday August 15th, 2012

Elmsdale Sobeys – Unique Strawberry marketing at Nova Scotia’s largest grocery chain store.

Millen Farms - Strawberry plasticulture (day-neutrals, June-bearers, and 60-day crop). Millen Farms fruits and picks 130 acres of fresh strawberries, grows 25 acres of nursery plants and fresh packs more than 200 acres of wild blueberries. Matted row strawberry production system; Raspberries; Fresh pack wild blueberries; FreshQC traceability system

Masstown Market – Sales of fresh local produce along with a made from scratch bakery. Other features include fresh prepared local seafood. We will enjoy lunch at this local market.

Rines Creek Vineyard – tour of Vineyard featuring 20 acres of vines including some Quebec varieties and French hybrids. Noble grapes and some recently planted vinifera.

Return to Quality Inn at 4:30 pm

ON THE ORGANIC SIDE

Annual Nitrogen Fertility Management in Blueberries for Organic and Conventional Farms - *Emily Cook, Organic Vegetable and Fruit Extension Educator, Ulster County*

We are approaching the end of the optimum time to fertilize blueberries! Blueberries have a low demand for nutrients compared to other fruit crops so require little additional fertilization, and are sensitive to too much fertility. However, blueberries tend to display deficiency symptoms only after acute nutrient shortages, so growers should rely on regular soil and leaf tissue analysis to determine if amendments are necessary.

Fertilize blueberries in early spring when root growth begins and late spring when root growth peaks. Highest nutrient demand is during green shoot growth and the beginning of the fruiting period. Apply fertilizer within the dripline of the bush, where over 90% of the roots are located. If mulching, try to apply nutrients before the mulch and double nitrogen rates if applying over fresh wood chip mulch, as decomposing wood chips will tie up nitrogen. Annual nitrogen application is recommended.

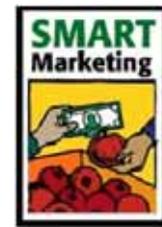
Annual Nitrogen Rates for Blueberries (Lbs. per acre) **					
Plant Age (years)	Actual Nitrogen per Acre	Rate per Acre using Ammonium Sulfate	Rate per Acre using Urea	Rate per Acre using Blood Meal (13% N)	Per Plant rate using Bloodmeal (800 plants/acre)
2	15	75	35	115	0.14 lbs.
3	20	95	45	150	0.19 lbs.
4	25	130	60	190	0.24 lbs.
5	35	170	80	270	0.34 lbs.
6	45	215	100	350	0.44 lbs.
7	55	260	120	420	0.53 lbs.
8+	65	310	145	500	0.63 lbs.

**These are annual nitrogen fertilizer rates, it is recommended to make a split application, April and June (between bud break and 6 weeks after.) If using a slow release material, such as compost, make one application.

**Urea is the preferred material if pH is below 5.0

**If you are using another nitrogen source, figure rate based on the actual nitrogen column above and divide by the %N in the fertilizer source you are using.

For more information on conventional and organic blueberry production see: <http://www.fruit.cornell.edu/berry/production/blueberryproduction.htm>.



As part of a three year study of opportunities for organic food and agriculture in New York State, a survey of New Yorkers was conducted in the spring of 2011 to gain a better understanding of the purchasing patterns of New Yorkers buying organic foods. The first phase of the project reported the production of organic farm products in New York State - see Organic Agriculture in New York State, <http://www.aem.cornell.edu/outreach/extensionpdf/2010/Cornell-Dyson-eb1013.pdf>.

The second phase examines organic food and beverage processing in New York State. The final phase of the project is looking at the market for organic foods produced in New York State. This article describes one process for this last phase of the project, New Yorkers' consumption of organic products. Data for this article were collected by inserting two questions into the Empire State Poll (ESP) on where and how often New York State residents purchased organic food.

Poll Background

The ESP is an annual general survey of adults, age 18 and over, who are residents of New York State. The Poll is conducted in the spring of each year. The first ESP was conducted in 2003. All interviews are conducted using a Computer Assisted Telephone Interviewing (CATI) software system. The ESP is a combination of an annual core of workplace, community, governmental, economic, media measures, omnibus modules, and special topical issue questions. Approximately 800 statewide interviews are conducted each year.

The listed household sample was selected proportionally between upstate and downstate New York to reflect the population proportion between the two regions. Downstate was defined as Kings, Richmond, Westchester, Suffolk, Queens, Nassau, and Bronx counties, with the remaining counties of the state defined as Upstate.

Selection of individual respondents came in two steps: first a household was randomly selected, and then a household member who was 18 years or older was randomly selected from within the household using the Most Recent Birthday Selection Method. An additional eligibility requirement was that all respondents had to be residents of New York State. These selection procedures ensured that every listed telephone household in New York State had an equal chance to be included in the survey, and once selected each adult in the household had an equal chance to be selected for the ESP as well. The random sampling frame used within the ESP allows for the poll results to be generalized to the entire state. For more information see: <http://www.sri.cornell.edu/sri/files/esp/2011/Report%201%20-%202011%20-%20Introduction%20and%20Methodology.pdf>.

Questions

Telephone surveys took place between February 1, 2011 and March 31, 2011. Survey participants were asked two questions related to purchasing organic foods

1. How often do you purchase organic foods?

The choice categories and related responses are summarized in the following table.

Response	Number	Valid percent
Never	331	41.4
Every day	34	4.3
Every week	212	26.5
Once per month	221	27.5
Did not respond	2	0.3
Total	800	100.0

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Although, 41 percent of respondents reported never purchasing organic foods, over 55 percent reported did report purchasing organic foods with over 30 percent making purchases at least once a week.

2. How Available Are Organic Foods to You?

The choice categories and related responses are summarized in the following table.

Response	Number	Valid percent
Do not buy as a matter of choice	279	34.9
Do not buy because not available	52	6.5
At my regular food store	321	40.1
At a specialty food store	93	11.6
Direct from organic farmers	53	6.6
No Response	2	0.3
Total	800	100.0

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Most of the respondents who purchased organic foods (41.4 percent didn't) did so at their regular food store. A small percentage responding (7 percent) purchased organic foods directly from farmers. A similar percentage, part of the 41.4 percent never purchasing, did not purchase because organic foods were not available.

Limitations

There are a number of potential limitations to any survey and to the data collected. Some of the limitations to this survey and data can include: a sample limited to those respondents with listed phone numbers and phone service, potential misinterpretation of the terms used in questions such as "organic" foods or types of stores, and other aspects. However, these results can still provide a useful snapshot of New York consumer purchasing of organic foods.

Implications

Although there is a group of consumers who report never purchasing organic foods, there is another segment of consumers who purchase organic foods on a customary basis. Regular food stores may be a major outlet for marketing organic foods. Although smart marketers of organic foods will still have to examine their individual markets and opportunities, they should not overlook mainline food stores in some cases as viable marketing option.

"Smart Marketing" is a marketing newsletter for extension publication in local newsletters and for placement in local media. It reviews elements critical to successful marketing in the food and agricultural industry. Past articles are available at <http://marketingpwt.aem.cornell.edu/publications.html>.

FOCUS ON FOOD SAFETY

Produce Safety Alliance May Update - Gretchen Wall, Produce Safety Alliance Program Coordinator, glw53@cornell.edu

Since the proposed Produce Safety Rule outlined in the Food Safety Modernization Act (FSMA) in 2011 has not yet been released, we thought it would be good to review how you can get involved once the proposal arrives. The U.S. Food and Drug Administration (FDA) will host public meetings and provide a process for submitting comments so there will be several opportunities to participate in the review of the document.

Proposed Produce Safety Regulation: How to Stay Involved

Here are ways to stay involved throughout the process and make your voice heard.

Attend public meetings, hearings, and other events.

Not less than 3 public meetings in diverse geographical areas of the United States will be held to give individuals and groups an opportunity to comment on the FDA's proposed rules under FSMA. Additional opportunities may be provided and you can find these opportunities listed under the FDA's *Meetings, Hearings, and Workshops* website as they are scheduled:

<http://www.fda.gov/Food/FoodSafety/FSMA/ucm247568.htm>.

Respond with written comments during the open comment period.

