New York Berry News

CORNELL UNIVERSITY

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What's Inside

October 18th – 29, 2010. *Recycle Ag Plastic Containers free of charge*. Various sites across the state. For more information contact Elizabeth Bentley Huber at 585-343-2362.

October 19-21, 2010. *CleanSweepNY 2010 Fall Program* Herkimer, Jefferson, Lewis, Oneida and St. Lawrence counties. For more information: 877-793-3769 Email: info@cleansweepny.org or visit their web site: http://www.cleansweepny.org/.

November 8-10, 2010: *Southeast Strawberry Expo*, Wyndham Hotel in Virginia Beach, VA. Workshops and farm tour on Nov. 8, educational sessions and trade show on Nov. 9-10. For more information, visit www.ncstrawberry.com or contact the NC Strawberry Association, 1138 Rock Rest Rd., Pittsboro, NC 27312, 919-542-4037, info@ncstrawberry.com. Exhibitor inquiries welcome.

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

January 6-7, 2011. *NARBA (North American Raspberry and Blackberry Growers Association) Annual Meeting*, Savannah, GA.

January 31 – February 3, 2011. *Mid-Atlantic Fruit and Vegetable Convention* at the Hershey Lodge in Hershey, PA. For more information visit www.mafvc.org.

February 8-11, 2011. *7th North American Strawberry Symposium and joint North American Strawberry Growers Association Meeting*. Tampa, Florida. Details follow.

March 5, 2011. *Planting, Cultivating, and Marketing Juneberries in the Great Lakes Region*. NYS Agricultural Experiment Station, Geneva, NY. For more information see news brief that follows.

June 22-26, 2011. *10th International Rubus and Ribes Symposium, Zlatibor, Serbia***.** For more information contact: Prof. Dr. Mihailo Nikolic, Faculty of Agriculture, University of Belgr, Belgrade, Serbia. Phone: (381)63 801 99 23. Or contact Brankica Tanovic, Pesticide & Environment Research Inst., Belgrade, Serbia. Phone: (381) 11-31-61-773.

Chautauqua County Fall 2010 Small Fruit Workshop

Friday, October 1st, 2010
1:00pm-3:00pm

Cornell University Cooperative Extension

Billerio Fruit Farm
7177 Rt. 20
Westfield, NY 14787

Last year's farm tour was held at Bob Militello's farm, The Berry Bush, in Forestville.

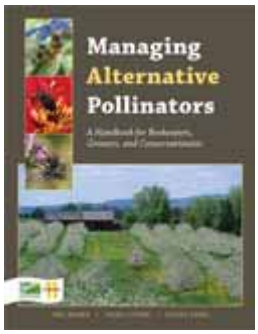
John Billerio invites small fruit growers from Chautauqua County and the surrounding areas to visit his berry and grape farm located in Westfield, NY. John grows blueberries, black and red raspberries, blackberries, and grapes on his 75 acre farm. Cathy Heidenreich, Berry Extension Support Specialist with Cornell University, will lead a discussion on using alternative fertilizers such as soybean and alfalfa meal, techniques to promote pollinators in berry crops, bird management methods, and more! Please use the form below or call Ginny Carlberg at 664-9502 x. 202 to pre-register by September 29th.

Building Strong and Vibrant New York Communities

Chautauqua County Fall 2010 Small Fruit Workshop Registration Form

Name(s): _____ Phone: _____

Address: _____ Total Amt. Enclosed: $_____



☐ $5 registration fee.

☐ $23.50 (optional) "Managing Alternative Pollinators: A Handbook for Beekeepers, Growers and Conservationists" a guide for rearing and managing bumble bees, mason bees, leafcutter bees and other bee species that provide pollination alternatives to the rapidly declining honey bee.

Please make checks out to Cornell Cooperative Extension of Chautauqua County.
Return registration form to: Ginny Carlberg, CCE-Chautauqua County
3542 Turner Road, Jamestown, NY 14701 by September 29th.

PREVIEW OF THE 2011 NORTH AMERICAN RASPBERRY & BLACKBERRY CONFERENCE

The 2011 North American Blackberry Conference will be held in Savannah, Georgia, on January 5-7, 2011, in association with the Southeast Regional Fruit and Vegetable Conference.

Savannah is a very lovely town to visit, with beautiful historic neighborhoods and riverfront business district, a modern, sunlit convention center, lots of restaurants and tourist shops. It can be delightfully warm in early January, with flowers blooming in the window boxes. The SE Regional Fruit and Vegetable Conference (SRFVC) is a well-run, multi-commodity meeting, with a large trade show (January 7-8).

Our conference starts with an optional tour on the afternoon of Wednesday, January 5. Stops planned for the tour include a local farm raising blackberries, strawberries, and blueberries for direct market, and the Georgia Agricultural Extension's "Bamboo Farm", which includes an acre of blackberries, more than 60 different types of bamboo, and an experimental planting of bananas.

Thursday, January 6 will include educational sessions, a workshop on the "Fundamentals of Blackberry & Raspberry Production", and the NARBA Annual Meeting and Luncheon (with a talk by berry health benefits researcher Dr. Mary Ann Lila). Friday, January 7 will again feature a full day of educational sessions. Planning is underway for the program. Topics planned include:

- Improving the Flavor of Blackberries through Breeding and Plant Management (U of Arkansas Blackberry breeder John R. Clark)
- What's Going on in the Blackberry Market?
- How to Protect Yourself in the Marketplace
- Harvesting & Packing Techniques
- Trellising Options: Costs and Comparisons
- Pest Management and Control
- Disease Management and Control
- Spotlight Presentations on Specific Farms
- High Tunnels for Caneberries
- Breeding Updates
- Basic Soil Fertility and Caneberry Fertility Issues
- Social Media for Berry Growers

Concurrent tracks of the SRFVC on Friday will be open to all our conference registrants and include blueberries, peaches, vegetables, organic production, strawberries, and more. The large conference trade show is open to NARBA Conference attendees on Friday and Saturday. Attendees will have the opportunity to add registration for SRFVG educational sessions and lunch on Saturday, January 8.

Presenters for the conference include: John R. Clark (University of Arkansas), Marvin Pritts (Cornell), Eric Hanson (Michigan State University), Hannah Burrack (NC State University), Gina Fernandez (NC State University), Phil Brannan (University of Georgia), Mary Ann Lila (NCSU Plants for Human Health Institute), Eric Pond (Riverbend Organic Farms, Jefferson, OR), members of the Blackberry Research & Promotion Working Group, and numerous grower panels.

Accommodations: The SE Regional Fruit & Vegetable Conference utilizes a number of nearby hotels, but special room blocks for the Raspberry & Blackberry Conference have been arranged at two of those hotels, the DoubleTree Hotel Savannah Historic District (1-800-222-8733) and Hilton Garden Inn Savannah Historic District (1-877-245-8854). They both are located on West Bay Street, virtually next door to each other. The tour will depart from in front of the DoubleTree. A Hospitality Room for conference attendees is planned for the Hilton Garden Inn. Please be sure to ask for the SE Regional Fruit & Vegetable Conference group rate ($120 per night). Making reservations early is strongly recommended. The reservation deadline is December 17th.

Registration forms should be available by early October. Be sure that you are on our list to receive full registration information!

For more information contact:

Debby Wechsler, Executive Secretary
North American Raspberry and Blackberry Growers Association
1138 Rock Rest Rd.
Pittsboro, NC 27312
E-mail: info@raspberryblackberry.com
Phone: 919-542-4037
Fax: 866-511-6660 (toll-free in North America)

AGRO-ONE SEPTEMBER UPDATE

Transition Complete!

To Cornell Cooperative Extension Staff, Crop Consultants, and New York Nutrient Management Stakeholders

We want to provide you with an update on the transition of Cornell Nutrient Analysis Laboratory (CNAL) soil and tissue testing services to the Agro One Laboratory (managed by Dairy One Cooperative, Inc.). Processing of routine soil test samples was transferred to Agro One on August 15, 2009, and we have been functioning in the new collaborative model for the past year. On July 1 of this year, CNAL also transferred the tissue sample analyses to Agro One.

