



# New York Berry News

Volume 13, Number 2

February 19, 2014

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## Polar Vortex: The Possible Good and Bad of Winter 2014

*Marvin Pritts, Cornell University  
Department of Horticulture*

Frequent visits from the polar vortex this winter have caused many fruit growers to be concerned about this year's crop potential. Front page headlines suggest that grape growers are already seeking government funds to help with the loss. Peach growers are also anticipating a limited crop. But what should berry growers anticipate?

Berry crops enter a time of dormancy when the water exits the plant cells and they become relatively resistant to cold temperatures. So long as temperatures drop slowly in fall, plants acclimate, go dormant and then can tolerate quite cold temperatures. This past fall was a relatively good year for acclimation, so there is not likely injury due to a sudden drop in temperature before acclimation occurred. Most injury to berry crops happens when water re-enters the tissues when weather warms in spring, and then this is followed by another period of intense cold. This water freezes and expands, injuring vascular tissues and buds. The good news is that temperatures this winter have stayed relatively cold. This is far better for the plant than winters in which the temperatures fluctuate dramatically. These fluctuations could still come, but so far they have been few.

Has the absolute temperature been too cold for berry crops? Strawberries should be covered with straw mulch, and if not, they will likely have been covered with snow during the cold

weather. This protects the plants from injury, so most strawberries should be fine this year. Blueberries can be injured when the temperature begins to fall below -10F, but significant damage doesn't occur in most varieties until -20F. I have seen blueberries killed back to the snow line at -30F. We flirted with -20F at many locations, so the possibility exists for some bud damage. You can determine if damage has occurred by placing some flowering shoots in a vase of water in the house for a few days. After water moves into the tissue, cut the buds with a razor blade and look for browning (a sign of injury). The least hardy buds will be near the top of the shoot. The good news is that blueberries were at their hardiest point when the cold weather hit.

The hardiness of summer raspberries depends a great deal on the variety. Some varieties will be fine, but other may have suffered damage on the tops of the floricanes. It is relatively easy to cut some canes and place them in water in a warm area to determine if damage has occurred. The good news with raspberries is that, even with some damage, the remaining buds can compensate for bud loss by producing more and larger berries – although they will be lower down on the canes. Fall raspberries that are cut to the ground should be unaffected by the cold weather.

Thornless blackberries grown

## Polar Vortex *(continued)*

outdoors are likely to have suffered the greatest loss. They are marginally hardy under the mildest of winters, but in an open winter like 2014, they are very vulnerable to injury.

I am most interested in seeing how our tunneled blackberries perform, given that a single sheet of plastic does not protect from cold temperatures that much.

The big unknown factor this year was wind. We had strong winds on some of our coldest nights. Although plants don't

suffer from "wind chill" like human skin (since there is little water to evaporate from woody tissue), wind can contribute to drying out of plant tissue. We may see injury that might be attributed to cold temperatures, but could have been caused by high, desiccating winds. Because this winter was so unusual, it is unclear how much the combination of cold temperatures and wind will have contributed to any observed injury.

The other hope is that the coldest winter in a century may

have damaged overwintering populations of spotted winged drosophila. If that occurs, berry growers may be wishing for a winter like 2014 every year. But regardless of how cold it was here, the rest of the world seems to be warmer than ever. Australia and Argentina had record heat, Alaska was warm this winter, the Southwest was having record temperatures, and the Sochi Olympics was barely cold enough to have snow. The only thing that is certain is that we will have to learn to live with more fluctuations in our weather patterns in the years to come



## Watkins Named Cornell Cooperative Extension Director

*Amanda Garris, Agricultural Experiment Stations Communications Officer for the College of Agriculture and Life Sciences*

**January 16, 2013.** Horticulture professor Christopher Watkins has been named director of Cornell Cooperative Extension (CCE).

Formerly associate director of CCE, Watkins is appointed through Oct. 1, 2017, completing the term of former director Helene Dillard, who recently stepped down to become dean of the College of Agricultural and Environmental Sciences at the University of California, Davis.

"We are very fortunate to have someone of Chris' caliber to seamlessly step into the directorship of CCE," said Kathryn J. Boor, the Ronald P. Lynch Dean of the College of Agriculture and Life Sciences (CALS). "I am confident that Chris will position CCE for the future by integrating communication and education technologies with the traditional boots-on-the-ground approach that has characterized the legacy of CCE to date."

"I am thrilled that Chris has accepted this position. The broad extension mission at Cornell will benefit from his strong leadership," said Alan Mathios, the Rebecca Q. and James C. Morgan Dean of the College of Human Ecology. "With him as a partner, I look forward to furthering strong evidence-based extension efforts here on campus, sustaining our statewide nutrition education programs, and creating opportunities for students to engage with the extension mission. Together we can ensure that CCE continues its long history of

supporting families and communities in New York State."

As director, Watkins will run the diverse portfolio of programs of CCE, which maintains a presence in every county in New York as well as in New York City. It reaches citizens through outreach in food systems, natural resources, sustainable energy, 4-H youth development, nutrition, economic development and related subjects.

"As the primary provider of outreach for the Colleges of Agriculture and Life Sciences and Human Ecology to the citizens of New York, Cornell Cooperative Extension is a major component of realizing Cornell's land-grant mission," said Watkins. "As we confront familiar and new challenges to human health, agricultural production, youth development, community sustainability and economic growth, I look forward to working with the local and regional programs throughout the state, and my colleagues in CALS and Human Ecology, on the front lines of helping CCE associations to meet these needs."

Watkins joined the Cornell faculty in 1994 as an associate professor of horticulture after more than a decade as a scientist in the Postharvest Science Group of the Horticulture and Food Research Institute in his native New Zealand. He was promoted to full professor in 2004, was named the Herman M. Cohn Professor of Postharvest Science in 2013 and has served as associate director of CCE since 2006.

Watkins has maintained an active research program on techniques



that retain the flavor, texture and health-related compounds of fruits and vegetables after harvest. Throughout his career, Watkins has written more than 200 peer-reviewed research articles and extension publications. He serves as a resource to growers statewide through his extensive outreach activities. An internationally sought expert on fruit ripening and storage, he and a colleague wrote a Production Guide for Storage of Organic Fruits and Vegetables in 2012. Watkins has mentored 18 past and current graduate students, and he regularly hosts visiting scholars to collaborate and engage in postharvest research.

He has received numerous honors, including the Crystal Apple Award from the director of the Szczepan Pieniazek Research Institute of Pomology and Floriculture in Skierniewice, Poland, and the American Society for Horticultural Science Outstanding Extension Educator Award. He delivered the George Goodling Memorial Lecture to the State Horticultural Society of Pennsylvania in 2010.

## Jennifer Grant Named Director of NYS IPM PROGRAM

**January 31, 2014.** Jennifer Grant is the new Director of the NYS IPM Program. In the words of Chris Watkins, Associate Dean and Director of Cornell Cooperative Extension: "I am delighted to announce the appointment of Jennifer Grant as director of the New York State Integrated Pest Management Program (NYS IPM) at Cornell University. Jennifer has previously served as an Ornamentals and Community IPM Educator, Community IPM Coordinator, Assistant Director, and until now as Co-Director of the program with Curtis Petzoldt. In this role, Jennifer and Curtis have excelled in managing the NY IPM program which affects every area of the state. While maintaining excellent research and extension capabilities in agriculture, the program has expanded to address new challenges in community IPM. I am confident that Jennifer will

continue to grow this critically important program that connects campus and statewide research and extension to individuals and communities around New York State.

Jennifer joined NYS IPM in 1989 after receiving BS and MS degrees in entomology from the University of Vermont, and later earned her Ph.D. in entomology at Cornell University. While at Cornell, Jennifer has worked extensively in many areas of IPM including turf grass, schools, and IPM on recreational lands. In her current and previous roles she has developed expertise in all areas of agricultural IPM. Jennifer has nearly 170 extension, technical, research, educational and media publications to her credit and is widely recognized in the IPM field nationally and internationally. She received the Entomological Society of America's Eastern Branch



Award for Excellence in Integrated Pest Management in 2011. Her golf course IPM research and demonstration work conducted at Bethpage State Park over the last 13 years has helped influence golf course managers to minimize the use of pesticides on many golf courses in New York and the US."