Once the proposal is released, there will be time for you to read the proposal and submit written comments about what you like, dislike, how you think it may impact you, or how it could be improved. The FDA will provide electronic access to the proposed rule, but paper copies may also be obtained through the mail, upon request.

The link below will take you to the FDA Dockets Currently Open for Comment website. The proposed Produce Safety Rule will appear here for comment once it is released. Comments that are thoughtful and substantive, containing real examples and data that support your position are encouraged and will likely have the most impact.

Dockets Open for Comment: <http://www.fda.gov/Food/FoodSafety/FSMA/ucm261689.htm>.

Stay informed and engaged in FSMA's progress and available learning opportunities.

Visit the [FDA's progress report page](#) or the [Produce Safety Alliance](#) website for additional opportunities and updates.

PSA and FDA to Host Produce Safety Rule Webinar

The FDA has committed to participate in a PSA-hosted webinar when the proposed Produce Safety Rule has been published in the Federal Register. The webinar will be widely publicized through our general and committee listserves as well as through the PSA website. This will be a great opportunity to learn about the proposed regulations and ask questions, including how it may affect fruit and vegetable growers nationwide. Notification of the date and time of this webinar will be broadcasted when the proposed rule is released.

PSA Progress Continues

The Produce Safety Alliance is moving forward with the development of the curriculum for fruit and vegetable growers. Over the past year, the PSA has tapped into a broad base of expertise and knowledge from growers, researchers, educators, and industry professionals across the country. The Alliance has hosted over 75 meetings through the working committee process to identify challenges to GAPs implementation and guide curriculum goal setting. Education and outreach will continue to be a critical priority both before and after the

release of the proposed rule. We thank everyone who has participated in the PSA thus far and we look forward to continued collaboration.

As always, please do not hesitate to contact myself or Betsy Bihn (eab38@cornell.edu) if you have any questions.

FOCUS ON PEST MANAGEMENT

Ten Hut! Army Afoot in Apples...and Strawberries?! - Keith

Waldron & Jennifer Grant, NYS IPM, Geneva; edited by Art Agnello, NYSAES
Geneva Department of Entomology.

Reports of true armyworm (aka common armyworm, formerly named *Pseudaletia unipuncta*, but now called *Mythimna unipuncta*; family Noctuidae) have been coming in from across New York, and in some cases causing apple damage. The larvae are smooth cylindrical caterpillars, 1–1/2 to 2 inches long when fully grown (see photo right). Their color ranges from tan to dark olive green, with a lighter stripe running along each side. The highest concentration of armyworm activity so far has been in western counties, with reports of more scattered incidence in central, northern and eastern New York. While reports have been confirmed in many counties, not all plantings have been over threshold so it is important to get out and check your plantings. Alison DeMarree reported finding apple fruit damage on her farm in Williamson following mowing of the row middles. The damage appears to be confined to the fruit; foliage is not affected (right). This damage is occurring at night, so they likely won't be found feeding on fruits during the day. In addition to the damage they may cause on fruit, the fact that they are grass feeders means they could destroy the row middles in orchards, vineyards or other fruit plantings, making the drive lanes slippery.

Armyworm moths are long-range migrants that arrive on the spring storms from their southern overwintering locations. Armyworm moth migrations are somewhat sporadic, cyclic from year to year and difficult to predict. This year, the early spring in their overwintering areas enabled the moths to get an earlier start in their migrations north. True armyworms are primarily a pest of plants in the grass family: forage/pasture/grasses (& lawns), wheat, corn and small grains.

In many years, natural enemies, including various fungal and viral diseases and parasites such as tachinid flies, play a role in helping to suppress armyworm populations. This year our armyworm natural enemies appear to be lagging behind. Some tachinid fly parasitism has been observed in the Finger Lakes and diseased armyworm larvae are beginning to be observed in an increasing number of fields in western NY. Armyworms may have 2 and possibly 3 generations in New York. Each generation takes about 5 weeks to complete. In a "normal" year, the later generation armyworm impacts are usually minimal or isolated. However, the presence of varying sized armyworm larvae (1/2 inch and greater) indicates that there have been multiple flights, and we may see an extended period of armyworm activity. Many armyworms were first observed in western NY around Memorial Day, are now about 1.5 inches in length or greater, and may be pupating soon, if they have not already done so. If this is the case, the next generation of armyworms could be expected to be

observed about mid-July. To be sure, all crops at risk should continue to be monitored for signs of this insect.

There are no labeled options for armyworm treatment in apples, but incidental control may be obtained from applications of the following materials already being applied for management of caterpillar pests: Belt, Voliam Flexi, Intrepid (they will stop feeding), Dipel and other B.t. products (if larvae are very small), Lorsban (only allowed as trunk spray this time of year but not if early season foliar spray), and the pyrethroids. Note from D. Breth: Delegate (registered as Radiant on vegetable crops for armyworm) or Altacor (registered as Coragen in vegetable crop for various armyworms) would also be effective if you applying them anyway for CM and OBLR this week.

Additional resources on armyworms are available on the NYS IPM website, at http://nysipm.cornell.edu/pest_alert/armyworms.asp.



Editor's Note: A small fruit grower in Genesee County reported similar damage on strawberry fruit the first week his PYO strawberry operation opened. The insects had migrated en masse from neighboring grain crops across a lawn into the strawberry planting in their never-ending search for new food sources. Investigation after his call as to management options revealed both Brigade and Vetica are labeled for armyworm management on strawberries in NYS.

(Reprinted from: Scaffolds Fruit Journal Vol. 21 No. 15, June 18, 2012. Photo credits: Armyworm fruit damage, & Armyworm in stubble, T. DeMarree; True armyworm larva, James Kalisch, University of Nebraska, Bugwood.org.)

Disease Snapshot: Mummy berry - Zachary Frederick, Graduate Student and R. Kerik D. Cox, Assistant Professor Plant-Pathology & Plant-Microbe Biology, Cornell University

Causes: *Monilinia vaccinii-corymbosi*

When to watch for it: Early spring and after fruit set

First line of defense: Good cultivation practices that remove the overwintering mummified berries (pseudothecia) or prevent their sporulation. This can be done by physically removing the berries and/or ground cover, choosing a cultivation site that faces south and warms up more quickly each day, or burying the mummies under mulch.

Summary: Mummy berry caused by *Monilinia vaccinii-corymbosi* is one of the most economically important fungal diseases of highbush, lowbush, and rabbiteye blueberries. This pathogen begins its lifecycle by infecting developing leaf tissue just as it emerges in the spring. Bud tissue begins to be susceptible after ¼" of green tissue is exposed. Infected leaves droop, and 24 hours later these shoot will brown and die. Afterwards, gray tufts of spores (conidia) are visible and emit a characteristic odor of fermented tea. These conidia will infect the flowers through the pollen pathway. No further symptoms appear until the fruit begins to ripen. Infected fruit will discolor, turn pink, and the epidermis will turn ashen and flake off as a black pumpkin-shaped pseudosclerotium (mummy) forms internally. These mummies drop before commercial harvest and the pseudosclerotium resists desiccation and cold temperatures, allowing the pathogen to overwinter. Mummy berries can remain viable for multiple seasons, which compound the problem if there are severe infections for consecutive years. In spring, these mummy berries germinate to form a small mushroom called an apothecium, which discharges infective ascospores that infect the green shoot tissue. Ascospore discharge and infection by both spores require high relative humidity and moisture. Hence, some cultural control can be achieved by choosing a plant site that is well drained and faces the south so that it warms and dries faster.



Above, **A:** Infected leaf showing gray conidial tufts on the petiole. **B:** Mummy berries on the ground under an infected bush. **C:** Infected fruit cut open to reveal the pseudothecium inside the shriveled berry (left), and the early stages of fruit infection (right).

Long-necked Seed Bug – An Occasional Pest in Strawberries – Cathy Heidenreich and Laura McDermott, Cornell University

Long-necked seed bug damage - The photos below were shared with us by our berry colleague Mary Conklin of the University of Connecticut. They are from one of her New England growers that picked several hundred pints of strawberries the last week of May 2012 and then less than 10 pints on the second picking because all the berries looked like this (*photos below*). He send them to her inquiring what the problem might be.