During this time period Cornell and Dairy One have worked to ensure the results from Agro One have the same level of accuracy and precision. To this end, Agro One has implemented the Morgan test with colorimetric determination of phosphorus. The Morgan test is the foundation of the Cornell fertility guidelines. Over the past five months a soil test comparison study between the labs was conducted. These included agricultural soils from throughout the state, many collected by consultants, extension educators, and faculty and staff. This study was recently completed, showed good results, and resulted in a set of conversion equations that have now been implemented at Agro One. For those interested in receiving Cornell Nutrient Guidelines, Agro One will provide the Morgan test to New York clients. At this time, no Cornell equivalents or guidelines can be supplied for other soil test packages (Modified Morgan or Mehlich-3).

With this, we are pleased to announce that this transition process has now been completed and that all interested parties have agreed that the Agro One analytical results for tissue and Morgan tests are substantially equivalent to

those obtained at CNAL, resulting in guidelines that are similar between the two labs. We fully endorse the use of Agro One Laboratory Morgan soil test services for Cornell based fertility guidelines.

Cornell and Dairy One have committed to future collaboration to ensure high quality lab analyses and fertility guidelines. This partnership is also benefitting the clientele through a new web-based data management and reporting system and the regional sample pick-up service.

We appreciate the stakeholder input and the contributions of the members of the ad-hoc Transition Committee, which has now been dissolved. We thank you for your patience and commitment during this transition. Through the collaborative Cornell/Agro-One partnership we have preserved and improved soil and plant tissue testing services.

Marvin Pritts, Co-Chair, CNAL Agro One Transition Committee
Harold van Es, Co-Chair, CNAL Agro One Transition Committee
Quirine Ketterings, Co-Chair, CALS Nutrient Guidelines Committee
Steve Reiners, Co-Chair, CALS Nutrient Guidelines Committee
Jamie Zimmerman, General Manager, Dairy One Cooperative, Inc.

PMEP ANNOUNCES NEW PIMS WEB SITE AVAILABLE

The Cornell Pest Management Education Program is happy to announce there is a new website for the NYS Pesticide **P**roduct, **I**ngredient and **M**anufacturer **S**ystem (**PIMS**): http://pims.psur.cornell.edu/.

PIMS is a collection of data applications that primarily serve as an on-line pesticide product information source for New York State. There are currently four applications that make up PIMS — currently registered products, archived products, pest and site code searches, and a download application for local use. The data used in these applications are provided by the New York State Department of Environmental Conservation. The "old" PIMS website will eventually go away, but for now, it will be updated along with our new site for a brief period of time.

History
The initial development of PIMS began in 1981 with Cornell University receiving funding for two years from the United States Department of Agriculture's National Agricultural Pesticide Impact Assessment Program (NAPIAP). The initial objective was to establish a northeast regional pesticide information system. The northeast system was to be a complete pesticide information network utilizing product registration information from each state within the northeast; however, it was decided by the funding agency in 1983 that a national system could provide the necessary electronic pesticide information as easily as a regional system. The Pesticide Management Education Program (PMEP), working with other university staff, continued to program the software in INFO, a data file management language, on a PRIME 400 computer and, in 1983, released PIMS for New York State. PIMS has undergone significant changes over the years and is now programmed in FileMaker 9.0 with enhancements and data links to relevant information. It is the primary source of keeping the regulated community informed of pesticide registrations within the state.

NYS PIMS Products Database
The PIMS Products Database contains information for pesticide products **currently** or **previously** registered in New York State with NYSDEC. Select a report:

EPA Reg. Number
This search allows you to find products by their EPA Registration Number. (See also Special/Pending Registrations below for additional products.)

Product/Label Name
This search allows you to find products by their label name, trade name, or brand name, or a portion thereof. There are often many different names and name variations for the same product. (See also Special/Pending Registrations below for additional products.)

Active Ingredient
There are two searches on this page. The first returns active ingredient codes based on (partial) ingredient name and ingredient synonyms for the given name or code. The second returns products containing an active ingredient, specified by code number, optionally restricted by use or type. (See also Special/Pending Registrations below for additional products).

Company / Distributor / Payor
A Company Number (the first component of the EPA Registration Number) search will provide a list of those products that are registered or were previously registered with the EPA and New York State for a particular company. A Distributor Number (the third component, if present, of the EPA Registration Number) search will provide a list of those products being distributed by a company. A Payor Number search will provide a list of all products for which a company has paid the NYS registration fee. (See also Special/Pending Registrations below for additional products).

Custom Search
This search allows you to query the database using a variety of criteria. (See also Special/Pending Registrations below for additional products.)

Special/Pending Registrations
This allows you to search for the following:

- "Special Local Need" Products (SLNs)
- "Experimental Use Products" (EUPs)
- 2(ee) Recommendations
- NYS Emergency Exemptions (FIFRA Section 18s)
- Pending New Active Ingredients (NAI) and Major Change in Labeling (MCL)

Note: These NYS pesticide product registration data are intended for **information purposes** only. If you are concerned about the status of a product, please contact the NYS DEC before purchase, distribution, sale, or use. Some products may show a renewal date that has passed. These products are in the re-registration process and continue to be registered pending a re-registration decision. Information contained in the database is updated approximately every week.

Acknowledgments: *The following people have contributed to the development of PIMS: Dr. Harold Wilson, Dr. John Barnard, William Smith, Chet Brion, Frank F. Smith, and Robert Warfield.*

2010 STRATEGIC MARKETING CONFERENCE & POST-CONFERENCE WORKSHOP

Improving your Social Media Marketing Skills for Agribusiness Success

November 1-2, 2010
Henry A. Wallace Center at the FDR Presidential Library and Home,
4079 Albany Post Road, Hyde Park, NY (Nov. 1)
Cornell Cooperative Extension – Dutchess County, 2715 Route 44, Millbrook, NY (Nov. 2)

Social media may be a phenomenon, but it's not a fad. It has already changed the way people and organizations communicate. Traditional outbound marketing efforts are being trumped by customers talking to customers. With the increasing popularity of social media, it is important to leverage your inbound strategies -- you getting found by customers, with targeted outbound marketing campaigns -- you finding customers and enticing them to buy.

The 2010 Cornell Strategic Marketing Conference is aimed at helping agricultural producers and agribusinesses develop and improve their social media marketing practices with tools that attendees can take back and apply to their own businesses right away. The goals of this year's conference and workshop include: (1) highlighting educational and service opportunities with social media marketing for agricultural producers, value-added food processors, and marketers; (2) showcasing success stories from the field; and (3) identifying how to evaluate the performance of your social media marketing skills. If you want to know how to use or better develop your social media marketing strategies for your agribusiness and improve your products, customer service, marketing performance, and communications, then this conference is for you!

*__Farmers and agribusiness organizations__ will be on hand to highlight their success stories and offer their advice on identifying opportunities and obstacles as you advance your firm's social media presence.

*__Kerry Trueman__, co-founder of Eating Liberally and regular contributor to the Huffington Post and Civil Eats, will be this year's opening keynote speaker, bringing her expertise and insights on the interactions of social media, food, and agriculture.

* Our closing keynote speakers are internationally recognized leaders in web analytics and online marketing evaluation**. Rand Schulman and Pelin Thorogood**, principals of the Schulman+Thorogood Group, will lead an engaging discussion on maximizing your marketing return on investment in the rapidly evolving world of social media and online marketing.

*And if that's not enough, a **second-day hands-on training workshop** will address the specific needs of attendees looking to gain a better and more thorough understanding of their websites, social network marketing efforts, and how they can and need to work together.

The conference will be held on November 1st at the Henry A Wallace Visitor and Education Center at the FDR Presidential Library and Museum in Hyde Park, NY, with the post-conference training workshop on November 2nd at the Cornell Cooperative Extension-Dutchess County office in Millbrook, NY. Both events are organized by the Agricultural Marketing and Management Program Work Team, with support provided by the Cornell Program on Agribusiness and Economic Development, the Charles H. Dyson School of Applied Economics and Management at Cornell University, and Cornell Cooperative Extension of Dutchess County. All members of the agricultural and food system community are encouraged to attend.

For more information and to get the registration information go to **http://marketingpwt.aem.cornell.edu** and follow the links to the conference web site.