## That's a Berry Good Question: SWD and Winter Survivability

*Cathy Heidenreich, Cornell University and Kathy Demchak, Penn State University*

**Q. Can we expect reduced SWD pressure this season due to our extremely cold weather?**

**A. We didn't have an answer to this one; and we weren't alone on that. Dr. Greg Loeb, grape and small fruit entomologist at Cornell spearheading work on SWD in NY and the NE region, didn't either, but provided the following thoughts on the topic:**

"We really do not know. There are a few papers that I am aware of out of Japan looking at cold tolerance



by Alex Savelle

## That's a Berry Good Question:

## AG NEWS

*(continued)*

of SWD and also a paper out of Oregon. Both of these studies worked with non-adapted or poorly adapted SWD and found that adults were not able to handle temps much below freezing. Several groups are now looking at this question more carefully. We and others are showing that SWD does go into a non-reproductive phase (diapause) later in the fall and it's likely the adults have improved capacity to tolerate cold temps, at least to some extent. Probably not enough to handle the kinds of temperatures we have seen this winter in unprotected places. Of course, we would expect adults to seek out protected places such as in the soil litter or in rotting wood, etc. But we really don't have any data on this yet. We did set up some cages without bottoms outdoors this winter (with leaf litter and with or without logs) and released flies reared from late season fruit. Around January 1st we pulled the cages off and allowed snow, etc. to accumulate. The plan is to put cages back on in March and monitor for emergence. I would guess survival will not be very good but we shall see."

*So, while we're tentatively hopeful that few SWD survived, protected locations such as compost piles, brush piles, or crawl spaces may still have afforded them some protection. We expect that Northern June-bearing strawberry crops will not be affected, or will be only minimally affected by SWD once again. Numbers are still likely to increase sometime next summer, so stay tuned throughout the next growing season for updates.*

*(Photo credit: Alex Surcica, PSU)*

### Statement by Secretary Vilsack on Passage of the Agricultural Act of 2014

**WASHINGTON, Feb. 4, 2014.**

"Today's action will allow the proud men and women who feed millions around the world to invest confidently in the future. Our communities will have additional support to attract new economic opportunity and create jobs. During difficult times, children, working families, seniors and people with disabilities will have access to nutritious food. The potential of new products, treatments and discoveries will be strengthened through new agricultural research. Renewed conservation efforts will protect our fields, forests and waters creating new tourism options. This legislation is important to the entire nation.

Building on the historic economic gains in rural America over the past 5 years, this bill will accomplish those goals while achieving meaningful reform and billions of dollars in savings for the taxpayer. While no legislation is perfect, this bill is a strong investment in "Today's action will allow the proud men and women who feed millions around the world to invest confidently in the future. Our communities will have additional support to attract new economic opportunity and create jobs. During difficult times, children, working families, seniors and people with disabilities will have access to nutritious food. The potential of new products, treatments and discoveries will be strengthened



through new agricultural research. Renewed conservation efforts will protect our fields, forests and waters creating new tourism options. This legislation is important to the entire nation.



## AG NEWS

# DEPARTMENT OF AGRICULTURE AND MARKETS REMINDS FARMERS OF THE MARCH 15 DEADLINE TO PURCHASE CROP INSURANCE

**January 31, 2014.** Acting New York State Agriculture Commissioner Richard A. Ball today urged farmers to review their crop insurance options, which can protect them from crop vulnerabilities such as unpredictable weather and pest outbreaks.

The March 15 crop insurance deadline applies to most spring-planted field crops, including corn, corn silage, dry beans, barley, oats, soybeans, fresh market sweet corn, forage seeding and production, grain sorghum, potatoes, spring forage seeding, processing green peas, fresh market and processing snap beans, and processing tomatoes, cabbage and sweet corn.

While New York has a robust agricultural economy, as we've seen over the past few years the weather is unpredictable, which makes crop insurance an important asset for farmers," said Acting Commissioner Ball. "Crop insurance is a sound investment that provides farmers across the state with peace of mind and protection from losses. I encourage farmers to contact their nearest crop insurance agent today."

"If the weather prevents us from planting feed for the cows, then the

insurance can help us have money to purchase feed to get us to the next season," said Lynn Murray of Murcrest Farms in Copenhagen, NY. "Even on our best ground, Mother Nature can win. I would never gamble on a loss, and I would never be without crop insurance."

In 2012, 6,181 producers purchased crop insurance in New York and 1,131 policy holders received crop insurance payments totaling over \$67 million. Figures for 2013, compiled by the USDA Risk Management Agency, are incomplete at this time.

For crops insured in some New York counties but not others, producers can ask their crop insurance agent to seek a written agreement, which provides similar coverage, if approved by USDA. For crops for which there are not federal crop insurance programs, the Non-Insured Disaster Assistance Program (NAP), administered by county Farm Service Agency offices, can provide up to 27.5% of the value of a crop, in the event of a total loss. Like crop insurance, producers must sign up for NAP in advance of March 15.

The USDA can also improve crop insurance options from year to year. This year, "Trend

Adjustment," was added to the winter wheat policy, available in 27 counties, which may allow farmers to increase their coverage without paying a higher premium. It was also added to the corn policy last year. Just two years ago, coverage level options for corn and soybeans were increased to 80% and 85%, respectively. Last year, fresh market contract green snap bean coverage was made available in 9 counties. In 2011, soybean crop insurance became available in 38 counties when 17 counties were added for coverage. Hay and pasture drought protection has also only been available statewide in recent years.

Producers interested in purchasing crop insurance or changing their coverage should contact a crop insurance agent as soon as possible. Crop insurance is made available by county. A list of crop insurance agents who sell crop insurance in your county is available on the web at <http://www.rma.usda.gov/tools/agent.html> or at your local USDA Farm Service Agency office. Or call the New York State Department of Agriculture and Markets at 1-800-554-4501 and ask for crop insurance information.



### AGRICULTURE NEWS

New York State Department of Agriculture & Markets

108 Airline Drive ~ Albany, New York 12235 ~ [www.agriculture.ny.gov](http://www.agriculture.ny.gov)



# Crop Insurance

## FARMER SUCCESS STORY

### Keeping Good Records Streamlines the Insurance Process

ENDICOTT, NY— Gary Phelps started his “you pick” blueberry operation about 30 years ago growing and selling local produce. He started as a small production farm and has steadily grown in maturity and yield. His farm is located about 16 miles west of Binghamton near the Susquehanna River and is open from mid-July until mid-August. Blueberries are the only thing he specializes in. He says, “Blueberries are less susceptible than raspberries or strawberries to weather. There isn’t a lot of preparation required, you pick them, take them home, put them in the freezer and you’re done.”

He is concerned, however, about the shifts in climate and weather patterns that his farm has experienced over the past decade and that has drawn him to look into crop insurance. “We have had excessive rain, early frost, extreme heat and drought. With what it costs to grow, you’re out all that money, and with crop insurance you can have something to fall back on. We have other friends that grow grain crops in Michigan and they always carry crop insurance.” Gary explains. “One of the biggest things is to understand what crop insurance does for the farmer... It is simply money that you can set aside to pay for a program that protects your farm.”

The president of the New York Farm Bureau in Tioga county organized a few seminars to educate farmers and growers about crop insurance that Phelps attended. After a few phone calls, he was signed up. “It is easy for me because I only grow one crop, and it is important to note that it is essential to keep good



*Gary Phelps, Gary's Berries Endicott, NY*

records. If you keep good records it streamlines the insurance and taxation processes.”

Gary enrolled in AGR-Lite, a whole farm revenue insurance program. The program works off the average income reported on a producer’s Schedule F tax form. Good records are a must.

Crop insurance must be purchased from a licensed agent. Enrollment deadlines vary by crop. The enrollment deadline for AGR-Lite is March 15 for first time buyers. Those renewing must do so by January 31.