Fortunately another of our berry colleagues, Kathy Demchak, from the Pennsylvania State University had seen this type of damage before in strawberries and assisted with the diagnosis of this problem. The damage is due to the Long-necked Seed Bug (*Myodocha serripes*). The bugs themselves are not at all obvious, and you'll need to do some looking to find them. They move into duff and to the undersides of berries very quickly. They also like goldenrod but it is not known if there is a relationship between weedy fields and infestations in strawberry plantings. These pests are very sporadic and the field with a problem one year may not have them the next. *Photo credit for adult insect below right: <http://bugguide.net/node/view/12114>.*



Another report of this insect causing damage in strawberries came in from Monroe County in NYS just last week. This insect has previously been documented in NYS with reports of strawberry damage recorded in both 2006 and 2009.

Long-necked seed bug is a common in the Southern United States. In spite of its rather military appearance and muscular heavily spined forelegs it is not a predator, rather a vegetarian feeding on seeds of strawberries, St. Johnswort and other herbaceous plants.

Adult insects at 8-10 mm long, having a black head, the basal portion of which is slender and elongated into a "neck". Legs are slender, yellowish with black "knee" joints. The forelegs are armed with spines. Antennae are four-segmented, with the basal and terminal segments black, and middle two segments orange in color.

M. serripes has 2 generations per year and overwinters as adult in leaf litter or under bark of trees in woodlands. Adults migrate into fields in spring/summer. Adult insects are often attracted to lights.

Long-necked seed bug damage often called “button-berry” or “cat-facing” is often difficult to distinguish from causes of misshapen berries

Causes of Misshapen Strawberries - Kathy Demchak, Penn State Horticulture

Every year, I'll get several calls about misshapen berries. There are a lot of possible causes, so if you notice strange strawberry shapes, check over this list, and see if some of these items apply to your situation – that could help with sorting out the cause of the problem. In cases where a weather event or a spray is suspect (see below), the berry shape improves in a few days, indicating that a short-lived event was responsible.

- 1) Some cultivars just do that. There can be bumps, folds, crinkles, and hollow berries that split open at the tip. This happens more frequently with cultivars that are known for a huge size. Cabot, Camarosa, and Albion tend to do this, and almost always, it's just with the primary berries. Mesabi also may have misshapen berries, but to a lesser extent, and low boron could also play a role (see below). Once you are producing secondary and tertiary berries, this becomes less of a problem, possibly because more pollen is available – source of pollen and timing of pollen release also may play a role.
- 2) Environmental conditions during bloom that would have affected pollination. This can be temperatures below freezing, which can damage flower parts. A hot dry spell can cause the stigmas (located on the yellow “cone” in the center of the flower) to dry out, and therefore, the pollen doesn't stick. In the case of cold temperatures, the berry may appear folded, or the tip may be affected. With hot dry temperatures, pollen may stick only where the stigmas touch the anthers. The anthers are located in a circle around the stigmas. In extreme cases, the berry may end up shaped like a doughnut.
- 3) Damage to the flower from a mixture of spray materials applied during bloom. I've only suspected this in cases where more than 3 or 4 materials were applied in a tank mixture at one time. There is some indication in the literature that when high calcium concentrations are applied to flowers (much higher than those found when labeled directions for nutritional supplements are followed), pollen viability is affected. So, you might want to measure. More often isn't better.
- 4) Low boron or zinc. Both are involved in pollen tube growth, so incomplete pollination takes place. Bad pollination = no seeds, and when seeds don't develop, the fruit doesn't enlarge. The seeds produce the growth regulator that causes the berries to expand. This is one reason why we like to see growers use tissue analysis. Low boron is more likely to be a problem on sandy soils. Boron levels in the soil should be above 1.5 pounds per acre, or 0.75 ppm, and tissue levels should be between 30 and 70 ppm.
- 5) Seed destruction (seeds may only be hollowed out) from an insect, mostly likely tarnished plant bugs. Adult tarnished plant bugs fly away fast, so it's possible to miss the problem until you see the green nymphs crawling around. Usually tarnished plant bugs are a bigger problem where you have weeds, on which they multiply. Long-necked seed bugs are occasionally a problem, and as the name implies, look like they have a long neck. They are dark brown, slender, and have tiny little heads. They move really fast and hide under leaves. Both tarnished plant bugs and long-necked seeds bugs cause a “button-berry” shape most commonly, but other shapes are possible.
- 6) Poor pollination from a lack of pollinators, or damp rainy weather during bloom, which discourages pollinators from flying. More pollination usually results in bigger fruit regardless. Each blossom should receive 16 to 25 bee visits for complete pollination.

(Reprinted from The Vegetable and Small Fruit Gazette, The Pennsylvania State University, May 2009, Volume 13, No. 5)

Rainfast Characteristics of Insecticides on Fruit Crops - John Wise, Michigan State University

Precipitation can impact the performance of insecticides, but some compounds resist wash-off.

The rainfall events experienced in Michigan have prompted questions about the relative “rainfastness” of the insecticides used in fruit production. In 2006, [AgBioResearch](#) provided funds to purchase and install a state-of-the-art rainfall simulation chamber at the [MSU Trevor Nichols Research Center](#), after which we have conducted trials (with generous funding support from Michigan fruit commodity groups) on fruit crops for a range of insecticides.

There are several critical factors that influence impact of precipitation on a pesticide's performance. First is the plant penetrative characteristic of the various compounds. Some pesticide chemistries, like organophosphates, have limited penetrative potential in plant tissue, and thus are considered primarily as surface materials. Some compounds such as carbamates and pyrethroids penetrate plant cuticles, providing some resistance to wash-off. Many newer compounds such as spinosyns, diamides, avermectins and Insect Growth Regulators (IGR) readily penetrate plant cuticles and have translaminar movement in leaf tissue. Others, like the neonicotinoid insecticides, are systemic and can have translaminar, as well as acropetal, movement in the plant's vascular system. Penetration of plant tissue is generally expected to enhance rainfastness of pesticides.

The second factor is the inherent toxicity of an insecticide to the target pest and the persistence of activity in the environment. In some cases, a compound may be highly susceptible to wash-off, but its persistence and inherent toxicity to the target pest compensates for the loss of residue, thus delaying the need for immediate re-application.

The third factor is the amount of precipitation. In general, organophosphate insecticides have the highest susceptibility to wash-off from precipitation, although their toxicity level to most insect pests can often overcome the necessity for an immediate re-application. Neonicotinoid insecticides are moderately susceptible to wash-off, with residues that have moved systemically into plant tissue being highly rainfast, and surface residues less so. Pyrethroid and carbamate insecticides are moderately susceptible to wash-off and vary in their toxicity to the range of relevant fruit pests. Diamide, spinosyn, avermectin and IGR insecticides have proven to be moderate to highly rainfast on most fruit crops.

For most insecticides, a drying time of two to six hours is sufficient to “set” the compound on the plant. With neonicotinoid, for which plant penetration is important, drying time can significantly influence rainfastness. For neonicotinoids, up to 24 hours is needed for optimal plant penetration, thus the time proximity of precipitation after application should be considered carefully. Spray adjuvants, materials intended to aid the retention, penetration or spread on the plant can also improve the performance of insecticides.

Based on the results from the current studies, the following charts have been developed to serve as a guide for general rainfastness characteristics and re-application recommendations for certain insect pests (also printed in the E-154 [2012 Michigan Fruit Management Guide](#)). Note that these recommendations should not supersede insecticide label restrictions or farm-level knowledge based on site-specific pest scouting, but rather are meant to compliment a comprehensive pest management decision-making process.

Rainfastness rating chart: General characteristics for insecticide chemical classes.

Insecticide Class	Rainfastness ≤ 0.5 inch		Rainfastness ≤ 1.0 inch		Rainfastness ≤ 2.0 inch	
	Fruit	Leaves	Fruit	Leaves	Fruit	Leaves
Organophosphates	L	M	L	M	L	L
Pyrethroids	M	M/H	L	M	L	L
Carbamates	M	M	L	M	L	L
IGRs	M	H	M	M		
Neonicotinoids	M,S	H,S	L,S	L,S	L,S	L,S
Spinosyns	H	H	H	M	M	L
Diamides	H	H	H	M	M	L
Avermectins	M,S	H,S	L,S	M,S	L	L

* H – highly rainfast (≤ 30% residue wash-off), M – moderately rainfast (≤ 50% residue wash-off), L – low rainfast (≤ 70% residue wash-off), S-systemic residues remain within plant tissue

Blueberry insecticide precipitation wash-off re-application decision chart: Expected cranberry fruitworm control in blueberries, based on each compound's inherent toxicity to cranberry fruitworm larvae, maximum residual and wash-off potential from rainfall.