FARM PRODUCTION EXPENSES FALL FOR FIRST TIME SINCE 1986

After setting a record high in 2008, U.S. farm production expenditures decreased by nearly $20 billion in 2009 - the first major decline in nearly a quarter century, according to the Farm Production Expenditures 2009 summary released August 3, 2010 by the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS).

The average production expenditures per farm fell 6.4 percent in 2009, from $140,075 to $131,137. Total U.S. expenditures totaled $287 billion, down from $307 billion in 2008.

Falling petroleum prices were a major factor behind the decline in overall farm expenses, leading to decreases in the costs of fuels, fertilizer and agricultural chemicals. The report shows that farmers and ranchers spent $12.4 billion on fuels in 2009, down 22.5 percent from the previous year. The average U.S. farm operation spent $5,658 on fuel in 2009, $1,642 less than in 2008.

Total fuel expenditures nationwide included $7.22 billion for diesel, down 26.8 percent from 2008; $2.43 billion for gasoline, down 19.3 percent; $1.95 billion for LP gas, down 3.9 percent; and $800 million for other fuels, down 27.3 percent.

Overall, 2009 farm production expenditures decreased in all major categories. Average feed costs decreased 4 percent, to $20,533 per farm; average costs for farm services decreased 4.2 percent to $16,609 per farm; and the average costs for fertilizer, lime and soil conditioners decreased 10.7 percent to $9,171 per farm.

The Farm Production Expenditures summary provides the official estimates for production input costs on U.S. farms and ranches. These estimates are based on the results of the nationwide Agricultural Resource Management Survey,

conducted annually by NASS. The Farm Production Expenditures 2009 summary and all NASS reports are available online at http://www.nass.usda.gov.

7th NORTH AMERICAN STRAWBERRY RESEARCH SYMPOSIUM AND NORTH AMERICAN STRAWBERRY GROWERS ASSOCIATION MEETING

February 8-11, 2011
Make Your Reservations Now!

This very special, combined meeting with be held at the Doubletree Hotel, Tampa Westshore in Tampa, Florida on February 8-11, 2011. There will be a post-conference tour of Plant City Growing area, and the University of Florida Balm Research Center. (no pre-conference tour is planned.)

Make your hotel reservations now at the Doubletree Hotel. Registration information for the conference will be forthcoming shortly.

For more information, please contact:

Kevin Schooley, Executive Director
North American Strawberry Growers Association
30 Harmony Way
Kemptville, Ontario KOG 1JO
Phone: 613 258-4587 Fax: 613 258-9129
Email: info@nasga.org

PLANTING, CULTIVATING, AND MARKETING JUNEBERRIES *(AMELANCHIER ALNIFOLIA)* IN THE GREAT LAKES REGION

Saturday, March 5, 2011
9:00 AM – 2:00 PM
Jordan Hall, NYS Agricultural Experiment Station
630 West North Street, Geneva, NY

This new seminar is an introduction to small-scale Juneberry production. Juneberries (a.k.a. Saskatoons) are a cold-hardy fruit grown widely in central Canada and have already demonstrated marketing promise in the Northeast. Michigan State University Extension Juneberry / Saskatoon specialist Stephen Fouch will present details about orchard establishment, variety selection, pest management, and insights gained from coordinating more than 40 acres of plantings on small farms in Northern Michigan. We will also review marketing data, nutritional information, and acquisition of plant material in the Great Lakes region.

Of course, Juneberries and Juneberry products will be available for sampling.

Seminar fee: $40, includes educational materials, morning refreshments and a full lunch.

Pre-registration required by February 28, 2011 by calling Cornell Cooperative Extension of Ontario County at (585) 394-3977 x427 or e-mail Nancy Anderson (nea8@cornell.edu).

Hosted by Cornell Cooperative Extension of Ontario County in cooperation with Northeast SARE and partnering growers in the Finger Lakes region.

For more information about Juneberries and this educational project, please go to www.juneberries.org

SEPTEMBER BERRY BAROMETER

HELPING TO KEEP YOU UP TO THE MARK!

Cathy Heidenreich, Berry Extension Support Specialist, Cornell University College of Agriculture and Life Sciences Department of Horticulture, Geneva Campus-NYSAES, 630 West North St, Geneva NY 14456

It's time to start looking forward to 2011. Review your notes and records for concerns that may need addressing next year. Begin gathering needed information and making plans over the late fall and winter months on how best to address them. Have plans and products in place before the 2011 season begins.

ALL BERRY CROPS:

1. **Weeds** – Start organizing those fall applications. Review weed problems and available products for their control. Purchase product and adjuvants as needed. Check labels to review timing and application requirements indicated (temperature, adjuvants, need for watering in after application etc.). Calibrate application equipment to be sure you are getting the most bang for your buck out of the products you apply! More on this important subject in the article that follows by Laura McDermott.
2. **Site Preparation** – Hopefully your site preparation for new plantings, including preplant weed management, is well underway for all 2011 berry plantings. September is the month for seeding cover crops such as rye or oats – be sure to get cover crops planted in a timely fashion and at a high enough seeding rate to get good stand establishment. Also get those plant orders in to be sure of getting sufficient quantities of the varieties you have selected. Need help finding small fruit nurseries that carry the variety you may be interested in? Check out the Cornell Small Fruit Nursery Guide: http://www.fruit.cornell.edu/berry/nurseries/. Have on hand sufficient irrigation supplies to be able to water immediately after planting next spring to get those new plants off to a good start.
3. **Wildlife Management** – Watch for deer browse. Take immediate steps to deter feeding. Problems with voles last season? Now is the time to take preventative action. For an in-depth look at vole management see the article that follows.
4. **Sod alley ways** - Fall is a good time to plant grass alleyways. Consider using hard fescues for this purpose. They are very durable and slow growing – lessening the need for frequent mowing. Spartan, Aurora, SR3000, SR3100 and Reliant as well as sheep fescues are low growing and grow readily in a wide range of soil pH. Unlike other grasses, hard fescues do not propagate from rhizomes but are bunch grasses, not encroaching into the crop plant area. Their dense sod with extensive root systems protects soil structure. Use higher seeding rates for a more rapid establishment and full cover. While hard fescue seed is relatively expensive, the cost is most often off set by the reduced need for mowing.

STRAWBERRIES:

Established plantings:

1. **Fertilizer** – Fall is the time for your final nitrogen application for the season. Apply 30 lb actual N per acre in early September. Your seasonal total of N should be around 120 lbs N/acre for bearing fields. If you did not apply fertilizer at renovation, you cannot make it all up during this time, but you could up the levels slightly (the same for soils that have a very low OM content). If you took some leaf samples following renovation, now would be a good time to take a look at those results. Magnesium and Boron are sometimes deficient – if that's your case consider applying Epsom salts (15 lbs/100gal/acre) for magnesium and Solubor (3 lbs/100gal/ acre) for boron. Just be careful of applying these nutrients on a hot humid day, because they can cause significant leaf burn.
2. **Diseases** –If **Red stele** has been identified in your planting, use a soil applied fungicide like Ridomil Gold EC or a foliar application of Alliette or Phostrol. All of these fungicides should be applied in late September or early October as the soils cool.
3. **Weeds** - Apply Dacthal, Sinbar, or Devrinol for winter annuals; Stinger for thistles. Remember you have one more shot at it in early November – 2,4-D may be an option if the weather is warm. Or later in November, Devrinol and/or Sinbar may be used before applying winter mulch. Check labels for timings, application rates

and methods. Remember total product application/season restrictions apply for most products. See labels for details.

4. **Winter mulch** – Are you ready? Are you set? Grain mulches are the most common; the best include wheat, rye, or Sudan grass straws. Apply after several frosts and leaves flatten in late fall early winter. Apply 2-3 tons/A (2-3" layer) on average; 4-5 tons/A in cold windy climates or on raised beds.

New plantings:

1. **Fertilizer** – Fall is the time for your final nitrogen application for the season; apply 30 lbs/acre to promote root growth and improve flower bud initiation.
2. **Diseases** – **Foliar diseases** remain a concern while leaves are actively growing. Severe epidemics may result in weakened plants that are more susceptible to winter injury; fruit bud set may also be reduced. **Powdery mildew** has been a problem again this year. White powdery mycelium appears on leaf lower surfaces first, causing leaf edges to curl (right). White patches may also appear on upper leaf surfaces, fruit stems, and fruit. Several products are labeled for mildew management – see the berry guidelines for details.
3. **Weeds** – Did you remember to cultivate in mid-August then apply Dacthal (12 lb/A)? You have one more shot at weed control in Late November with Devrinol and/or Sinbar before applying winter mulch.
4. **Winter mulch** – same as above for new plantings.