**Risk Management Agency**  
This institution is an equal  
opportunity provider.

*The New York State Department of Agriculture and Markets has partnered with USDA Risk Management Agency (RMA) to provide crop insurance education to New York State farmers. For more information, please visit the NYS Crop Insurance Education website at [www.agriculture.ny.gov/API/CropInsurance.html](http://www.agriculture.ny.gov/API/CropInsurance.html) or call 518-457-4531. The RMA website is: [www.rma.usda.gov](http://www.rma.usda.gov). To find a crop insurance agent, ask a neighbor for a recommendation, contact your local Farm Service Agency (FSA) office or use the USDA RMA crop insurance agent locator tool on the web at [www.rma.usda.gov/tools/agent.html](http://www.rma.usda.gov/tools/agent.html)*

## Advances in Field Strawberry Production Workshop

Tuesday, March 4<sup>th</sup> at the Visitor's Interpretive Center, 8023 State Route 30, Paul Smiths, NY 12970 (Snow date: Thurs March 20)

OR

Wednesday, March 5<sup>th</sup> at Cambry Court Activity Center, 68 West Main St. #2, Gouverneur, NY 13642 (Snow date: Fri March 21)

Cost is \$5/person. To register, contact Amy Ivy at [adi2@cornell.edu](mailto:adi2@cornell.edu) or call (518) 561-7450 or (518-570-5991).

This workshop will focus on new ways of growing strawberries in field soil including annual production systems, detecting and mitigating soil-borne pests and utilizing biological control of root weevil complex.

### Agenda

- 9:30 - 10:00**                    **Registration**
- 10:00 – 10:05**                **Welcome, announcements** *Amy Ivy, CCE ENYCHP (Eastern NY Commercial Horticulture Program)*
- 10:05 – 11:15**                **Growing June Bearing and Day Neutral strawberries – getting the most out of both systems** *Laura McDermott, CCE ENYCHP*
- 11:15 – 11:45**                **Strawberry Root Problems – a significant limitation to long term success** *Laura McDermott, CCE ENYCHP*
- 11:45 – 12:00**                **How to identify if you have root weevils in your planting**                    *Amy Ivy, CCE ENYCHP*
- 12:00 – 12:30** **Lunch**
- 12:30 – 1:30**                    **Using native nematodes as biocontrol of root weevils in strawberries** *Dr. Elson Shields, Professor and Tony Testa, Research Support Specialist, Cornell*
- 1:30 – 2:00**                    **Update on SWD (Spotted Wing Drosophila) – what to know for 2014** *Laura McDermott, CCE ENYCHP*
- 2:00**                                **Adjourn**

*Sponsored by Cornell Cooperative Extension with funding from the Northern New York Agricultural Development Program.*





# Southern Tier Berry School

*Hosted by the Cornell Cooperative Extension Association of Allegany and Cattaraugus Counties*

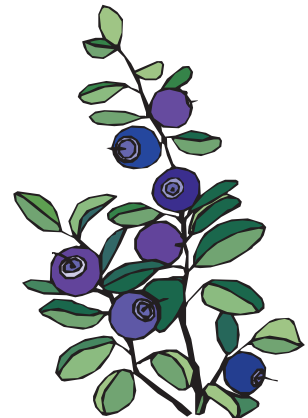
**Thursday, March 13, 2014**

**9:00 am to 3:30 pm**

**Ellicottville Town Center/Cooperative Extension Center  
28 Parkside Drive  
Ellicottville, NY 14731**

Come join Cornell University faculty and horticulture researchers for the latest updates on:

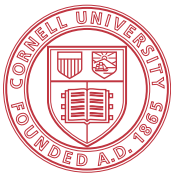
- ❖ Spotted Wing Drosophila identification, monitoring and management
- ❖ Integrated Pest Management resources for berry growers
- ❖ Organic and Conventional Small Fruit Disease Management
- ❖ Berry Soil and Nutrient Management
- ❖ Expanding your berry market with specialty small fruits
- ❖ Berry weed management
- ❖ And much more!



The Berry School is appropriate for beginning and seasoned commercial berry growers and marketers, u-pick operators, and those looking to diversify into berry production. Pre-registration is required, and lunch will be provided.

**To register or for more information, please contact:**

Mark Holt  
Community Educator -- Agriculture/Horticulture  
Cornell University Cooperative Extension, Cattaraugus County  
Tel: (716) 699-2377 x115  
E-mail: [mwh95@cornell.edu](mailto:mwh95@cornell.edu)



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**Berry Grower Update**  
**Tuesday, March 4th 9am-3pm**  
**Cornell Cooperative Extension of Broome County**

**8:30am: Registration**

**9:00am: Water Management Challenges**

(Larry Geohring, Cornell Biology & Environmental Engineering)

Climate change and rising energy costs will challenge the productivity, profitability, and sustainability of commercial berry production. This presentation will address water management requirements of small berries and brambles with respect to potential changing climatic conditions, and what commercial growers should consider to address these issues. Efficient methods of irrigation technology such as drip irrigation will be discussed, along with information on how to compare rising energy and pumping costs.

**9:45am: Season Extension Techniques**

(Dr. Marvin Pritts, Cornell University Horticulture Department)

Berry production potential is limited in our area for several reasons. Winters are too cold to consistently produce certain crops, such as blackberries. The growing season is too short to fully ripen crops such as fall-fruiting raspberries. And the wet, rainy weather reduces the quality of strawberries and brambles. The use of plastic tunnels can significantly increase winter survival and the length of the harvest season, while simultaneously improving fruit quality and yield. This session will examine the use of high and low tunnels to produce blackberries, to considerably extend the season of fall raspberries and strawberries in our local climate. Unique management challenges of tunnels will be presented, as will the economics of tunnel installation and use.

**10:30am: Break**

**10:45am: Disease Management Update: Chemical Management of Berry Diseases in the field and in Covered Production**

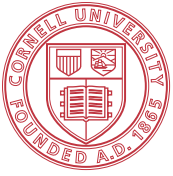
(Dr. Kerik Cox, NYS Ag Experiment Station at Geneva)

The presentation will focus on chemical management for diseases of blueberries, raspberries, and strawberries in the field and covered production settings. Diseases relevant to and reported in NY production operations will be used as model systems to illustrate production-relevant information. Specific topics to be covered will chemistry selections, timing, and pesticide stewardship practices for diseases of blueberries, raspberries and strawberries

**Accessibility information:**

Please contact the Cornell Cooperative Extension of Broome County office if you have any special needs.

Cornell Cooperative Extension of Broome County provides equal program and employment opportunities.



**Cornell Cooperative Extension**  
**Broome County**  
840 Upper Front Street  
Binghamton, New York 13905-1500

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Current Occupant or

**11:30am: Spotted Wing Drosophila in Berry Crops**

(Dr. Juliet Carroll, NYS Ag Experiment Station at Geneva)

This talk will cover the berry crops at greatest risk of damage, wild hosts of spotted wing drosophila that can contribute to its build-up on the farm, insecticides available for use on berries, cultural management practices, and where to find additional information online about this invasive and damaging fruit fly.

**12:15pm: Lunch**

**1:00pm: Sprays on Target**

(Andrew Landers, NYS Ag Experiment Station at Geneva)

The correct use of sprayers is very important in order to ensure good deposition, coverage and efficacy of product. This presentation will cover the correct selection of nozzles to ensure the right-size droplets are being used. Pressure, forward speed and machine maintenance will be discussed along with how the correct airflow plays an important part in effective spraying.

**1:45pm: Strawberry Production Methods** (Laura McDermott, Capital Area Fruit & Vegetable Team, Cornell Cooperative Extension)

**2:30pm: Break**

**2:45pm: Getting the Scoop on Berry Crop Resources**

(Cathy Heidenreich, NYS Ag Experiment Station at Geneva)

Having the information you need at your fingertips is essential for successful berry crop production. This talk will cover both print and electronics resources for commercial berry growers including the Cornell Berry Diagnostic tool and Pest Management Guidelines for Berry Crops, other pest management resources, conventional and organic production guides, New York Berry News and other berry newsletters, trade publications and journals such as NY Fruit Quarterly, the Cornell Fruit and Spotted Wing Drosophila blogs and more.