Insecticides	Rainfall = 0.5 inch		Rainfall = 1.0 inch		Rainfall = 2.0 inches	
	*1 day	*7 days	*1 day	*7 days	*1 day	*7 days
Guthion		X	X	X	X	X
Asana		X	X	X	X	X
Intrepid		X	X	X	X	X
Assail		X		X	X	X
Delegate		X		X	X	X

*Number of days after insecticide application that the precipitation event occurred.

X – Insufficient insecticide residue remains to provide significant activity on the target pest, and thus re-application is recommended.

(An un-marked cell suggests that there is sufficient insecticide residue remaining to provide significant activity on the target pest, although residual activity may be reduced.)

Blueberry insecticide precipitation wash-off re-application decision chart: Expected Japanese beetle control in blueberries, based on each compound's inherent toxicity to Japanese beetle adults, maximum residual and wash-off potential from rainfall.

Insecticides	Rainfall = 0.5 inch		Rainfall = 1.0 inch		Rainfall = 2.0 inches	
	*1 day	*7 days	*1 day	*7 days	*1 day	*7 days
Imidan	X	X	X	X	X	X
Mustang Max		X		X	X	X
Sevin		X	X	X	X	X
Provado		X	X	X	X	X

* Number of days after insecticide application that the precipitation event occurred.

X – Insufficient insecticide residue remains to provide significant activity on the target pest, and thus re-application is recommended.

(An un-marked cell suggests that there is sufficient insecticide residue remaining to provide significant activity on the target pest, although residual activity may be reduced.)

Insecticide persistence, plant penetration and rainfastness rating

Compound Class	Persistence (residual on plant)	Plant Penetration Characteristics	Rainfast Rating
Organophosphates	Medium - Long	Surface	Low
Carbamates	Short	Cuticle Penetration	Moderate
Pyrethroids	Short	Cuticle Penetration	Moderate
Neonicotinoids	Medium	Translaminar & Acropetal	Moderate

Compound Class	Persistence (residual on plant)	Plant Penetration Characteristics	Rainfast Rating
Avermectins	Medium	Translaminar	Moderate
IGRs	Medium - Long	Translaminar	Moderate - High
Spinosyns	Short - Medium	Translaminar	Moderate - High
Diamides	Medium - Long	Translaminar	Moderate - High

(Excerpted with permission from: Michigan State University Extension News, June 12, 2012.) Dr. Wise's work is funded in part by [MSU's AgBioResearch](#).

Blueberry Harvest & Postharvest Handling - Craig Kahlke, Lake Ontario Fruit Team

Blueberries are one of the toughest of the small fruit we harvest in the Northeast, so they are more forgiving in their handling. However, proper harvest and postharvest handling techniques will make for a higher quality product that has an extended storage and shelf-life. Since nearly all of the blueberry plantings in our region are harvested by hand for the fresh market, training pickers becomes extremely important. Prior to harvest, workers should undergo a Good Agricultural Practices (GAPs) training, in which they are instructed on proper hand-washing, personal hygiene, and subsequent harvest of produce with clean hands. They should only take breaks and eat lunch in designated area(s) outside the harvest area, and should not eat or smoke while in the field. Hand-washing is mandatory when returning to the fields to continue harvest. Only potable drinking water should be brought into the picking area. An operation that is strictly pick-your-own (PYO) should provide hand-washing facilities prior to entrance to the field. Signage should also be provided similar to the worker dos and don'ts above.

Workers should be instructed to only pick undamaged berries with good appearance, and harvested fruit should not be exposed to direct sunlight. Containers should be put in the shade and covered with a tarp prior to being transported out of the field to be cooled. Finger pressure can damage berries, so observe pickers and train them to pick berries carefully. Ripe berries should be rolled from the cluster into the palm of the hand with the thumb and not plucked off as is done with most other fruit. Do not pick the berries when they are wet. Pint containers are the traditional size for blueberries sold to consumers. Workers can pick directly into these or in to small picking buckets that are strapped over the shoulders. From here they are transferred into larger, more durable plastic field lugs. Lugs should not be overfilled, as this can cause bruising and poor cooling. In larger operations, field lugs are transported to be sorted at a facility by hand on a linear belt, in which immature fruit and stems and leaves/debris are plucked out. The clean, ripe fruit are then dropped by the belt into pint containers for sale.

As most blueberries produced in the Northeast are consumed quickly, these operations should harvest fruit as close to peak ripeness as possible. The theory here is that whether PYO or a small roadside stand or farm market, consumers will pick or buy the fruit, promptly refrigerate them, and consume them within 2-3 days. Thus storage life is not a serious consideration, so fruit should be harvested at or near peak ripeness and flavor. Cultivated highbush blueberry varieties do not ripen evenly in a cluster. As the season progresses, there is more even and simultaneous ripening. Allowing berries to become more fully ripe, by picking them 3-5 days after they turn blue, will allow for improved flavor and size. Unripe berries will turn blue after harvesting, but they will be smaller and have lower sugar content than bush-ripened fruit. How often harvest needs to occur is dependent on the variety, time of season, and weather. Early in the season, harvest may occur at 7-10 day intervals, but at peak it may be every 2-3 days.

If the operation plans on retailing the fruit to local or regional supermarkets, more care must be taken in harvest, postharvest handling, and stage of fruit at harvest. In this case, fruit may sit a while or suffer a break in the cold chain, reducing storage and shelf-life. Therefore, it is best to harvest fruit slightly under-ripe. These berries will be firmer and consequently hold up better in the long-term, with some sacrifice of flavor. 31-34 F is ideal. Pallets of fruit should be transported in refrigerated trucks leaving space for cold air movement along the walls, floor, and ceiling. If berries are covered with plastic, berries should be allowed to warm only when they are ready to display to customers, allowing condensation buildup on the outside of the plastic wrap.

Regardless of the final market destination, blueberries will have longer storage and shelf-life if they are harvested early in the morning and promptly cooled. Early in the day there is less heat buildup in the fruit and they will cool quicker than fruit harvested at mid-day. Retail growers may want to consider setting up an inexpensive forced-air cooling system to more rapidly remove field heat from your fruit and therefore cool them much faster than traditional passive cooling. For more information on forced-air cooling, see the article "Forced-air Cooling to Improve Berry Quality & Shelf-life" in the May 21, 2010 (Volume 10, Issue 13) article of Fruit Notes. This article is also in the New York Berry News, June 10, 2010 (Volume 9, Number 6) that can be found online at <http://www.fruit.cornell.edu/nybn/archives/html>. Fruit picked early in the day and rapidly cooled can expect to have a storage period up to 14 days if there is no break in the cold chain. Large growers may use relatively inexpensive modified atmosphere packaging to extend shelf-life to 4-6 weeks. Contact Craig Kahlke at 585-735-5448, or email him at cjk37@cornell.edu for more information.

Resources: Highbush Blueberry Production Guide, NRAES-55. 1992.

Strawberry Renovation Revisited - Cathy Heidenreich and Marvin Pritts, Cornell University

Renovation, a routine practice in matted row strawberry production occurring immediately after harvest, is one key to retaining plant vigor and fruit size.

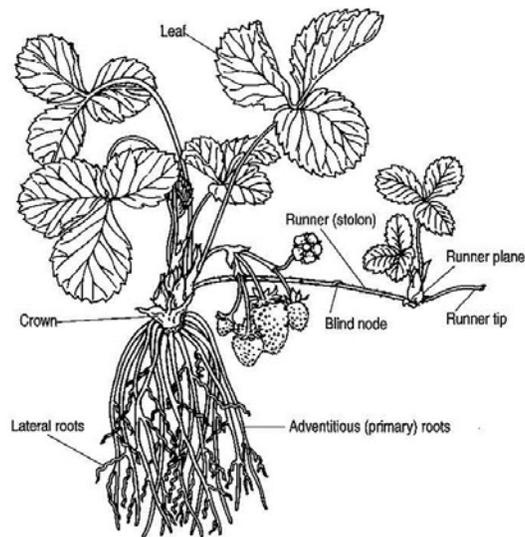
Recently, several growers have expressed concerns that their standard renovation procedures that they have successfully used in the past seem to be reducing plant stands. Renovated plantings come back slowly and often lack in vigor and/or do not survive the winter well, resulting in poor yields the following year. It may be worth re-evaluating renovation practices to assess what impacts they may be having on strawberry plant health.