BLUEBERRIES:

Established plantings:

1. **Fertilizer** – Avoid adding nitrogen during the fall. Apply 200 lb/A sulfur in plantings where pH is still above desired levels. Amendments like sulfur should be added *before* you add the next layer of mulch.
2. **Diseases** - Check for weak plants and try to determine what the damage is caused by. Check for rodent damage to the roots, but also look for flagging caused by canker. An article follows by Kathy Demchak to help with diagnosing blueberry problems.
3. **Insects** – look for insect stem galls after leaves have fallen- cut out and burn any galls to reduce overwintering populations.
4. **Mulch** - Remember to not cheat on the mulch – you should have 6" of mulch on those berries at all times. If you have a deep and consistent mulch layer you can save on weed control and irrigation.
5. **Weeds** – September into October – Sinbar after harvest (avoid contact with foliage), Devrinol, Solicam (if not applied in spring), Surflan, or Princep (low rate). November – Kerb for grasses. Casoron if needed for grasses and broadleaves- apply uniformly in late fall when daily temperatures hold below 45°F. Rage in the row if weeds are still actively growing. See berry pest management guidelines (http://ipmguidelines.org/BerryCrops/) for more information.

New plantings:

1. **Fertilizer** – Avoid adding nitrogen during the fall. Apply 200 lb/A sulfur in plantings where pH is still above desired levels.
2. **Insects** – Look for **insect stem galls** after leaves have fallen- cut out and burn any galls to reduce overwintering populations.
3. **Weeds** – Low rate of Princep in October. One more shot at it in late November with Kerb for grass control (before ground freezes) and/or Casoron for grasses or broadleaves- apply uniformly in late fall when daily temperatures hold below 45°F.All have different application requirements – check labels for details.

RASPBERRIES AND BLACKBERRIES:

Established plantings:

1. **Fertilizer** – Avoid adding nitrogen during the fall.
2. **Diseases –** Mid-summer heavy rainfall may have set the stage for problems with **Phytophthora root rots** on sites with a history of the disease. Infected plants often wilt and collapse just before harvest or during warm dry weather. Infected plants usually occur in groups and are most often found in the lowest or wettest parts of the field. Look for signs of Phytophthora – wilting and a brick-red color under the bark at the crown of the plant. Treatment options include fall applications of Ridomil Gold (Note: DO NOT apply within 45 days of harvest), Alliette 80 WP, Prophyt, or Phostrol. See berry pest management guidelines (http://ipmguidelines.org/BerryCrops/) for more information. **Late leaf rust** may be another concern in raspberries. Look for small yellow spots on the undersides of leaves. Heavily infected leaves may drop prematurely, leaving canes bare by September. Flowers, petioles and fruit may also be infected. Cabrio or Pristine may provide some disease suppression. Cultural practices to reduce disease next season include

removal of the alternate host (white spruce) and cane thinning, maintaining narrow rows and good weed control to increase air circulation and reduce leaf drying time.

3. **Insects** – Check for **Cane borer/girdler** damage (red-necked cane borer, flat-headed cane borer). These consist of swellings 1-3 inches long and a few inches to several feet above the ground. Some infested canes may wither and die; in other cases the infected cane breaks off in the region of the swelling. With other borer species (Raspberry cane borer) no swelling is evident but the tips of new canes may wilt and blacken. Cut out and burn all infested canes. **Crown borer** will also cause wilting. Several canes of a bush may be weakened by activity of a single larva in the crown; the entire plant may be killed. Crown borer adults are active now as they lay eggs. The adults look like a large yellowjacket, but they are actually a moth. Prune out dying canes; remove infested crowns. If you did not make a spring application you may apply Capture 2EC as a postharvest drench directed at the crown (minimum 200 gal water/A).Another potential fall insect pest is **tree crickets**. Adults lay eggs in canes, leaving long rows of punctures that greatly weaken the cane above. Remove and burn infested canes as they appear. Late August to mid- September applications of insecticides such as carbaryl may also be effective.
4. **Weeds** – September into October – Sinbar, Devrinol, Surflan, Solicam (if not applied in spring). Check labels for timings, application rates and methods. Princep at high rate if not applied in spring. Remember total product application/season restrictions apply for most products. See labels for details. You have one more shot at it with Casoron for broadleaves and grasses in November if needed - apply uniformly in late fall when daily temperatures hold below 45°F.

New plantings:

1. **Fertilizer** – Avoid adding nitrogen during the fall.
2. **Weeds** – Limited options the planting year. October – low rate of Princep (Note: Not to be used on tissue culture plants). Late November, Casoron as above.

(This is the last Berry Barometer for the season. Hope you have found this monthly feature timely and helpful. Please send any suggestions or comments to Cathy Heidenreich, mcm4@cornell.edu. Thanks!)

EARLY FALL WEED CONTROL IN BERRY CROPS

Laura McDermott, CCE Capital District Vegetable & Small Fruit Program

September is a good time to go after weed problems in berries. Despite the fact that there isn't a large selection of herbicides to choose from, making sure that your timing is appropriate will make a difference in your results.

Strawberries: For first year strawberries, you can use DCPA (Dacthal) at 12 lb/A, or 8 lb/A if you have sandy soil. Don't expect a lot from this material, but if you are really struggling with weed issues, it might give you some relief. Dacthal can also be used in fruiting berries, but you have some better choices in Sinbar or napropamide (Devrinol) for winter annuals. Both of these products are limited as to the amount you can apply in one year. Sinbar has a limit of 8 oz/A/ growing season and Devrinol is limited to 8 lb/A/growing season. From grower reports in the Capital District, Sinbar is the most effective material of these three, but it does have some drawbacks. Most notably it needs to be watered in and it should not be used on low organic matter soils. Additionally, some berries show sensitivity to Sinbar. The ones listed in the Cornell Berry Guidelines are: Guardian, Darrow, Micmac, Tribute and Tristar. Honeoye has been reported as sensitive as well and there is a possibility that Sinbar increases root rot in that variety. Glooscap, Kent and Cavendish are also mentioned as being sensitive in the Midwest Small Fruit Pest Management handbook.

If you have problems with thistle, then apply clopyralid (Stinger) right after the thistles have dropped their seed. Make sure to have the Special Local Need label in your possession when you apply Stinger on strawberries.

Brambles: Chemical weed control in brambles is tricky. These plants are very touchy; it is so easy to burn and stunt them with improperly applied herbicides. Handle your strawberry and blueberry weed control first and then in later September and into October concentrate on brambles. For weed control in the fall of the planting year, you can use simazine (Princep) at the low rate (2.2 lbs or 2 qt/A depending upon the formulation), but wait until October to apply.

For fruiting canes you have more choices. Sinbar, Devrinol, norflurazon (Solicam), oryzalin (Surflan) and Princep are all labeled for autumn use. If you are using Sinbar, apply the recommended rate of product with at least 20 gallons of water per acre. Spray underneath well established bushes, but be prepared for some leaf burn.

For primocane berries, you can only use Sinbar in the fall. Other materials all have caveats surrounding their use including seasonal limits on Solicam and Princep and cautionary statements for light soils (Solicam) or highly organic soils (Surflan). You also need to water in Devrinol.

Blueberries: First year blueberries may benefit from a low rate of Princep applied in late October, but most weed problems can be addressed in November. For fruiting blueberries you can apply Sinbar after harvest or choose from Devrinol, Solicam, Surflan or Princep. Similar caveats apply for these materials as were mentioned in the bramble section. Truthfully blueberries rarely need to have weeds addressed at this early fall time, as the products used in late fall (Callisto, Chateau, Kerb and Casoron) do a very effective job in combination with a good mulch program.