**3:30pm: End**

2.0 DEC credits each in 1a, 10 & 22. The cost is \$50pp and includes all handouts, snacks and lunch.

Registration and payment is available online at: [http://reg.cce.cornell.edu/2014berrygrowerupdate\\_203](http://reg.cce.cornell.edu/2014berrygrowerupdate_203). You can also register by contacting Carol at (607)584-9966. or you can contact Carol at (607) 584-9966 or [clf62@cornell.edu](mailto:clf62@cornell.edu)

## BERRY ORGANIZATION NEWS

### NEW YORK BERRY GROWERS ASSOCIATION

#### NYS Berry Growers Association and Cornell Breeding Program Seeking Strawberry Evaluators

*Dale Ila M. Riggs, President, NYS Berry Growers Association and Courtney Weber, NYSAES Small Fruit Breeder*

The NYS Berry Growers Association (NYSBGA) and Courtney Weber from Cornell's Small Fruit Breeding Program are seeking growers that want to evaluate and provide feedback regarding an advanced selection from Courtney's strawberry breeding program. The selection, NY01-16, is very large for the early mid-season. The largest fruit were 51 g (almost 2 ounces) without irrigation. Subsequent fruit hold their size well. The fruit have very aromatic flavor, are slightly dark red, firm, with an attractive conic shape. In 2013 it started fruiting on June 4 (one week prior to Jewel) and fruited until about July 1.

If you would like to trial this selection, you must be a member of the NYSBGA. If you are not a member, contact Paul Baker, Executive Secretary for the NYSBGA (716-807-6827) to get signed up. You can also download a membership form from <http://www.hort.cornell.edu/grower/nybga/MembershipBlank.pdf>. After your membership has been confirmed, Paul will need your billing address, your shipping address, and your requested date for shipment. As part of the

evaluation process, a one page site report form and a one page fruit/plant evaluation form will be submitted to the Berry Growers Association and the data will be forwarded to the Small Fruit Breeding program.

The NYSBGA is thrilled to be able to offer this benefit to their members and Cornell is excited about being able to get data to see how advanced selections perform in commercial situations. Members can get a minimum of 1000 plants to a maximum of 2000 plants to test on their farm. Sign up today to be able to "test drive" a possible new variety before the general grower community has access to it.





## BERRY ORGANIZATION NEWS *(continued)*

### NARBA NEWS

#### Tim and Nate Nourse of Nourse Farms Receive NARBA's 2014 Distinguished Service Award

**January 27, 2014.** At its annual meeting on January 27, 2014, the North American Raspberry & Blackberry Association (NARBA) presented Nate and Tim Nourse of Nourse Farms, Inc., with its 2014 Distinguished Service Award. Nourse Farms, based Massachusetts, is a leading nursery supplier of berry plants to the industry.

The award especially honors their leadership in developing the Association's North American Bramble Growers Research Foundation's Nursery Contribution program and their strong support of this program, which since its inception in 2007 has more than doubled the funds available to the Foundation for making grants to research. Nate Nourse, who was there to receive the award, served as NARBA president in

2010 and 2011; both Nate and his father, Tim Nourse, have held many positions of leadership within the berry industry.

Making the award was grower Nathan Milburn of Milburn Orchards, Elkton, Maryland, and 2012-2013 president of NARBA. Said Milburn, "Most of us know Nourse Farms as a leading supplier of plants to the berry industry, but we recognize here the father and son Tim and Nate Nourse, for their contributions specifically to the North American Raspberry & Blackberry Association and the raspberry and blackberry industry...Their commitment to our industry and support of our organization are unrivaled."

NARBA is a membership organization of blackberry/raspberry growers, researchers, and others with members in more than 35 states, 8 Canadian provinces, and 5 countries. NARBA's 2014 annual meeting and conference were held in Hershey,

Pennsylvania, in association with the Mid-Atlantic Fruit and Vegetable Convention.

For more information about NARBA, visit [www.raspblackberry.com](http://www.raspblackberry.com).

A list of previous winners of this Distinguished Service award may be found at [www.raspblackberry.com/local.cfm?doc=webdocs/NARBAAwards.htm](http://www.raspblackberry.com/local.cfm?doc=webdocs/NARBAAwards.htm).

#### Award Presentation

"Most of us know Nourse Farms as a leading supplier of plants to the berry industry, but we recognize here the father and son Tim and Nate Nourse, for their contributions specifically to the North American Raspberry & Blackberry Association and the raspberry and blackberry industry.

Nate Nourse was Region 2 Representative on the NARBA Executive Council, our board of directors, from 2006 through 2010. He served as Vice President in 2009 and as President in 2010 and 2011. He is also a Trustee of our associated North American Bramble Growers Research Foundation.

He serves as Production Committee chair for National Berry Crops Initiative (representing the New England Berry Growers Association). As a grower, and in this leadership role, he has become very active in seeking to find short-term and long-term solutions to SWD for growers, by urging research and regulatory relief to increase the control options available to growers.





## Farm Food Safety Training with GAPs

This is for those farmers who are interested in produce safety or who are being required by buyers to develop food safety plans and provide third party verification of their food safety practices. The Food Safety Modernization Act proposed produce safety rules have been released with a tentative final rule anticipated sometime in the summer of 2015. These workshops will help growers understand produce safety issues and Good Agricultural Practices as well as the FSMA proposed produce rule and third party audits. The second day will be devoted to writing farm food safety plans so that each participant can work on their own farm plan. These workshops are sponsored by the National GAPs Program, Cornell Cooperative Extension, Cornell University, Produce Safety Alliance, and the New York State Department of Ag & Markets with funding from the Genesee Valley Regional Market Authority.

### February 27 & 28, 2014

8:30 AM Registration & Refreshments

9:00 AM - 4:00 pm Training

Civil Defense Center  
7220 State Rte. 54  
Bath, NY 14810

Click here to register:  
<http://cvp.cce.cornell.edu/event.php?id=165>

### March 6 & 7, 2014 - Final Workshop for the Season!

8:30 AM Registration & Refreshments

9:00 AM - 4:00 pm Training

NYSAES Food Research Lab  
Room 251  
630 W. North St.  
Geneva, NY

Click here to register:  
<http://cvp.cce.cornell.edu/event.php?id=161>

For more information, contact Craig Kahlke at [cjk37@cornell.edu](mailto:cjk37@cornell.edu) or (585) 735-5448.

## Produce Safety Focus Groups

We are looking for two groups of 10 fruit and/or vegetable growers to participate in two focus groups. The purpose is to ask for your opinions about new decision trees that are being developed to help growers assess food safety risks on the farm and decide which risks should be addressed first. These trees are designed primarily for small to medium sized farms, but should be useful to all fresh produce growers.

These focus groups will be held in two different locations. One will be on Thursday March 20, 2014 from 2-4 pm at the New York State Agricultural Experiment Station in Geneva, NY.

The other focus group will be Thursday April 3, 2014 from 1-3 pm at the Best Western Albany Airport, Albany, NY.

Participants will receive \$40 to compensate for their time and travel expenses.

Please call or email Betsy Bihn at 315.787.2625 or [eab38@cornell.edu](mailto:eab38@cornell.edu) if you are interested in participating or if you have any questions.

These focus groups are open to all fruit and vegetable growers.

## ON THE ORGANIC SIDE...

### Organic Crop Insurance Is Growing in New Ways!

*Brandon C. Willis, Administrator,  
USDA Risk Management Agency*

**February 4, 2014.** Federal crop insurance provides the risk management tools necessary for American farmers to stay in business after a difficult crop year. They can be the difference between a farmer going under because of a lean year or having a safety net that allows them to keep farming and rebuild. These [tools help farmers](#) who rely on good farming practices for smart land use and preserve economic stability for generations. And the Risk Management Agency (RMA) has worked hard to extend [risk management tools for organic producers](#).

Organic producers were first able to obtain crop insurance under the Agricultural Risk Protection Act of 2000. However, due to the lack of data, organic farmers were initially charged an additional 5 percent surcharge and were only able to insure the “conventional price” for their crop – not the organic price. Many organic producers felt the surcharge was not justified and that crop insurance prices needed to better reflect what they received in the marketplace.

As farmers continue to recognize the value of the crop insurance program [RMA strives to improve the program](#) so that it works for all producers. Significant efforts have been made to address the needs of organic producers. These changes are beginning to take effect.

Organic producers [will benefit beginning in 2014](#), by no longer being charged the 5 percent surcharge on premiums. Organic and conventional premiums and



*B & W Orchards owner Barbara Robinson grows blueberries and other produce on her eastern Mississippi farm. Photo by Mississippi State University Extension Service*

yields will be based upon actual production history. Transitional yields, used when a producer lacks production history or following natural disasters will be separated between organic and conventional production potentially resulting in lower yields for some producers.