Strawberry Plant Anatomy 101

The strawberry plant consists of a crown from which leaves, flower clusters, runners, branch crowns and adventitious roots grow (Figure 1-1).

Strawberry leaves are arranged in spirals about the crown with every 6th leaf directly above the first in the spiral; each leaf consists of 3 leaflets with a thick cuticle layer and numerous stomata on the underside of the leaflets. These leaves are the powerhouses of the plant sustaining the crown and providing nutrients for development and growth of new leaves, flowers, fruit and roots. Many leaves die after exposure to hard frosts in late fall/early winter, or after about 4 months of life. They are replaced by new leaves which grow each spring and are produced throughout the year. Leaves that develop late in the summer may overwinter and can actively photosynthesize with the first light of spring when temperatures are sufficiently warm.

Figure 1-1 from: Pritts, M. and Handley, D. (eds.) 1998. Strawberry Production Guide for the Northeast, Midwest and Eastern Canada. Northeastern Regional Agricultural Engineering Service (NRAES) Publication No. 88, Ithaca, NY.



Strawberry roots are produced during spring and fall and remain active until soil freezes in early winter. Two types of roots are produced: primary roots and feeder roots. Primary roots are produced from the crown; in successive years new primary roots are produced above older ones. These roots supply water and nutrients to the crown. Feeder roots are produced on primary roots; their purpose is water and nutrient absorption from the soil. Unlike primary roots these roots are relatively short-lived.

A good balance is required between leaves and roots for the strawberry plant to thrive. If this balance is temporarily altered in a modest way - say from a root-feeding grub or a leaf-feeding caterpillar, the plant will eventually return to a proper balance on its own. If the alteration is significant, such as occurs with root-rotting fungi, then the plant may never achieve a proper balance between roots and leaves.

Why Renovate?

Through the renovation process plants are thinned to a desired density and excessive runner growth is controlled, helping to maintain a plant density that will allow for good fruit size the following year. Without some control of plant density, the row will become too thick, berry size will be small, and conditions will be more favorable for disease. Mowing the leaves off and narrowing the rows will not permanently upset the balance between roots and leaves, and will help keep plant density at the appropriate level.

Leaves that develop in July usually senesce about 3 - 4 months later, which means that without renovation and leaf removal, the planting enters winter with lots of dead leaves. These leaves can be a source of disease (gray mold) that carries over into spring. Removing the cohort of leaves in mid-July can reduce the potential for inoculum carry-over into the following spring. Also, these summer leaves are often infected with foliar disease and may be infested with mites. Cutting them off and incorporating them into the row middles is a good IPM practice. The new leaves that emerge are "clean" and can be protected in ways that a fruiting field cannot.

Renovation Basics

Irrigate planting to provide adequate soil moisture prior to mowing. Fruit production is a period of extreme stress for strawberry crowns when their moisture and nutrient reserves are depleted in order to mature fruit. Providing excellent soil moisture during harvest helps minimize this stress on crowns. Efforts to maintain soil moisture should not stop there, however. It is equally important to maintain soil moisture after harvest and just prior to renovation in order for crowns to go through the renovation process successfully. This is especially true for later season varieties which tend to be mowed off immediately after harvest; early and mid-season varieties at that point have had time to recoup some of their losses before mowing.

Mow off the old leaves. Removal of older less thrifty leaves after harvest in mid-summer causes crowns to push new healthy leaves prior to flower bud initiation. Leaves should be mowed one week after final harvest of the latest variety in the planting, mowing leaves close to

the ground. Be careful during the mowing process not to damage the crowns. Removal of leaf debris at this point may help reduce incidence of foliar disease in the new plant stand.

Note: *Fields with significant damage to root systems (rootworms, white grubs, root weevils, various root rots) or fields under water stress should not be mowed off as plants may not be able to produce another set of healthy leaves. (See the earlier paragraph on root/shoot balance.) Growers with fields in this condition should seriously consider plowing under and replanting and/or rotation out of strawberries for these fields as the likelihood of them producing economically substantial strawberry crops in the immediate future is slim.*

Fertilize. Plantings in the first fruiting year or older are typically top-dressed at renovation with 70 lb. actual N/A at renovation in the form of ammonium nitrate, urea, or calcium nitrate. Consider adding an additional 20 – 30 lb. actual N/A in late summer depending on stand density and vigor.

Note: *Both preferred sources of nitrate nitrogen for strawberries (ammonium nitrate and calcium nitrate) are in short supply and/or unavailable due to increased governmental regulation. Growers using urea as an alternative to these products are reminded it is subject to volatilization during warm humid weather and may cause plant injury (leaf blackening). It should be applied on cooler, overcast days whenever possible. Another alternative nitrogen source some growers have turned to is CAN (calcium ammonium nitrate) which apparently is of much less regulatory concern and more widely available.*

Sweep runners into rows. This task is assiduously attended to during the establishment year but is often overlooked in subsequent years. Sweep runners into rows until sufficient plant stand is achieved. Any additional runners produced are essentially weeds and can be tilled in.

Note: *Those runners not rooted by September are not likely to produce fruit the following season, so it will not hurt yield to till them into the row middle if narrowing the rows again in fall.*

Narrow rows/cultivate. More berries are produced along row edges than in row middles. Wider rows are more difficult to harvest, and may also lead to increased disease pressure. Narrow rows, on the other hand, have better air circulation, sunlight penetration, and spray coverage, leading to better fruit quality.

Within one day of mowing rows should be narrowed with a disk harrow, rototiller or cultivator to 8 to 10 inches. If possible, equipment should be set in such a way as to add an inch of soil over the tops of crowns on lighter soils or ½ inch over the tops of crowns for heavier soils. This stimulates new primary root growth (above the old ones on the crown...) and rooting of new runners.

Between-row subsoiling may be desirable where tractor/harvest traffic has been heavy on wet soils and/or where compaction layers have formed. This will improve water infiltration. A Hillside cultivator is used by some growers during renovation as it may be configured to narrow rows, throw a thin soil layer over plants and subsoil at the same time.

Irrigate. This should be done immediately after renovation to settle soil around crowns, incorporate post-renovation herbicide and fertilizer, and jumpstart new growth. The job doesn't end there however. Plants should continue to receive 1 to 2 inches of water per week through August and September either by rainfall or irrigation to optimize nitrogen uptake.

Note: *All renovations efforts may be negated at this point if soil moisture does not remain adequate. Failure to provide adequate soil moisture will result in decreased runner production and flower bud initiation, which in turn means less yield next season.*

What about Weed Control?

2,4-D is often used to reduce broad-leafed weeds in strawberry fields at the time of renovation. Since 2,4-D is taken up via leaves and not roots, it is applied right over the strawberry planting immediately after harvest. Fortunately, strawberries are tolerant of 2,4-D whereas most other broad-leafed plants are not. Wait about 5 days to give the 2,4-D a chance to be absorbed, then mow and cultivate.

After cultivation and narrowing of the rows, a pre-emergent herbicide may be applied to prevent weed seed germination for the rest of the year. Sinbar is the most effective against weeds, but it can also damage the strawberry plants - especially if used in consecutive years or if the root system is not healthy. Devrinol is safer to use at this time. Applying a pre-emergent herbicide is the last step in the renovation process.

Renovation Timeline

1. Ensure that field has adequate soil moisture
2. Apply 2,4-D
3. Mow off leaves 5 days later
4. Fertilize
5. Narrow rows and cultivate row middles
6. Apply pre-emergent herbicide
7. Irrigate as necessary

References

1. Demchak, K. (ed.) 2010. *Mid-Atlantic Berry Guide for Commercial Growers 2010-2011*. <http://pubs.cas.psu.edu/freepubs/MAberryGuide.htm>
2. Pritts, M. and Handley, D. (eds.) 1998. *Strawberry Production Guide for the Northeast, Midwest and Eastern Canada*. Northeastern Regional Agricultural Engineering Service (NRAES) Publication No. 88, Ithaca, NY.