VOLE MANAGEMENT IN BERRY PLANTINGS

Cathy Heidenreich, Berry Extension Support Specialist, Cornell University Department of Horticulture, Geneva, NY

Voles, also known as meadow or field mice, can do a lot of damage to bushberry and caneberry plants during winter months from feeding on plant roots to girdling canes and gnawing on crowns below the snow cover. Population monitoring and management can help reduce losses incurred to blueberries, raspberries and blackberries and other berry crops by these small mammals. *(Right: Vole feeding on apple. Photo courtesy P. Curtis)*

Vole Life History and Identification

Twenty-three species of voles occur in the United States. Most range in size from 5 to 9 inches in length, and 1 to 2 ounces in weight. They are generally gray-brown in color with grayish underparts. Compact is the term that best describes voles, which are stocky rodents with short legs and tails. These features, combined with small eyes and partially hidden ears make them ultimate tunnelers.

Home range for voles is usually ¼ acre or less but this varies with food supply, population density, and other factors. Voles spend their days underground creating systems of subterranean tunnels and runways. These tunnels are used to feed on plant roots, store food, and raise young. Tunnels have numerous surface entrances and a single burrow system may provide habitat for several adults and young.

Nocturnally active also, voles travel and feed at night along surface runways above ground. Runways consist of 1 inch wide depressions or matted trails in grass and ground cover that have characteristically close clipped vegetation and contain feces and bits of chewed debris. *(Right: Vole tunnel system. Photo courtesy I. Merwin.)*

Voles do not hibernate, reproducing for most of the year with peaks occurring in the spring and fall. Highly prolific, voles produce 1 to 5 litters per year with litters ranging in size from 3-11 young; average litter size is 3 to 6. Females are reproductively mature in 35 to 40 days. Young voles reach maturity within 21 days.

Vole lifespan is relatively short, ranging from 2 to 16 months. Populations tend to be cyclic with peaks occurring every 2 to 5 years. Cold winters can greatly reduce vole population numbers. Numbers are also affected by other climatic conditions and food supply.

Voles feed on a wide variety of plants but most commonly feed on grasses and forages. Other plant food sources include seeds, tubers, bulbs, and rhizomes. They are also known to occasionally feed on insects, snails, and animal remains.

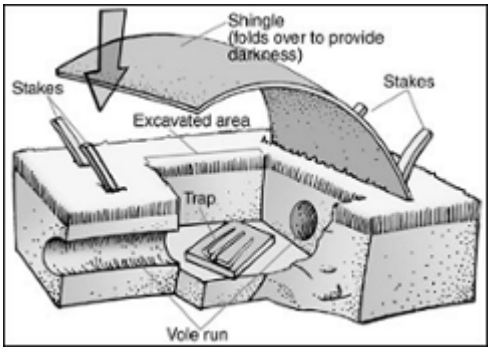
The preferred habitat for most voles is an area with heavy cover (grasses, grass-like plants, leaf debris or litter). When populations are high they may spill over from these habitats into fruit plantings, wind breaks, and cultivated fields.

The two types of voles most common to our area are the Meadow vole (*Microtus pennsylvannicus*) and the Pine or Woodland vole (*M. pinetorum*). The Meadow vole is the most common species found in the northern US and Canada. Ranging in size from 5.5 to 7.5 inches in length the meadow vole has gray to yellow brown fur with black-tipped hairs. Northern subspecies of this mammal may have reddish fur overtones. Meadow vole underparts are gray, sometimes washed with silver or buff; its tail is bicolored. Preferred habitats for *M. pennsylvanicus* are wet meadows and grasslands.

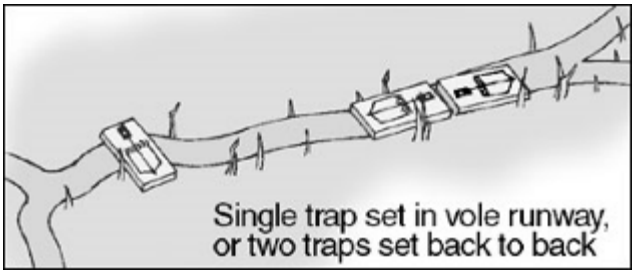
Pine vole, common to the eastern US, is smaller than Meadow vole, ranging in size from 4 to 6 inches in length. These voles are brown in color with soft dense fur. Underparts are gray mixed with yellow to cinnamon. The tail is one colored or just slightly bicolored. Pine vole's preferred habitats include deciduous and pine forests, abandoned fields, and orchards with heavy ground cover. *(Right: Pine Vole; right: Meadow vole. Photo courtesy Ian Merwin).*

Trapping is an effective way to positively identify vole species present in an area. A snap-type mouse trap is sufficient for this purpose. Bait the trap with a small piece of apple or a peanut butter oatmeal mixture. Some excavation may be needed to position traps in pine vole runs *(below left)*. Place a bent roof shingle over the trap to form a protective cover for the trap. Allow sufficient height between the trap and the shingle roof for the trap to spring without hitting.

Meadow vole traps should be placed at right angles to surface runways or back to back inside runs *(below right).*



Pine Vole trap (Pierce, 2003)



MeadowVole trap (Pierce, 2003)

Recognizing Vole Damage to Berry Crops

Voles feed on berry crop roots but may also girdle berry root crowns and canes. Girdling typically occurs in fall and winter. Damage may also occur to irrigation systems through vole feeding.

Girdling alone is not solely indicative of vole damage to bush and caneberries. Rabbits and other rodents may also girdle berry canes. Rabbit girdling marks are larger than those of voles and not as distinct. Rabbits also clip off branch tips with clean cuts.

Vole girdling is typically 1/8" wide by 3/8" long and 1/16" deep. Marks occur at various angles and in irregular patches. This type of feeding, coupled with evidence of extensive burrowing, burrow entrances and surface runways

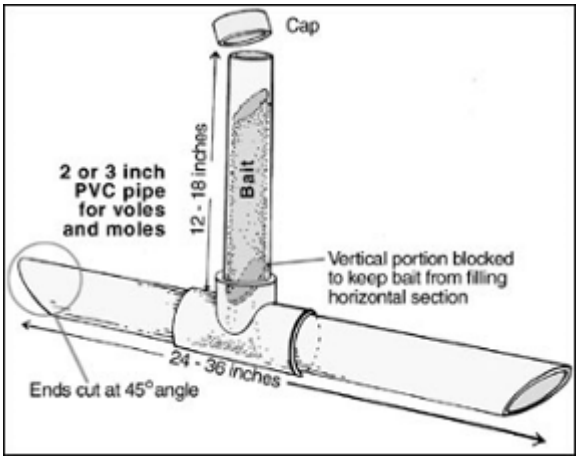
may indicate Meadow vole damage. Pine vole spends most of its time and causes its damage *below* ground. In comparison, Meadow vole spends considerable time and causes most of its damage *above* ground.
Extensive vole tunneling also creates air pockets in the root zone and may disrupt water movement through the planting.

Monitoring Vole Damage and Making Management Decisions
Monitoring may be done in spring, summer, and fall to track vole population changes. Fall monitoring however, is most often used in making management decisions. Monitoring should be done when temperatures are still above freezing during a period with little or no rainfall. Construct monitoring stations consisting of short pieces of PVC pipe or pieces of roofing shingle or other material to provide shelter. Place shelters over a tunnel entrance or section of runway. An apple wedge serves as bait under the shelter. Set out 4 to 8 monitoring stations per acre. Check apple wedges 24 hours after placement for evidence of feeding. If inclement weather is a factor, leave bait stations with wedges in place to allow ample time for night feeding. Score each station as positive or negative for feeding. In general, management is recommended when 40% or more of the bait stations show positive feeding damage after 24 hours. For more in-depth information on this technique see: *Integrated Pest Management for Blueberries - A Guide to Sampling and Decision Making for Key Blueberry Pests in Northwest Washington.* http://whatcom.wsu.edu/ipm/blue/.

Vole Management Strategies
Cultural practices are effective in reducing vole populations in berry plantings. Weeds, ground cover and litter should be eliminated around bushes as much as possible. Grass alleyways should be mowed regularly, especially in spring and fall. Mulch used for weed management should not excessively cover bases of canes or crowns.

Voles are excellent swimmers. Unmanaged waterways, rights-of-way, and ditch banks provide excellent vole habitat. Manage these adjoining areas carefully to reduce vole numbers. Keeping surrounding vegetation to a minimum through mowing, spraying, or grazing may also reduce vole populations. Tillage of surrounding non-berry crop areas also helps reduce vole damage. Tilling removes cover, kills some voles outright, and destroys burrows.