Also organic prices are available for organic farmers for corn, soybeans, cotton, processing tomatoes, avocados, fresh freestone peaches, fresh nectarines, and plums. Eight additional crops will be added for organics starting in 2014 (Oats, Peppermint, Apricots, Apples, Blueberries, Almonds, Pears, and Grapes for juice).

March 15 is the sales closing date for purchasing insurance for many spring-planted crops. Sales closing dates vary by crop, state and county. Organic producers should [consult a crop insurance agent](#) to discuss their insurance options.

To further expand opportunities

for organic producers, RMA introduced the [Contract Price Option](#), which will be available for organic farmers who receive a contract price for their crop. This new option allows, under certain conditions, organic producers to base their crop insurance price upon the price they receive from their marketing contract.

Making reliable and effective risk management tools available for producers to make sound decisions that benefit the land is just one of the ways RMA supports the nation's organic producers.

- See more at:  
<http://blogs.usda.gov/2014/02/04/organic-crop-insurance-is-growing-in-new-ways/#sthash.OOqps3X5.dpuf>



Cornell University  
Cooperative Extension  
Ulster County



## Organic Pesticide Applicator Training

March 10-11 in Long Island -- Riverhead, NY

March 12-13 in the Hudson Valley -- Highland, NY

March 25-26 in Western NY -- Geneva, NY



Do pesticide regulations  
apply to organic pesticides?

**YES!**

Learn what laws organic growers  
must  
comply with if using any pesticide.

Are your pesticide  
applications working?

Hands-on equipment workshops to learn  
methods to assess and improve the efficacy  
and efficiency of your applications!

### TWO DAYS of TRAINING:

#### Sprayer Equipment Workshop

Learn how to calibrate backpack and tractor sprayers, choose the best nozzle, assess and improve spray coverage, properly maintain equipment and much more!

#### Product Selection, Mixing and Calculation Workshop

Walk through the pesticide decision making process and spray preparation with experienced Cornell researchers.

This class is taught by Cornell Cooperative Extension educators, Department of Environmental Conservation representatives, NOFA-NY representatives, Cornell Researchers and Cornell Experiment Station Staff.

Topics covered include:

- Pesticide rules, regulations and how they apply to organic growers.
- Organic product overview and efficacy.
- Pesticide safety.
- Equipment use and calibration.
- How to assess and improve spray results.
- Calculations and mixing of pesticides
- Explanation of the National Organic Rule on approved materials

**Register by February 20<sup>th</sup> - space is limited!** Cost is \$65 per person, and includes breakfast and lunch both days, plus the Northeast Core Pesticide Training Manual.

For more information and to register for this event fill out and send in registration form – [click here](#) or go to <http://www.cceulster.org/2014%20Organic%20Pesticide%20Applicator%20Trainings.pdf>.

For more information: Emily Cook 845-943-9810 or email [ekc68@cornell.edu](mailto:ekc68@cornell.edu).



## ON THE ORGANIC SIDE...*(continued)*

### Organic Blackberry Production: Tips Learned from an Ongoing Research Study

**January 23, 2014.** Join eOrganic for a Webinar on organic blackberry production, presented by Bernadine Strik and Luis Valenzuela of Oregon State University and David Bryla of the USDA ARS in Corvallis, Oregon. The webinar is free and open to the public, and advance registration is required. It takes place on March 13, 2014 at 2PM Eastern Time (1PM Central, 12PM Mountain, 11AM Pacific Time). Audience members will be able to type in questions for the speakers.

#### Register now at:

<https://www1.gotomeeting.com/register/363427577>

#### About the Webinar

The learning objectives of this webinar include the impacts of weeds on blackberry growth and yield; methods for weed control; fertigation for planting establishment; the effects of post-harvest irrigation on productivity, plant water status and soil moisture; and root growth in blackberry. While this webinar focuses on trailing blackberry, grown predominantly for a machine-harvested, processed market, the outcomes of this study are also of importance in the production of other types of blackberry.

#### About the Presenters

Dr. Bernadine Strik is a Professor of Horticulture and Extension Berry Crops



Specialist at Oregon State University. She does research on whole plant physiology and production systems of all berry crops. Dr. Strik's areas of focus include improving yield and quality, machine harvest efficiency, alternative production practices, plant nutrition, pruning and training, season extension or manipulation, and organic production systems.

Dr. David Bryla is a Research Horticulturist at the USDA-ARS Horticultural Crops Research Unit in Corvallis, Oregon. He does research on variety of small fruit crops, including blueberry, blackberry, raspberry, strawberry, cranberry, and wine grape. The overall goal of his research is to understand the physiological response of these crops to environmental limitations and to use the information to develop improved and sustainable production practices.

Dr. Luis Valenzuela is a postdoctoral research associate at Oregon State University. He got his PhD in Horticulture at Penn State in 2008. Since then he has been working studying the root dynamics of several berry crops in the Pacific Northwest.



## \$ MONEY TALK \$

### Berry Farm Business Summary Project and Preliminary Results

*Daniel Welch, Extension Support Specialist, Bradley Rickard, Assistant Professor, Peixun Fang, Graduate Student, Charles H. Dyson School of Applied Economics and Management at Cornell University*

The Dyson School of Applied Economics and Management at Cornell has a long history of compiling business summaries for different agricultural sectors in New York with the assistance of Cornell Cooperative Extension. Notable examples of these summaries are the Dairy Farm Business Summary and the Fruit Farm Business Summary (FFBS).

Gerald White, Dyson School professor emeritus says that the FFBS “identifies the business and financial information they (growers) need and provides a framework for use in identifying and evaluating the strengths and weaknesses of the farm business.” Experience with tree fruit growers using FFBS shows they quickly identify practices that are more costly than state benchmarks and address why their individual costs are higher.

In 2013, Cornell launched a new effort to analyze the financial condition of berry farms in the state through a Berry Farm Business Summary. Led by faculty and staff from the Department of Horticulture, and the Dyson School of Applied Economics and Management, a team of extension educators worked with eight berry farmers across the state to complete farm business summaries. Each farm provided

descriptive information on their farm, and income, expense, labor, and capital records.

The importance of undertaking a summary for berries can be found in the value of berry crops to New York agriculture. Strawberries were the third most valuable fruit crop in New York in 2012, behind apples and grapes. New York is ranked 8<sup>th</sup> in strawberry production, with a crop value of 6.88 million.

There is anecdotal evidence that many individuals across the state have started berry farms in the last few years, often without economic information to apply to their decision making process. One source of information for these farmers has been the enterprise budgets in the *Mid-Atlantic Berry Guide*. The *Mid-Atlantic Berry Guide* is a production guide for commercial growers written by extension faculty and specialists with Penn State, Rutgers University, the University of Delaware, the University of Maryland, Virginia Tech, and West Virginia University.

While this information can be a valuable guideline to growers in New York, not all of the assumptions in the budgets may hold true for this state. Beyond the budgets included in the guide, there has been very little recent work on costs and returns for berry production in the Northeast. A Berry Farm Business summary will help to expand what is known about the economics of growing berries, and will help New York berry growers make informed production and business decisions.

Before discussing some of the preliminary results of this project, it is important to note some challenges and limitations that were encountered. Some growers, who initially expressed interest in participating, were unable to, because they did not have their financial records organized.

A brief review of three key financial records that every farm business should have will be helpful to those growers who would like to participate in the future.

The balance sheet is a record of what is owned by the farm, assets; and what is owed, liabilities. By subtracting liabilities from the assets of the farm, you can calculate net worth.

An income statement is a summary of the income received by the farm during the year, and the expenses paid out. The income statement is also sometimes referred to as a profit and loss statement.

A cash flow statement helps to ensure that the other two statements are accurate by showing all the cash that came in, and the cash that went out. Having these statements will facilitate participation in the BFBS, and will allow you to measure the progress of your business and manage more efficiently. Having a greater number of farms involved in the summary will increase the reliability of the data, and allow for more detailed analysis of the data.

The Berry Farm Business Summary is formatted similarly

**\$ MONEY TALK \$** *(continued)*

to the Fruit Farm Business Summary, so the data is presented in a series of tables.