Raspberry & Blackberry Harvest & Postharvest Handling – Craig Kahlke, Lake Ontario Fruit Team

Bramble (raspberries and blackberries) are the most delicate of the small fruit we harvest in the Northeast, so special care must be taken in their handling. Since nearly all of the bramble operations in our region are harvested by hand for the fresh market, training pickers becomes extremely important. Prior to harvest, workers should undergo a Good Agricultural Practices (GAPs) training, in which they are instructed on proper hand-washing, personal hygiene, and subsequent harvest of produce with clean hands. They should only take breaks and eat lunch in designated area(s) outside the harvest area, and should not eat or smoke while in the field. Hand-washing is mandatory when returning to the fields to continue harvest. Only potable drinking water should be brought into the picking area. An operation that is strictly pick-your-own (PYO) should provide hand-washing facilities prior to entrance to the field. Signage should also be provided similar to the worker dos and don'ts above.

Workers should be instructed to only pick undamaged berries with good appearance, and harvested fruit should not be exposed to direct sunlight. Finger pressure will damage berries, so observe pickers and train them to pluck brambles delicately. Do not pick the berries when they are wet. One-half pint containers are the traditional size for brambles, and wide, shallow containers are better than deep ones. Over-ripe berries will crush lower berries in the container if it is too deep.

As most raspberries and blackberries produced in the Northeast are consumed quickly, these operations should harvest fruit as close to peak ripeness as possible. The theory here is that whether PYO or a small roadside stand or farm market, consumers will pick or buy the fruit, promptly refrigerate them, and consume them within 2-3 days. Thus storage life is not a serious consideration, so fruit should be harvested at or near peak ripeness and flavor. If the operation plans on retailing the fruit to local or regional supermarkets, more care must be taken in harvest, postharvest handling, and stage of fruit at harvest. In this case, fruit may sit a while or suffer a break in the cold chain, reducing storage and shelf-life. Therefore, it is best to harvest fruit slightly under-ripe. These brambles will be firmer and consequently hold up better in the long-term, with some sacrifice of flavor. 31-34 F is ideal. Pallets of fruit should be transported in refrigerated trucks leaving space for cold air movement along the walls, floor, and ceiling. If berries are covered with plastic, berries should be allowed to warm only when they are ready to display to customers, allowing condensation buildup on the outside of the plastic wrap.

Whichever the type of operation, berries will likely need to be harvested at least every other day. Regardless of the final market destination, brambles will have longer storage and shelf-life if they are harvested early in the morning and promptly cooled. Early in the day there is less heat buildup in the fruit and they will cool quicker than fruit harvested at mid-day. Retail growers may want to consider setting up an inexpensive forced-air cooling system to more rapidly remove field heat from your fruit and therefore cool them much faster than traditional passive cooling. For more information on forced-air cooling, see the article "Forced-air Cooling to Improve Berry Quality & Shelf-life" in the May 21, 2010 (Volume 10, Issue 13) article of Fruit Notes. This article is also in the New York Berry News, June 10, 2010 (Volume 9, Number 6) that can be found online at <http://www.fruit.cornell.edu/nybn/archives/html>. Brambles picked early in the day, rapidly cooled, and kept in a cold chain can expect to have a maximum storage life of 5 days in our region.

Resources: Raspberry & Blackberry Production Guide for the Northeast, Midwest, and Eastern Canada, NRAES-35. 2008.

Insect Pollinators Contribute \$29 Billion to US Farm Income – [Krishna Ramanujan](#)

May 22, 2012. Bees and other insects that pollinate plants in the United States have suffered in recent decades from mites, pesticides, pathogens, land development and habitat fragmentation. Nevertheless, production of insect-pollinated crops has mostly increased this century. Now, new research shows that insect pollinators' value to farmers may be hard to replace.

According to a Cornell study published in the May 22 issue of the journal *Public Library of Science ONE*, crops pollinated by honeybees and other insects contributed \$29 billion to farm income in 2010.

The study analyzed the economic value of honeybees and other insect pollinators for 58 crops, including species that are directly dependent on insects for pollination, such as apples, almonds, blueberries, cherries, oranges and squash, and species that are indirectly dependent on insects, such as alfalfa, sugar beets, asparagus, broccoli, carrots and onions. Directly dependent crops require pollinators to produce a fruit, while indirectly dependent crops require pollinators to create seeds, but not the crop itself.

The findings show that in 2010, the value of directly pollinated crops was \$16.35 billion, while the value of indirectly dependent crops was \$12.65 billion.

More specifically, honeybees pollinated \$12.4 billion worth of directly dependent crops and \$6.8 billion worth of indirectly dependent crops in 2010.

Other insects, including alfalfa leaf cutter bees, bumblebees, horn-faced bees and orchard bees, added \$4 billion and \$5.9 billion in directly and indirectly dependent crops, respectively.

"This lets people for the first time look at a peer-reviewed paper that says here are the revenues derived from these crops, and if we want to keep producing [these crops], we have to recognize the importance of insect pollinators," said Nicholas Calderone, associate professor of entomology and the paper's author.

The paper also analyzed trends in various metrics from 1992 to 2009 for crops that depend on pollinators. For directly dependent crops, production, cultivated area and revenues increased steadily over the course of the study period, with some slowing over the past few years. Recently, growth in the U.S. population has outpaced the production of these crops, suggesting a growing dependence on imported food, but also, a possible opportunity for U.S. growers.

Over this same period, the number of managed honeybee colonies in the United States has gradually declined, reaching a low in 2008 with 2.3 million colonies, with increases of roughly 200,000 new colonies each year in 2009 and 2010.

The trends show that any shortfall in managed or wild pollinators could seriously threaten production levels of directly and indirectly pollinated crops, according to the paper.

In the mid-1980s, parasitic mites that had infected eastern honeybees in Southeast Asia began infecting western honeybees in the United States. In 2006-07, beekeepers experienced heavy losses to their colonies. While mites appear to be the cause of roughly 70 percent of the losses, the remaining losses (referred to as colony collapse disorder) are not fully understood, with possible explanations including pesticide use, beekeeper management practices, climate change and other pathogens, reports the paper.

As a hedge, U.S. growers are working to increase the number of non-honeybee pollinators, including horn-faced bees and orchard bees, Calderone said.



A truckload of honeybee colonies is delivered for lowbush blueberry pollination in Downeast, Maine. Photo courtesy Nicholas Calderone.



A bumblebee on an eggplant – Photo courtesy Nicholas Calderone.

Crop, insect pollinator and economic data were provided by the U.S. Department of Agriculture's National Agricultural Statistics Service, whose website is run through Cornell's Mann Library. The study was funded in part by a grant from the National Honey Board. (Reprinted from [ChronicleOnline](#), May 22, 2012.)

Weather Reports

NEW YORK CROP WEATHER SERVICE NOTES

Week ending May 27th

Weather: Temperatures averaged 4 to 14 degrees above normal. Highs were in the upper 80's while lows dropped to the high 40's. Rainfall was below normal in most regions. Totals ranged from none to 2.08 inches. Growing Degree Day accumulations since April 1st were above normal by as much as 225. Totals ranged from 280 to 578. **Small Fruit:** In Cayuga County, strawberries were irrigated to carry them through the dry weather. Freeze damage was observed on blueberries, but it is too early to tell if yields will be impacted.

Week ending June 3rd

Weather: Rainfall for the week averaged well above normal for most of the state with one to two inches of rain occurring at most reporting sites. A strong frontal boundary produced widespread strong to severe thunderstorms on Tuesday with many locations getting over an inch of rain. Another frontal boundary produced widespread light to moderate rain from late Friday afternoon through Saturday. There were wide swings in temperatures during the week. The week began with temperatures averaging around 10 to almost 20 degrees above normal Sunday through Tuesday. Temperatures were near to a little above normal Wednesday and Thursday and normal to a little below normal Friday and Saturday. Overall temperatures during the week averaged above normal. **Small Fruit:** Strawberry conditions were 12 percent poor, 24 percent fair, 57 percent good, and 7 percent excellent.