In addition to cultural practices, some growers opt to use pelletized baits with rodenticides to further reduce vole populations. These products may be broadcast applied to whole plantings or applied by hand near entrance holes and in runways. Broadcast and hand applications, while easier to implement, have been found to be generally less effective than bait station use. Broadcast baits tend to degrade more quickly as they have full exposure to the environment. Moreover, their wide dispersal causes less frequent vole ingestion/exposure. This in turn may lead to bait-shyness through ingestion of sub-lethal doses of the bait.



Rodenticide bait stations *(right)* protect bait from moisture and reduce the likelihood of bait consumption by non-target animals. Stations should be activated in fall if population numbers are high and maintained through spring if populations remain high during winter months. . *(Bait Station diagram, Pierce, 2003)*

They may be constructed from PVC pipe or other water repellent materials. Place bait stations at 10-ft intervals in infested areas. Repeat baiting again after 5 days. After 21 days, repeat the apple sign test to check efficacy of control measures.

Two types of rodenticide baits are currently available for vole population management: baits containing anticoagulant compounds such as chlorophacine provide protection throughout the winter, and zinc phosphide containing baits which are a onetime application for quick knock down of rodent populations.

Zinc phosphide baits such as Prozap zinc phosphide pellets or ZP Rodent bait Ag contain 2% zinc phosphide. These products are restricted use pesticides which may be purchased and applied only by certified applicators. They are acutely toxic to all vertebrates (humans, domestic animals, wildlife). Broadcast applications by cyclone seeder or hand (follow all label precautions!) of these products may only be made during the dormant season (after final harvest and

before leaf emergence in the spring); PHI for bushberries and caneberries is 70 days. Hand applications should consist of throwing tablespoon amounts of bait into heavy cover along bushes, rock out crops, fence lines and runways. Never apply these materials to bare soil. Zinc phosphide baits should not be applied when ground is snow-covered, or when rain or snow is forecast within 48 hours of application.

Zinc phosphide baits should reduce vole populations within 72 hours of treatment. After the vole population has been reduced, an application of anticoagulant bait will assist in reducing the number of voles re-populating the planting during winter months.

Anticoagulant baits , such as those containing chlorophacinone or diphacinone as active ingredients, are more toxic to voles than to other birds and mammals. These baits have a lower percentage active ingredient (0.005%) and require multiple feeding events by voles to be effective. Risk to non-target wildlife is minimal with these products when they are use according to label directions. These products may be broadcast or hand applied. For hand applications, place small quantities of bait in runways and cover with roofing shingle *(right)*. For broadcast applications, apply material with mechanical spreader to vegetative cover, avoiding application to bare ground. A second application is recommended 20-30 days after the initial application. As always, read and follow all label directions whenever apply rodenticides or other pesticide products. *(Roofing shingle cover over baited surface runway. Photo courtesy M. Fargione.)*

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DIAGNOSING BLUEBERRY PROBLEMS

Kathy Demchak, The Pennsylvania State University, Department of Horticulture.

Blueberries are a popular crop in the state, and more people are growing them all the time. Last November's Fruit Times Feature Article (http://fruittimes.cas.psu.edu/) outlined steps to get a planting off to a good start. This one covers what might be wrong when plantings aren't doing so well. There are always exceptions, but here are some general guidelines to use when trying to figure out blueberry (and even other crop) problems.

First, it's easy to assume that when the plants aren't growing well, they must have a disease, but that's not always the case. Disease organisms may be affecting the plants, but often other problems contribute to poor growth. Just meeting basic plant needs goes a long way towards having a healthy planting. This means 1) getting the soil pH into the right range (4.5 – 5.0 for blueberries) hopefully before planting, 2) making sure the plants have plenty of water (which doesn't mean planting them in a spot with poor drainage), and 3) growing them in a soil with plenty of organic matter. It also helps if you have a soil to which blueberries are naturally adapted. If acid-loving plants (wild blueberries, rhododendrons, mountain laurel, and teaberries) abound in nature where you live, your soil is one to which blueberries are suited. Unfortunately, this isn't the case with many of our agricultural soils, which are often high in calcium. Blueberries are in a group of plants known as calcifuges, which means "calcium-fleeing". If you have a high calcium soil (soil test shows more than 2000 lb of calcium per acre) either naturally or from liming it for decades, and you do everything else right but your blueberries still don't do well, the site may just not be a good site for blueberries. Besides providing these basics, other practices that help are keeping the planting well-pruned, fertilizing with the right rate and type of fertilizer (ammonium nitrogen, not nitrate nitrogen), and managing weeds.

If you've met the plants' basic needs and problems still develop, there are few steps to take in figuring out what is wrong. Look for clues and patterns, and think about the following questions.

1) Does the problem affect the whole field evenly or is it worse in certain areas? Root rots such as Phytophthora root rot usually occur to the greatest extent in low spots.

2) When did you first notice the problem, was it relative to any spray applications or unusual weather conditions? In the past few years, I've gotten quite a few calls on all berry crops that were related to phytotoxicity, either due to tank mixtures, warm temperatures during application, or too many applications of the same product. Look for patterns – for example, if you drive every other row and use an airblast sprayer, see if symptoms look worse on the side of the row closest to the nozzles, and check the foliage that would have received the lightest amount to see if it looks better. Disease symptoms are often worse where the foliage is the densest, but phytotoxicity symptoms often disappear there. To the untrained eye (that's any eye that doesn't belong to a plant pathologist, as far as I can tell), it's pretty difficult to tell the difference between a brown spot caused by phytotoxicity and a brown spot caused by a disease. However, brown spots from phytotoxicity are usually oblong or on tissue on which the material would have pooled, with the exception that damage from a small droplet may be circular. Brown spots from diseases are usually circular or oval if caused by a fungus, or are delineated from healthy tissue by leaf veins if caused by a bacteria. Often diseased tissue is a different color at the border where unhealthy tissue meets healthy tissue, and the color is different in the middle of the spot.

3) Are all varieties affected to the same degree? If only certain varieties are affected, do they have something in common, like growth stage relative to a weather event? Usually with diseases, the incidence will vary with variety, but not necessarily with seasonality. If weather events were a problem, like the frosts we had last spring, blueberry varieties with the same harvest season were affected similarly. If all varieties were affected the same, the problem may have been environmental or cultural.

4) Can you see a pattern on the plant? Let's go through some possibilities. a) The whole plant is dead. This could be from a root disease, nematodes, grubs, or something that girdled the plant, so check the roots and crown area for symptoms. b) Tips of canes are dead. Could be winter injury, phomopsis twig blight, botrytis blight, or boron deficiency especially in lighter soils. c) Young or old leaves are affected the most. Could be a nutrition problem (see 5), as usually either older or younger leaves are affected, depending on which element is deficient or toxic. There could have just been more time for symptoms to accrue from a disease if older leaves look worse (also see 5), or something might have happened during a certain growth stage. Some insects, like aphids, prefer younger, more

tender foliage. d) One or a few canes are affected. Check for borers, cankers or chew marks from voles on the affected canes.

5) Can you see a pattern on individual leaves? With nutritional problems or a translocated herbicide injury (this doesn't include burndown herbicides – they're different), the leaf would look relatively symmetrical – if you folded the leaf on the midrib, you would see the same coloration on the left half of the leaf as on right half, and in the same places, more or less. With nutrient deficiencies *(Photo 1, right)*, the part that has access to more of the deficient element (near the midrib) stays green, and yellowing or reddening first shows up between the smallest veins (hence the "Christmas tree effect" with iron deficiencies).

With diseases, spots on the leaves or canes are fairly random, because the disease develops wherever the spore lands. However, areas of the plant that have high moisture levels (areas of dense foliage, or the canes near their base) are likely to have greater disease problems. With injury from a burndown herbicide like paraquat, brown spots appear wherever the spray – including small droplets that may have drifted – contacted the leaves or bark. Entire young canes can be killed from contact.

If the problem is a disease organism, here are the common disease issues that we've seen in PA. We won't have room to cover insects here – but see info in this issue about a blueberry IPM workshop that will.

Phomopsis twig blight and canker. Tips of twigs die back, and the pith appears discolored. Cankers may appear in the crown area that can kill individual canes.