These tables have summary information on the farms' land base income, and expenses. Other tables highlight certain aspects of farm finances in more detail, such as labor efficiency, equipment costs, and capital efficiency.

Eight farms participated in 2013, the first year of the project. Six of the farms had berries as a primary enterprise on the farm, and are smaller farms. Two of the farms primarily grow tree fruit, with berries as an important secondary enterprise. These two farms were larger, making it difficult to draw general conclusions between them and the six smaller farms.

One area for further study and possible benchmarking did emerge in the difference between average yields on the farms. For the six farms, average yield of strawberries was 4,268 pounds per acre. When the other two farms are added, the yield increased by 3,174 pounds/acre. In blueberries the average yield increased by 2,312 pounds per acre, from 1,985 to 4,297.

Finally, in brambles the yield for the six smaller farms was 4,224 pounds per acre, rising to 6,160 pounds per acre for all eight farms. A more detailed analysis of production practices and management strategies at the enterprise level could show opportunities for higher production rates of berries in New York.

The 2013 Berry Farm Business Summary was an initial effort to document the economic condition of berry growers and the berry sector in New York State. Additional participation in subsequent years will be necessary for solid analysis and benchmarking of the results. Yields, and the production techniques employed by different farms appears to have the potential for further study that could lead to a more efficient berry sector in the state.

The next step in the BFBS project is to develop enterprise budgets for strawberries, blueberries, and brambles. Enterprise budgets will enable farms to compare their production expenses with a statewide average, and could be useful in comparisons between New York and other states.

*(Reprinted from: Proceedings 2014 Empire Producers EXPO, Syracuse, NY)*

*Interested in participating in this project? Please contact the project team member closest to you for more information:*

<b>Educator</b>	<b>Region (home base)</b>	<b>Contact</b>
Sharon Bachman	Western NY (Erie County)	<a href="mailto:sin2@cornell.edu">sin2@cornell.edu</a> 716-652-5400 ext. 150
Sandy Buxton	Eastern/Northern NY (Washington County)	<a href="mailto:sab22@cornell.edu">sab22@cornell.edu</a> 518-746-2560
Ginny Carlberg	Western NY (Chautauqua County)	<a href="mailto:vec22@cornell.edu">vec22@cornell.edu</a> 716-664-9502 ext. 202
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Cornell University  
Charles H. Dyson School of  
Applied Economics and Management



NY farm viability  
INSTITUTE

## FOCUS ON PEST MANAGEMENT

### Strawberry Powdery Mildew: An Update

David M. Gadoury, Department of Plant Pathology and Plant-Microbe Biology, Cornell University

The fungal pathogen that causes strawberry powdery mildew (*Podosphaera aphanis*) can survive on senescent green leaves of overwintering plants in perennial production systems, as cryptic infection on nursery stock deployed in annual or perennial production systems, and as small spherical fruiting structures called chasmothecia that normally function as overwintering structures.

Although *P. aphanis* occurs commonly throughout the range of strawberry production, chasmothecia are irregularly reported - particularly from relatively warm climates. Strawberry leaves with mildew colonies representing populations of *P. aphanis* were collected across a climatic temperature gradient of the continental U.S., Europe, and Australia (Fig. 1).

Extracted DNA was then subjected to a PCR-based assay to detect the MAT1-1 and MAT1-2 mating types. Isolates representing each mating type were detected among nearly all samples. In parallel work, temperatures above 60°F strongly suppressed ascocarp initiation when compatible isolates were paired on strawberry leaves. Absence of chasmothecia across the range of strawberry production does not appear to be due to the absence or unequal distribution

of mating types of the pathogen, but to suppression of ascocarp initiation by high temperatures in warm climates, in glasshouses, or in high-tunnel production systems. Ascocarps can be expected to form rapidly in such environments if and when temperatures fall below 60°F.

In parallel studies, strawberry plants that had been allowed to enter dormancy, and were then forced to regrow in isolation chambers developed powdery mildew if senescent green leaves were left attached, but not if these leaves were removed before the plants were placed in isolation for regrowth. Thus, *P. aphanis* appears to survive on senescent green leaf overwinter, but not within crown tissue.

In the absence of chasmothecia or colonies on senescent leaves, cryptic colonies on nursery plants remain a poorly understood source of infection, but one that could introduce the pathogen to new plantings.

Field plantings started from certified disease-free plants derived from tissue culture remained disease-free for one growing season in New York and Norway, despite the lack of any seasonal use of fungicides to protect the plants, while plants located approximately 100 to 300 m away developed mild to severe disease depending upon the initial level of powdery mildew in the planting (Fig. 2).

Exclusion of the pathogen at planting has a substantial impact on minimizing the risk of disease. The possibility of cryptic colonies of *P. aphanis* entering plantings through the nursery system should be further investigated (Fig. 3). Although the environment of high tunnel and glasshouse production is generally

more favorable for development and spread of the pathogen, it may prove to be very unfavorable for production of chasmothecia if temperatures are maintained above the threshold for their initiation.

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- (Reprinted from: Proceedings 2014 Empire Producers EXPO, Syracuse, NY)*

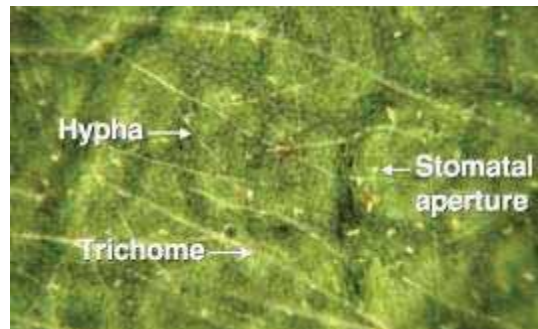
**FOCUS ON PEST MANAGEMENT** *(continued)*



**Fig. 1.** Isolates of *Podosphaera aphanis* were collected from 14 locations in 5 countries representing 3 continents for assessment of the distribution of mating types of the pathogen and potential for the formation of chasmothecia.



**Fig. 2.** Isolated strawberry plots started from certified mildew-free plants remained free of powdery mildew for one growing season without fungicidal protection.



**Fig. 3.** Microscopic (50X) view of a cryptic non-sporulating colony of *P. aphanis* on the underside of a mature strawberry leaf that appeared otherwise disease-free.



The Spring 2014 NYSDEC CleanSweepNY pesticide collection and disposal program will take place the week of April 28<sup>th</sup>.

## **PRE-REGISTRATION IS REQUIRED**

<http://www.cleansweepny.org/>

Return Completed Registration forms to NYSDEC by these deadlines:

- **April 4, 2014** for participants with unknown products and gas cylinders.
- **April 25, 2014** for all other participants.

To obtain more information and to request a registration packet from NYSDEC, telephone 877-793-3769 or contact CleanSweepNY by e-mail at [info@cleansweepny.org](mailto:info@cleansweepny.org).

The CleanSweepNY program is a collaborative effort that would only be possible with the cooperation of our various partners such as the NYSDOT and DEC Region 9 staff. NYSDOT staff will help with the staging of this event by providing drive-thru garage bays at three highway maintenance facilities located in various towns in DEC's Region 9. The DEC's Region 9 staff will provide local assistance and helped at the collection sites and the various onsite visits individual locations.

***NOTE: This CleanSweepNY event will only be available to those counties in NYS DEC Region 9: Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming.***

Since CleanSweepNY's inception in 2002, over 1.2 million pounds of chemical wastes have been collected for disposal.