Week ending June 11th

Weather: For this period, temperatures averaged below normal across the state while precipitation averaged above normal across central, northern, and western portions of the state and near to below normal across southeast areas including Long Island. The week was dominated by an upper level low pressure system which tracked from the eastern Great Lakes on Sunday, June 3rd, to off the New England coast by Monday and Tuesday and eventually into the Canadian Maritimes by late in the week. At the surface, a low pressure system tracked from along the New England coast Sunday and Monday to the Canadian Maritimes by midweek. The combination of the upper level low and coastal surface low caused periods of rain to occur across much of the state Sunday through early Tuesday. Then, as upper level disturbances rotated southward around the western periphery of the departing upper level low scattered to numerous showers and some thunderstorms occurred late Tuesday through Friday. Another fast moving disturbance triggered additional showers across central and western portions of the state Saturday, June 9th. **Small Fruit:** Strawberry conditions were 20 percent poor, 29 percent fair, 48 percent good, and 3 percent excellent.

Week ending June 18th

Weather: Temperatures averaged near normal for the period with near to below normal precipitation. We began the period with a region of high pressure over the region. However, a cold front approached during the first half of the week that was associated with showers and thunderstorms. Most of the rainfall occurred last Tuesday across the entire state. This cold front pushed east of the area last Wednesday as the remainder of the week was dominated by a large area of high pressure and dry weather. **Small Fruit:** Strawberry conditions were 20 percent poor, 29 percent fair, 48 percent good, and 3 percent excellent.

Questions or comments about the New York Berry News?

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Weather Data for Week Ending Sunday, May 27, 2012

Station	Temperature (°F)				Growing Degree Days Base 50° ^{1/}			Precipitation (Inches) ^{1/}				
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm	
<u>Hudson Valley</u>												
Albany County AP	86	52	70	+10	142	412	+166	0.41	-0.39	7.60	+1.65	
Glens Falls AP	87	49	69	+11	131	338	+146	0.56	-0.28	7.16	+1.02	
Poughkeepsie AP	87	50	69	+8	134	471	+187	1.04	+0.06	5.10	-2.19	
<u>Mohawk Valley</u>												
Boonville	81	50	65	+10	109	235	+101	0.39	-0.61	6.73	-1.71	
<u>Champlain Valley</u>												
Plattsburgh Int AP	83	52	68	+10	128	290	+96	0.31	-0.37	4.36	-0.93	
<u>St. Lawrence Valley</u>												
Canton	86	50	67	+11	123	280	+116	0.51	-0.19	6.06	+0.61	
Massena	89	50	68	+11	128	305	+120	1.02	+0.44	5.27	+0.44	
<u>Great Lakes</u>												
Buffalo Int AP	89	58	73	+13	159	411	+184	0.00	-0.74	3.94	-1.65	
Wales	84	51	67	+11	124	308	+142	0.15	-0.69	4.03	-2.84	
Niagara Falls	87	56	71	+12	150	373	+130	0.00	-0.70	5.43	-0.27	
Rochester NY	88	54	71	+12	150	401	+153	0.24	-0.39	4.32	-0.65	
Watertown Intl	86	53	70	+14	142	337	+169	0.12	-0.51	3.86	-0.99	
<u>Central Lakes</u>												
Dansville AP	90	56	72	+13	155	455	+225	0.56	-0.13	3.96	-1.35	
Geneva Research	87	54	71	+12	145	370	+153	0.00	-0.72	4.51	-0.99	
Honeoye	87	52	69	+10	134	381	+158	0.54	-0.13	5.40	+0.00	
Ithaca Cornell Univ.	85	52	69	+12	133	344	+156	0.00	-0.78	5.87	+0.10	
Penn Yan	87	56	70	+12	142	407	+190	0.01	-0.71	4.42	-1.08	
Syracuse	88	55	72	+13	159	438	+188	0.03	-0.74	4.89	-1.28	
Warsaw	83	53	67	+11	118	297	+149	0.59	-0.24	4.46	-1.95	
<u>Western Plateau</u>												
Hornell Almond Dam	86	49	66	+10	115	300	+133	1.41	+0.69	5.67	+0.42	
Elmira	86	50	69	+11	136	396	+189	0.00	-0.77	3.96	-1.50	
Franklinville	85	47	66	+12	114	285	+168	1.02	+0.18	5.43	-0.90	
Jamestown 4NE	87	46	68	+12	126	327	+179	0.00	-0.93	5.79	-1.43	
<u>Eastern Plateau</u>												
Binghamton/Broo	82	54	68	+10	124	358	+160	0.11	-0.66	6.47	+0.41	
Cobleskill	83	48	66	+8	112	310	+134	0.37	-0.50	7.14	+0.69	
Morrisville	85	52	68	+12	129	312	+147	0.48	-0.41	7.59	+1.27	
Norwich	88	49	68	+10	126	322	+141	0.63	-0.24	7.00	+0.37	
Oneonta	88	50	69	+13	132	369	+211	0.29	-0.69	6.76	-0.49	
<u>Coastal</u>												
Bridgehamton	79	56	65	+6	107	338	+142	0.74	-0.10	7.80	+0.51	
New York LGA	85	58	68	+4	125	578	+175	2.08	+1.24	7.77	+0.64	

^{1/} Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning

The information contained in this weekly release is obtained in cooperation with Cornell Cooperative Extension, USDA Farm Service Agency, the National Weather Service, Agricultural Weather Information Service and other knowledgeable persons associated with New York agriculture. Their cooperation is greatly appreciated.

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Weather Data for Week Ending Sunday, June 3, 2012

Station	Temperature (°F)				Growing Degree Days Base 50° ^{1/}			Precipitation (Inches) ^{1/}				
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm	
<u>Hudson Valley</u>												
Albany County AP	91	50	69	+6	132	544	+209	1.68	+0.84	9.28	+2.49	
Glens Falls AP	88	47	66	+5	110	448	+180	1.88	+1.09	9.04	+2.11	
Poughkeepsie AP	91	49	72	+9	152	623	+244	0.88	-0.07	5.98	-2.26	
<u>Mohawk Valley</u>												
Boonville	84	43	60	+3	72	307	+118	1.85	+0.80	8.58	-0.91	
<u>Champlain Valley</u>												
Plattsburgh Int AP	85	43	63	+3	95	385	+114	0.29	-0.41	4.65	-1.34	
<u>St. Lawrence Valley</u>												
Canton	86	42	62	+3	83	363	+132	1.16	+0.44	7.22	+1.05	
Massena	89	42	62	+2	85	390	+134	1.49	+0.84	6.76	+1.28	
<u>Great Lakes</u>												
Buffalo Int AP	86	52	67	+6	121	532	+221	1.71	+0.90	5.65	-0.75	
Wales	86	46	63	+4	93	401	+169	1.01	+0.09	5.04	-2.75	
Niagara Falls	88	49	66	+5	116	489	+161	0.67	-0.08	6.10	-0.35	
Rochester NY	92	53	67	+6	122	523	+194	0.94	+0.26	5.26	-0.39	
Watertown Intl	87	45	65	+7	108	445	+211	0.86	+0.22	4.72	-0.77	
<u>Central Lakes</u>												
Dansville AP	92	49	69	+8	131	586	+274	1.38	+0.57	5.34	-0.78	
Geneva Research	90	48	66	+5	112	482	+185	0.84	+0.05	5.35	-0.94	
Honeoye	90	45	65	+4	104	485	+179	0.82	+0.04	6.22	+0.04	
Ithaca Cornell Univ.	89	43	66	+6	111	455	+194	0.83	-0.01	6.70	+0.09	
Penn Yan	91	49	67	+7	123	530	+233	1.10	+0.31	5.52	-0.77	
Syracuse	93	49	68	+7	130	568	+235	0.90	+0.10	5.79	-1.18	
Warsaw	85	46	63	+5	88	385	+177	2.20	+1.27	6.66	-0.68	
<u>Western Plateau</u>												
Hornell Almond Dam	89	46	64	+5	101	401	+168	1.60	+0.81	7.27	+1.23	
Elmira	92	44	67	+7	119	515	+231	0.99	+0.16	4.95	-1.34	
Franklinville	87	45	64	+7	97	382	+212	1.41	+0.48	6.84	-0.42	
Jamestown 4NE	89	47	65	+7	105	432	+222	1.71	+0.71	7.50	-0.72	
<u>Eastern Plateau</u>												
Binghamton/Broo	87	46	66	+6	112	470	+198	1.10	+0.29	7.57	+0.70	
Cobleskill	89	43	64	+5	102	412	+167	1.60	+0.65	8.74	+1.34	
Morrisville	88	45	65	+6	104	401	+171	1.51	+0.60	8.51	+1.28	
Norwich	89	44	65	+6	104	426	+177	1.32	+0.41	8.32	+0.78	
Oneonta	90	44	67	+9	118	487	+267	1.50	+0.50	8.26	+0.01	
<u>Coastal</u>												
Bridgehamton	82	57	69	+8	133	471	+196	0.68	-0.18	8.48	+0.33	
New York LGA	90	62	75	+9	175	753	+231	1.20	+0.36	8.97	+1.00	