Botryosphaeria stem blight. Leaves turn yellow, then red, and then individual canes die. Eventually the entire plant may be killed. Young plants are most severely affected, as the entire plant can be girdled *(Photos 2 and 3 below)*.

Botryosphaeria stem blight canker progressing into healthy tissue.

Cross-section of stem with Botryosphaeria stem blight. Healthy tissue is light green.

Mummy berry. Berries dry up and fail to mature, eventually resembling tiny gray pumpkins. They fall to the ground, and ¼" mummy cups grow from them in the spring, which release spores that cause new shoots to wilt and turn brown. Spores released from infected shoots then infect flowers and thus fruit.

Botrytis blight. Any plant part can be affected, but most often blossoms and new growth are blighted. If the weather is wet, a gray mold may cover affected plant parts.

Alternaria leaf spot. Leaves develop tan to grayish spots, with lower leaves affected the worst. A black or dark-green mold appears on the blossom end of the berry before harvest.

Anthracnose fruit rot. Canes and leaves can be affected with brown to black lesions *(Photo 4, below left)*, but often the only symptom noticed is that after harvest, fruit develops a sunken area with orange to salmon-colored spores.

Viruses and phytoplasmas. Symptoms of viruses vary markedly depending on the virus, but can include mottling or crinkling of leaves, unusual leaf shapes and colors *(Photo 5, below right)*, poor growth, reduced yields, and plant death.

Phytophthora root rot. Plants become defoliated and die in wetter areas of the field.

Anthracnose canker on blueberry stem.

Asymmetrical discoloration consistent with viral symptoms

Additional information on cultural management such a site selection, pruning, and fertilization, symptoms and epidemiology of diseases, other problems, cultural controls and chemical controls, appear in the Mid-Atlantic Berry Guide, on-line at http://pubs.cas.psu.edu/freepubs/MAberryGuide.htm.

Printed copies can be obtained in many county extension offices or ordered directly from Ag Publications by calling 877-345-0691. Cost for a printed copy is $20 plus tax and a $5 shipping/handling fee, with all major credit cards accepted.

An excellent resource for helping to diagnose problems is the Berry Diagnostic Tool, developed by folks at Cornell University, North Carolina State University, and the Small Fruit Germplasm Repository in Corvallis, found at http://www.fruit.cornell.edu/berrytool/index.html. These resources and more can also be accessed from the PSU Small Fruit web site, located at http://smallfruits.psu.edu/

(Photos in above article by K. Demchak. Reprinted with permission from: The Pennsylvania State University Vegetable & Small Fruit Gazette, Volume 14, No. 9, September 2010.)

Questions or comments about the New York Berry News?
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Check out the NYSAES Tree Fruit and Berry Pathology web site at: **www.nysaes.cornell.edu/pp/extension/tfabp**
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August 2010

Expanding Farm-to-Chef Sales in Your Market Area – Lessons from Columbia County, NY

Todd M. Schmit (Cornell University) and Stephen E. Hadcock (CCE-Columbia County)

Marketing of farm products to local restaurants is currently seen as a prime opportunity for increased farm sales and broadened consumer exposure to local farming operations. However, the success of farm-to-chef (F2C) marketing depends on a variety of factors, including the development of purchasing specifications, delivery commitments, and a sufficient level of interpersonal communication and management skills to facilitate information exchange. To investigate these issues, we conducted a F2C marketing study during the summer of 2009 in Columbia County, NY to evaluate the performance of existing efforts and the potential for the expanded utilization. Data were collected from agricultural producers, chef/restaurant owners, and restaurant patrons.

Identification of Barriers to Growth

Farmers and restaurants were asked to identify what barriers exist to expanding utilization of the F2C channel. The summarized results are in Table 1. Several consistent themes were revealed from both parties.

Table 1. Barriers Limiting F2C Sales Expansion, by Percent of Respondents.

Restaurant Barriers Identified (N=11)	%	Farmer Barriers Identified (N=25)	%
• Don't have time to contact several farmers.	75%	• Can sell all that I produce now.	52%
• Unsure of consistency of products delivered.	75%	• Satisfied with existing markets, don't need more.	40%
• Unsure of quality of products delivered.	50%	• Don't have time to make several stops/small sales.	40%
• Volume can't be satisfied with local producers.	50%	• Would have to hire someone to deliver.	28%
• Farmers have poor communication skills.	25%	• Unsure if can get adequately paid to deliver.	16%
• Prices too high.	25%	• Restaurants aren't interested, too far away.	16%
• Farmers don't offer delivery.	13%	• Variance in quantities and limited product ranges.	4%

LIMITED TIME issues are very important; neither party has the time to deal with numerous buyers/sellers with smaller quantities.

VOLUME REQUIREMENTS can be problematic. For restaurants, local producers are often not able to commit to sufficiently large volumes over an extended period of time. For farmers, production is oftentimes already at capacity and significant investments in capital and/or labor would be required to meet larger demands. In addition, farmers are often faced with quantity demands that vary throughout the season, an issue not easily addressed with existing production schedules, or only a limited range of products is requested.

PRICE AGREEMENTS can be problematic. Restaurants feel that prices requested are generally too high relative to the costs they can pass through to their customers, while farmers are generally

resistant to offer prices lower than through other channels and/or are concerned that delivery costs are not sufficiently accounted for when prices are set.

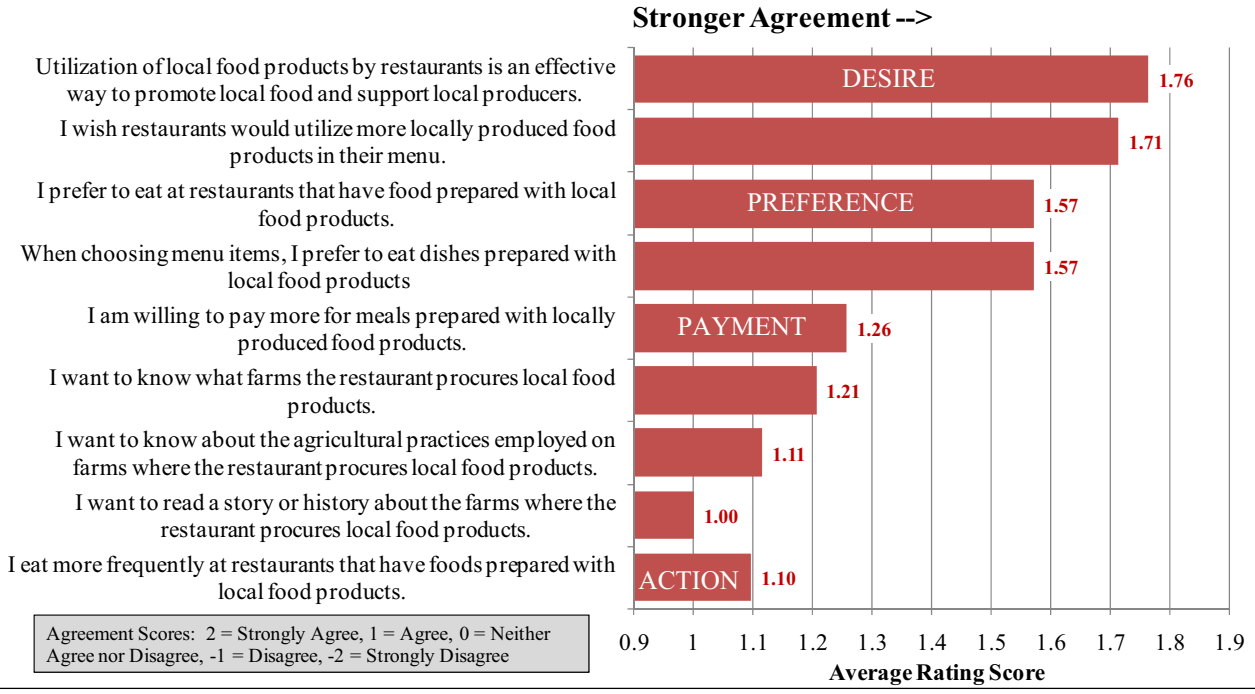
UNIQUE BARRIERS were also observed. For restaurants, assurances of quality and consistency of products over time is deficient and, oftentimes, farmers have poor communication skills making purchasing arrangements difficult to establish and enforce. Farmers often stated that they were satisfied with existing markets and feel that restaurants are not interested in buying local or are too far away to make it feasible. While these issues are numerous and not always easy to address, careful attention to them is required when developing strategies to increase channel utilization.