## FOCUS ON PEST MANAGEMENT *(continued)*

### Currant Production in The Northeastern US: Is this the Beginning of the End? –

Kerik D. Cox, Dept. of Plant Pathology and Plant-Microbe Biology, Cornell University

#### History of White Pine Blister Rust in NY

White pine blister rust (WPBR), caused by the fungus *Cronartium ribicola*, is a disease of white pine that greatly impacted the white pine industry in the United States. Like other macrocyclic rust diseases (cedar apple rust, wheat stem rust), WPBR needs two hosts in order to complete its life cycle. The hosts in the life cycle of WPBR are pine and members of the *Ribes* genus (currants, gooseberries, etc.). The most common strategy for eliminating this type of rust disease is to eradicate one of the two hosts. In the case of WPBR, it was decided that the Pine industry was more valuable than *Ribes* production, and as early as April 1917, *Ribes* quarantine and eradication legislation was beginning to be put into effect. From 1961 to 1967, there was a more extensive *Ribes* eradication effort in the US (2, 6). This effort was quite successful in the eastern United States to the point where it was believed that wild *Ribes* posed little danger to the pine industry (2). Eventually, the federal ban on currant production was removed due to the development of rust resistant pines (1, 3). However, individual states still impose severe regulations or bans on currant production. Despite the availability of new scientific data and management practices to mitigate dangers to the pine industry, no revisions to state restrictions on were made for some time (2). In New York, planting restrictions on currant production were first



discussed in 1998 (7, 8) and restrictions were slightly revised recently in 2003. Rust resistant and immune *Ribes* varieties do exist, but are often less horticulturally desirable than highly susceptible black currant varieties such as Ben Alder (1). Because of these varietal concerns, the New York State Department of Environmental Conservation has established both currant fruiting and currant quarantine districts ([www.dec.state.ny.us/website/regs/part192.html](http://www.dec.state.ny.us/website/regs/part192.html)) to allow some currant production in New York.

Currants produce extremely high levels of antioxidants and vitamin C (4, 5), and are becoming increasingly popular according to a report from the New York Farm Viability Institute (10) (<http://www.nyfarmviability.org/pres-s-07-26-06.htm>). Previously, the crop profile for currants in New York State in 2000 ([www.ipmcenters.org/cropprofiles/docs/nycurrants.html](http://www.ipmcenters.org/cropprofiles/docs/nycurrants.html)) listed total bearing acreage for currants as approximately 9 acres (9).

Currently, growers such as Greg Quinn of the Currant Company LLC (<http://www.thecurrantcompany.com/>) and Curt Rhodes of R.H. Rhodes and Sons Inc. are reported to have more than 20 Acres each planted to black currants (9, 10), and are continually expanding.

#### Breakdown of White Pine Blister Rust Immunity in *Ribes* in New England

Despite the fact that only white pine blister rust (WPBR) resistant cultivars can be legally planted in NY and the fruit pathology extension program has been promoting integrated pest management (IPM) programs developed based on research at the New York Agricultural Experiment Station NYSAES. Since source of WPBR resistance it's monogenic, it's only a matter of time before a virulent strain is selected that overcomes the

## FOCUS ON PEST MANAGEMENT *(continued)*

resistance.

I was alerted to the problem to a breakdown of WPBR immunity as early as 2010 in Preston CT at a farm that produced Christmas trees and currants in neighboring fields. My program subsequently conducted a series of molecular characterization and pathogenicity studies using the field and greenhouse facilities of the NYSAES to prove the pathogenicity of the CT strain on certified immune breeding stock in controlled conditions (11).

Not unlike the NY small fruit stakeholders, New England stakeholders were also interested in capitalizing on *Ribes* the specialty small fruit niche market. However, the white pine industry is incredibly important in the New England states and concerns over our research findings in CT have generated a lot of caution regarding planting restrictions of *Ribes* on the part of regulatory agencies at the Federal and State level.

Soon after publication of the occurrence in RI, we were contacted in 2012 by the US forest service to examine some samples from *Ribes* operations in NH. We made some initial confirmation of WPBR on immune currant varieties, and members of the Canadian Forest Service performed pathogenicity tests in controlled conditions. We subsequently joined with members of the US forest service, the NH Division of Forests and Lands, and the Canadian Forest Service to form a regional/international taskforce to assess the breakdown of WPBR immunity in *Ribes* and assess the threat to the white pine industry. We applied and received federal funding to investigate the phenomena in NH in 2103. Our combined research efforts have

resulted in the realization that the immunity has broken down in several commercially-popular resistant *Ribes* cultivars throughout the state of NH. In 2013, we surveyed 42 *Ribes* production operations, and using molecular markers confirmed WBPR infection on immune and resistant *Ribes* varieties at 30 of the locations. Cultivars affected included: 'Titania' 'Jonkheer Van Tets', 'Clark' gooseberry, 'Blanca', 'Jahn's Prairie' gooseberry, 'Consort', Jostaberry, 'Randall Red', and 'Coronet'.

To date, the major NY *Ribes* producers, which I visit regularly during my extension travel, don't seem to have the virulent strain of WPBR that breaks resistance. I have never seen any WPBR on commercial *Ribes* plantings in NY, but the strain could be or could have been present at one time. Most of the *Ribes* growers in NY implement a robust integrated pest management program for diseases that includes site-specific fungicides. By implementing management programs as part of their standard production practices, NY growers appear to have eliminated emerging virulent strains able to overcome the immunity in commercial *Ribes* cultivars.

### Practical Epidemiology of White Pine Blister Rust

Understanding the life cycle and the epidemiology of WPBR and the two hosts needed for its survival is important to develop effective management practices for controlling the disease. Several important

considerations for the protection of the two hosts and management of the disease are listed below:

- Temperatures over 85°F in the summer months can suppress infection of *Ribes* leaves preventing the further spread and development of the disease. Along these lines, WPBR infections require cool temperatures in the range of 60-70 °F, which is why many of the secondary infection are not present until the late summer months when the plants are beginning to undergo senescence. Continuous moisture for 14 days is need for the development of telial horns, which produce the basidiospores that establish infections of pine.
- Pines are typically planted in planting zones 1 and 4. The conditions that favor the infection of young pines in the fall are most likely to occur in zone 4. Therefore it is fairly safe to establish *Ribes* plantings in zone 1, even if there are pines in the region.
- The basidiospores produced from infected *Ribes* leaves in the fall are typically deposited within 1000 ft of the *Ribes* host. Hence it's important to have a minimum border of 1000 ft. between *Ribes* planting and pines. Such borders may not be possible in the New England states where pines are fairly pervasive.



## FOCUS ON PEST MANAGEMENT *(continued)*

- The majority of infections (>95%) on pines take place small branches produced on the lower 10 feet of the trunk. Infections that occur more than 1ft from the trunk will usually not progress to the trunk and kill the tree.

### White Pine Blister Rust Management Trials in Geneva

Now that currants are a mainstay of the NY small fruit industry and WPBR has overcome immune varieties in New England states, we should continue a proactive management plan to preserve the longevity of both hosts. For over seven years, the Geneva experiment station has conducted WPBR management trials on currants and gooseberries across a range of cultivar susceptibility to WPBR. Early work focused on conventional pesticide programs and timing while more recent work focused on the management potential of organic and biopesticide programs. A bulleted results summary of our trials follows:

Highly rust susceptible currant varieties:

- Can be successfully managed using 4-5 applications of DMI or Qol fungicides. Rally 40WSP (DMI) is one of the few fungicides that is labeled for WPBR, and it's one of the best. The fungicides Pristine and Cabrio EG are also exceptionally effective against WPBR, but are no longer labeled for the disease in NY.
- Can be managed to low level of infection using a 4-5 application program biopesticides and organic

fungicides including materials such as JMS Organic Stylet oil (check current labels).

Rust resistant to less susceptible currant and gooseberry varieties:

- Can be rust free using a 4-application program of DMI or Qol fungicides (Rally 40WSP - see above).
- Can be rust free using a 4-5 application program biopesticides and organic fungicides including materials such as JMS Organic Stylet oil (check current labels).

Several other site-specific, biopesticides, and organic fungicides work really well, and are labeled on the crop, but are not labeled for WPBR.

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## Anions and Cations in Plants, Oh My! But Why Do We Care? – Ron Goldy, Michigan State University Extension

*Plant essential nutrients exist as anions and cations. What does that mean for plant production?*

**December 4, 2013.** There is a lot of biological and chemical activity occurring in your average soil. Most happens unseen and unheard, and that's probably a good thing. Just because these organisms and processes don't scream out, doesn't mean growers shouldn't pay attention to what goes on. In fact, paying attention can make the difference between a good and a great grower. In an earlier Michigan State University Extension article, ["Knowing nutrient mobility is helpful in diagnosing plant nutrient deficiencies,"](#) I discussed nutrient mobility within the plant and how understanding mobility helps identify nutrient deficiencies, but it is also important for growers to pay attention to nutrient mobility in the soil.