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Weather Data for Week Ending Sunday, June 10, 2012

Station	Temperature (°F)				Growing Degree Days Base 50° ^{1/}			Precipitation (Inches) ^{1/}				
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm	
<u>Hudson Valley</u>												
Albany County AP	81	46	61	-5	75	619	+180	0.75	-0.11	10.03	+2.38	
Glens Falls AP	77	45	59	-4	65	513	+155	0.78	+0.01	9.82	+2.12	
Poughkeepsie AP	80	47	62	-4	86	709	+222	0.38	-0.53	6.36	-2.79	
<u>Mohawk Valley</u>												
Boonville	71	41	55	-5	40	347	+91	0.60	-0.50	9.18	-1.41	
<u>Champlain Valley</u>												
Plattsburgh Int AP	75	45	60	-4	70	455	+91	0.74	+0.03	5.39	-1.31	
<u>St. Lawrence Valley</u>												
Canton	73	45	59	-3	63	426	+115	0.92	+0.15	8.14	+1.20	
Massena	77	47	61	-2	79	469	+128	0.52	-0.18	7.28	+1.10	
<u>Great Lakes</u>												
Buffalo Int AP	73	48	61	-4	79	611	+202	0.39	-0.45	6.04	-1.20	
Wales	75	42	58	-3	61	459	+149	0.77	-0.21	5.71	-3.06	
Niagara Falls	80	49	63	-2	91	580	+153	0.45	-0.35	6.55	-0.70	
Rochester NY	81	47	63	-2	89	612	+189	1.79	+1.09	7.05	+0.70	
Watertown Intl	73	41	60	-2	70	515	+204	0.28	-0.42	5.00	-1.19	
<u>Central Lakes</u>												
Dansville AP	82	46	63	-2	91	677	+269	0.67	-0.23	6.01	-1.01	
Geneva Research	80	47	61	-2	82	564	+173	1.01	+0.15	6.36	-0.79	
Honeoye	78	41	61	-4	76	566	+163	0.63	-0.23	6.85	-0.19	
Ithaca Cornell Univ.	82	44	61	-2	82	538	+191	1.24	+0.37	7.78	+0.30	
Penn Yan	78	48	62	-2	87	617	+226	1.27	+0.41	6.79	-0.36	
Syracuse	80	46	62	-2	90	658	+230	0.72	-0.13	6.51	-1.31	
Warsaw	74	44	58	-4	57	438	+157	1.09	+0.10	7.75	-0.58	
<u>Western Plateau</u>												
Hornell Almond Dam	77	42	57	-5	50	451	+138	1.18	+0.34	8.45	+1.57	
Elmira	81	44	61	-3	78	593	+219	1.56	+0.70	6.51	-0.64	
Franklinville	76	40	56	-3	46	424	+187	1.08	+0.10	8.00	-0.24	
Jamestown 4NE	80	42	59	-2	64	496	+212	0.37	-0.68	7.87	-1.40	
<u>Eastern Plateau</u>												
Binghamton/Broo	78	45	58	-5	61	531	+171	1.59	+0.75	9.16	+1.45	
Cobleskill	77	44	58	-5	57	469	+143	0.35	-0.63	9.09	+0.71	
Morrisville	78	43	58	-4	56	444	+139	0.51	-0.46	9.50	+1.30	
Norwich	80	45	58	-4	57	483	+154	1.49	+0.51	9.81	+1.29	
Oneonta	78	44	56	-5	46	533	+239	0.84	-0.14	9.10	-0.13	
<u>Coastal</u>												
Bridgehamton	75	50	63	-2	90	561	+192	0.19	-0.69	8.67	-0.36	
New York LGA	83	53	68	-2	128	881	+224	0.39	-0.42	9.36	+0.58	

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Weather Data for Week Ending Sunday, June 17, 2012

Station	Temperature (°F)				Growing Degree Days Base 50° ^{1/}			Precipitation (Inches) ^{1/}				
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm	
<u>Hudson Valley</u>												
Albany County AP	84	51	69	+2	133	752	+195	1.00	+0.14	11.03	+2.52	
Glens Falls AP	82	48	67	+3	122	635	+175	0.95	+0.19	10.77	+2.31	
Poughkeepsie AP	86	52	70	+3	139	848	+241	0.48	-0.41	6.84	-3.20	
<u>Mohawk Valley</u>												
Boonville	81	46	64	+3	97	444	+108	1.12	+0.00	10.30	-1.41	
<u>Champlain Valley</u>												
Plattsburgh Int AP	82	46	66	+2	114	569	+98	0.39	-0.38	5.78	-1.69	
<u>St. Lawrence Valley</u>												
Canton	87	45	66	+3	113	539	+136	1.17	+0.40	9.31	+1.60	
Massena	89	45	67	+3	117	586	+148	1.46	+0.70	8.74	+1.80	
<u>Great Lakes</u>												
Buffalo Int AP	89	51	71	+6	148	759	+239	0.55	-0.29	6.59	-1.49	
Wales	85	44	66	+4	112	571	+172	1.93	+0.95	7.64	-2.11	
Niagara Falls	88	48	70	+5	144	724	+184	0.31	-0.53	6.86	-1.23	
Rochester NY	90	50	69	+5	137	749	+221	0.93	+0.23	7.98	+0.93	
Watertown Intl	92	44	68	+5	125	640	+241	0.90	+0.26	5.90	-0.93	
<u>Central Lakes</u>												
Dansville AP	91	47	70	+5	142	819	+302	0.80	-0.11	6.81	-1.12	
Geneva Research	89	49	68	+4	130	694	+197	0.95	+0.04	7.31	-0.75	
Honeoye	88	45	67	+2	124	690	+176	0.93	+0.02	7.78	-0.17	
Ithaca Cornell Univ.	87	44	66	+3	117	655	+211	0.62	-0.29	8.40	+0.01	
Penn Yan	88	47	69	+4	133	750	+253	0.57	-0.34	7.36	-0.70	
Syracuse	90	50	70	+5	139	797	+262	0.48	-0.43	6.99	-1.74	
Warsaw	83	44	65	+4	109	547	+183	1.96	+0.91	9.71	+0.33	
<u>Western Plateau</u>												
Hornell Almond Dam	88	44	65	+3	106	557	+154	1.38	+0.48	9.83	+2.05	
Elmira	89	44	66	+2	117	710	+234	0.89	-0.02	7.40	-0.66	
Franklinville	87	41	64	+4	100	524	+214	1.96	+0.91	9.96	+0.67	
Jamestown 4NE	88	43	65	+4	110	606	+237	1.30	+0.18	9.17	-1.22	
<u>Eastern Plateau</u>												
Binghamton/Broo	85	50	66	+2	111	642	+183	0.69	-0.15	9.85	+1.30	
Cobleskill	83	46	65	+2	105	574	+155	0.25	-0.73	9.34	-0.02	
Morrisville	84	47	66	+4	114	558	+166	0.83	-0.15	10.33	+1.15	
Norwich	85	47	65	+3	109	592	+172	0.76	-0.22	10.57	+1.07	
Oneonta	84	46	65	+3	106	639	+259	0.35	-0.63	9.45	-0.76	
<u>Coastal</u>												
Bridgehamton	80	50	65	-1	105	666	+189	1.36	+0.52	10.03	+0.16	
New York LGA	82	62	71	-1	149	1030	+226	1.50	+0.66	10.86	+1.24	

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