Plant nutrients exist in the soil as either anions or cations. What are they? Most molecules in natural systems have a positive or negative charge and it is this charge difference that helps drive chemical reactions to keep us all alive – that's important. Anions are those elements or molecules that in their natural state have a negative (-) charge. Cations are those that in their natural state have a positive (+) charge. Negative charge, positive charge – who cares? Keep reading.

Most soil particles have a negative charge. The amount of negative charge depends on soil texture, such as sand, silt and clay content, which is directly related to soil particle surface area. The cation exchange capacity (CEC) determined by a soil test is a direct indication of the amount of negative charges on your soils. A soil with

**Table 1. Soil-borne elements essential for plant growth, the form occurring in the soil and taken up by the plant, and their relative soil mobility.**

Element (symbol)	Form taken up by the plant	Mobility in the soil
Nitrogen (N)	(NH <sub>4</sub> ) <sup>+</sup> Ammonium form (NO <sub>3</sub> ) <sup>-</sup> Nitrate form	Somewhat immobile Mobile
Phosphorous (P)	(H <sub>2</sub> PO <sub>4</sub> ) <sup>-</sup> , (HPO <sub>4</sub> ) <sup>-2</sup> , PO <sup>-3</sup>	Immobile
Potassium (K)	K <sup>+</sup>	Somewhat mobile
Calcium (Ca)	Ca <sup>+</sup>	Somewhat mobile
Magnesium (Mg)	Mg <sup>+2</sup>	Somewhat mobile
Sulfur (S)	(SO <sub>4</sub> ) <sup>-2</sup>	Mobile
Chlorine (Cl)	Cl <sup>-</sup>	Mobile
Iron (Fe)	Fe <sup>+2</sup>	Immobile
Boron (B)	(BO <sub>3</sub> ) <sup>-</sup>	Mobile
Manganese (Mn)	Mn <sup>+2</sup>	Immobile
Zinc (Z)	Zn <sup>+2</sup>	Immobile
Molybdenum (Mo)	(MoO <sub>4</sub> ) <sup>-</sup>	Mobile

low CEC has fewer negative charges than a soil with a higher number. High sand soils generally have a low CEC, clay or silt soils are higher and organic soils are highest – all related to particle surface area.

Now the important part! Since soils are negatively charged and plant nutrients are positive and negative, some nutrients are attracted to soil while others are not – the "opposites attract"

principle. Those nutrients that exist as anions (-) are moved through soil, meaning growers need to be careful how they are applied regardless of soil type. These nutrients readily travel wherever water carries them, leading to nutrient runoff and leaching and economic loss and environmental concern.

Cations (+) are more readily bound to soil, resulting in these nutrients moving through the

## Anions and Cations in Plants, Oh My! But Why Do We Care? *(continued)*

soil more slowly. However, since low CEC soils have fewer negative charges, cations will move more quickly through low CEC (sandy-based) soils than they will through high CEC (loamy and silt/clay-based) soils.

All this positive-negative, cation-anion, high CEC-low CEC stuff comes into play when applying nutrients and water. Table 1 (above) gives the soil-borne elements necessary for plant growth, the form taken up by the plant and the element's mobility in the soil. Note that most

mobile elements have a negative charge and the somewhat mobile and immobile elements have a positive charge. Over application of a (-) charged element followed by excessive water will quickly move that element through the system. Likewise, over application of most (+) charged elements on a low CEC soil can move that element through the system since there are not enough (-) charges on the soil particle surface to bind to the cation.

The odd anion is phosphorous.

Even though it has a (-) charge, it is not mobile in soil because phosphorous forms are not very soluble. It can, however, still move – not as the anion, but bound to soil particles as the particles move. Therefore, minimizing runoff is helpful in reducing phosphorus pollution.

Understanding nutrient movement in soils helps producers apply nutrients and water to maximize economic effectiveness while minimizing environmental impact. *(Reprinted from [Michigan State University Extension](#))*

## Determining Soil Type Important for Successful Preemergent Weed Control – Ron Goldy, Michigan State University Extension

*Successful preemergent weed control with herbicides depends on properly identifying soil type and correctly applying the proper rate for that soil. How comfortable are you at making that call?*

**January 16, 2014.** Timely herbicide application has become an important economic tool for most producers. When using soil-applied herbicides, achieving adequate weed control without crop damage is dependent on correctly applying proper rates at the proper time.

Certain amounts of most of these herbicides are inactivated since they become bound by soil particles. That is why herbicide labels provide a range of application rates largely based on soil type with rate generally proportional to the

soils cation exchange capacity (CEC).

The lower the CEC, the lower the rate; the higher the CEC, the higher the rate. In the preceding Michigan State University Extension, "Anions and cations in plants, oh my! But why do we care?" I described CEC and why it varies with soil type.

Most preemergent herbicide labels generally give four soil categories: coarse, medium, fine and organic (peat or muck). The challenge for growers is to determine which soil texture they have in their field. Again, knowing the CEC value of the site can help in making this decision.

Table 1 provides soil textures, soil types and general CEC ranges for those soils listed.

Note that there is overlap between CEC values for some soil types and there are also gaps. Percent organic matter (OM) also comes into play since it binds certain herbicides and is located on the soil surface where preemergent herbicides are active.

The information in Table 1 is meant to be only one guideline in making your final decision on herbicide rates.

CEC is a soil characteristic provided by all soil tests. In a glaciated state like Michigan, it is possible that a field of any size can have a variety of soil types and therefore a variety of CEC values.

Generally, there is only a small CEC difference when transitioning between adjacent

## Determining Soil Type Important for Successful Preemergent Weed Control – *(continued)*

soil types, but it is possible different herbicide rates may need to be applied to different areas of the field to get the desired weed control. This is especially true if the field in question changes elevation significantly.

*(Reprinted from [Michigan State University Extension](#))*

**Table 1. General soil texture class and soil types in that class with the general cation exchange capacity range.**

Texture	Soil type	General CEC range
Coarse	Sands Loamy sands Sandy loams	1-5 light colored 5-10 dark colored
Medium	Sandy clay loams Sandy clays Loams Silt loams Silt	11-15 light colored 15-20 dark colored
Fine	Silty clay loams Silty clays Clay loams Clays	20-25+
Organic	Peat Muck	50-100

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<http://www.fruit.cornell.edu/nybn/> .

Visit the NYBN web site to view back issues or to subscribe to monthly e-mail notices with table of contents and a link to the most current issue.

More on individual team members and their areas of expertise may be found at: <http://www.fruit.cornell.edu/berry/berryteam.htm>.

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## Upcoming Events

**February 27-28, 2014– Farm Food Safety Training with GAPS workshop**, Bath, NY. More information: <http://cvp.cce.cornell.edu/event.php?id=165>

**March 4, 2014 – 2014 Broome County Berry Grower Update**, Binghamton,, NY More information: [https://reg.cce.cornell.edu/2014berrygrowerupdate\\_203](https://reg.cce.cornell.edu/2014berrygrowerupdate_203).

**March 4, 2014 – Advances in Field Strawberry Production Workshop**, Paul Smiths, NY. More information: Amy Ivy at [adi2@cornell.edu](mailto:adi2@cornell.edu) or call (518) 561-7450 or (518-570-5991).

**March 5, 2014 – Advances in Field Strawberry Production Workshop**, Gouverneur, NY. More information: Amy Ivy at [adi2@cornell.edu](mailto:adi2@cornell.edu) or call (518) 561-7450 or (518-570-5991).

**March 6-7, 2014– Farm Food Safety Training with GAPS workshop**, Bath, NY. More information: <http://cvp.cce.cornell.edu/event.php?id=161>

**March 13, 2014 – Southern Tier Berry School**, Ellicottville, NY. More information: Mark Holt [mwh95@cornell.edu](mailto:mwh95@cornell.edu) or 716-699-2377 x115.

**March 19, 2014, Berry Farm Business Summary Workshop**, CCE Monroe County Auditorium, 249 Highland Avenue, Rochester, NY 14620. Additional topic: Finding & Managing Berry Labor. **Contact:** Alison De Marree, [amd15@cornell.edu](mailto:amd15@cornell.edu). **Register: Kim Hazel** (585) 798-4265 – ext. 26.