Consumer Valuation versus Action

Patrons were asked how strongly they agreed with a variety of statements (Figure 1). Based on the rankings, several important sentiments are apparent. First, the top two statements emphasize the strong desire by consumers to see more local products utilized in restaurants. However, average agreement scores drop nearly 11% when customer's particular preferences are considered. Furthermore, customers are less in agreement when it comes to paying a premium for meals prepared with local ingredients; the average agreement score drops an additional 20%. Customers were also relatively resistant to changing restaurants they frequent based on the presence of meals prepared with local ingredients. Specifically, the average agreement score on whether patrons eat more frequently at restaurants that serve meals prepared with local food ingredients drops an additional 13% and over 30% based on their scores considering preferences alone.

The results highlight that how restaurants publicize their use of local ingredients and price their products can be very important to the success and utilization of local products. Demand is strongly influenced by prices; therefore, assigning appropriate price premiums to menu items will be highly dependent on a restaurant's clientele.

Figure 1. Agreement of local foods statements by consumers at restaurants (N=35).



Moving Forward

The estimated volume of sales by farmers through direct purchase arrangements with restaurants was shown to be relatively low, but on net, farmers were expecting growth in the F2C channel. Participating restaurants also saw potential for growth, even though a relatively strong proportion of ingredients were already being purchased locally. That said, F2C is not the only local game in town with restaurants utilizing alternative local sources to procure food product ingredients.

For farmers, the conditions of limited sales volumes through restaurant channels, more modest prices, and already constrained time commitments oftentimes closes the door on channel expansion. Restaurants, on the other hand, appear ready to buy more if they can get it, but time constraints restricts the number of farmers restaurants are able to deal with to get the quantity and variety of products they desire. In addition, improved communication skills of farmers are needed to better facilitate that exchange, and provide continual updates on product availability and timing. On the product side, consistent quantities and qualities are needed for restaurants to commit long-term.

Cooperative marketing strategies and purchasing arrangements by groups of farmers and/or restaurants can be considered for addressing many of these issues. The existence of collaborative organizations such as Columbia County Bounty and others have been shown to improve the potential for success. However, many markets are highly specialized and spatially unique. As such, addressing barriers to channel expansion is often necessary on a case by case basis.

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"Smart Marketing" is a marketing newsletter provided by the Cornell University Agricultural Marketing & Management Program Work Team 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. *Please cite or acknowledge when using this material*. Past articles are available at http://marketingpwt.aem.cornell.edu/publications.html.

WEATHER NOTES *(Courtesy NY NASS)*

Week ending August 15th: The week began hot and dry with high pressure along the Mid-Atlantic Coast. Temperatures were above normal on Sunday and Monday. A disturbance moving south of a cold front brought some light to moderate rainfall to much of upstate New York. A cold front brought isolated to scattered showers Tuesday into Wednesday. Locations mainly south of the Mohawk River Valley had some showers; some were heavy in intensity in the northern Catskills and across central New York. Cool Canadian high pressure ushered in cool and dry weather to close the week. Temperatures still averaged above normal for the week with precipitation below for most locations.

Week ending August 22nd: The week began with high pressure anchored off the eastern seaboard with dry conditions on Sunday. However, this gave way to a fast moving cold front that passed from west to east on Monday night into Tuesday morning. This front was preceded by showers and thunderstorms on Monday, some of which produced damaging winds and heavy rainfall mainly across southeastern parts of the state. High pressure returned for later on Tuesday and into Wednesday with generally fair conditions and lower humidity. Another weak front passed through the state for Thursday, allowing for isolated thunderstorms. High pressure and mainly dry weather returned to end the week for Friday into Saturday, although Saturday featured little sunshine as high level clouds rolled into the area of the next storm system as well as some light showers for far western areas. Despite a few places in central and eastern portions of the state having high temperatures below normal on Sunday, the week was generally dominated by near to above normal temperatures statewide. Warm and muggy conditions returned for Monday and Tuesday ahead of a frontal system. Temperatures were near normal across much of the state on Wednesday. As another frontal system approached, temperatures warmed to above normal for Thursday. Finally in the wake of the boundary, near to slightly below normal temperatures were found across the state on Saturday.

Week ending August 29th: At the start of the week a slow moving cutoff upper level low pressure area moved from the Great Lakes southeast towards the Atlantic Seaboard. This allowed for a prolonged period of rainfall from Sunday into Monday, some of which was heavy in intensity for central and eastern parts of the state. This rainfall caused minor to moderate flooding for parts of the Mohawk Valley. Light rain fell across southeastern parts of the state on Wednesday as another low pressure area moved up the northeast coastline. By Thursday, most areas stayed dry, but a few light rain showers occurred across the North Country as a weak cold front passed through the region. Finally, the entire state enjoyed dry and quiet weather for Friday into Saturday as high pressure built into the region with the clouds and rainfall, temperatures were below normal for the first half of the week with many areas only reaching the upper 60's to middle 70's for highs. Temperatures remained on the cool side for Thursday and Friday as well with near to slightly below normal temperatures as a cooler air mass pushed into the state in the wake of a cold front. However, temperatures began to warm up on Saturday as southerly flow returned to the region with average temperatures backs near normal levels.

Week ending September 5th: Temperatures averaged from 7 to 13 degrees above normal. Highs ranged from 85 to 96 degrees while the low temperature for the state dropped to 45 degrees in Franklinville. Growing Degree Day accumulations for the week ranged from 134 to 233. Seasonal totals were from 350 to 868 above normal. It was a dry week with precipitation ranging from none at several locations to only 0.78 inches at Wales. All areas received below normal amounts for the week.

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Week ending September 12th: High pressure dominated the weather across the state during much of the week. A cold front moved from west to east across the state late Tuesday into early Wednesday preceded and accompanied by isolated to scattered showers and thunderstorms mainly across central and western portions of the state. High pressure built across the state in the wake of this front from late Wednesday into Saturday. Temperatures generally averaged below normal during the period. However, a brief period of above normal temperatures occurred ahead of the cold front on Tuesday and lingered into Wednesday across southeast portions of the state. Precipitation was generally below normal across the state for the week. However, isolated rainfall amounts of one half inch to one inch occurred with isolated thunderstorms along and ahead of the cold front across western New York. In addition, lake effect rain showers affected portions of northern and western New York late Wednesday through Friday as the cooler air crossed the relatively warmer waters of Lake Erie and Lake Ontario.

NY NASS WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00 AM, August 15th, 2010

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	***Low***	***Avg***	***DFN[1]***	***Week***	***YTD[2]***	***DFN***	***Week***	***DFN***	***YTD***	***DFN***
Hudson Valley											
Albany	91	63	76	7	185	2241	462	0.21	-0.57	11.02	-3.84
Glens Falls	88	58	73	6	162	1897	338	0.08	-0.76	10.82	-3.63
Poughkeepsie	93	56	76	5	182	2369	511	0.18	-0.66	8.24	-9.13
Mohawk Valley											
Utica	81	59	69	5	137	1527	301	0.56	-0.51	19.38	-0.47
Champlain Valley											
Plattsburgh	82	55	70	2	139	1816	228	1.54	0.59	15.39	1.64
St. Lawrence Valley											
Canton	82	57	70	4	142	1795	379	0.86	-0.07	16.51	2.09
Massena	86	56	72	5	156	1902	404	0.82	-0.02	14.83	1.59
Great Lakes											
Buffalo	87	65	76	7	182	2125	428	0.36	-0.59	16.73	2.15
Colden	85	61	73	7	162	1755	377	0.10	-0.80	14.71	-2.23
Niagara Falls	88	63	77	8	187	2189	483	0.48	-0.39	13.23	-0.89
Rochester	86	63	75	7	175	2163	518	0.51	-0.26	16.64	4.00
Watertown	87	60	74	7	169	1901	474	0.26	-0.46	12.89	1.63
Central Lakes											
Dansville	85	59	72	4	157	2048	397	0.50	-0.20	16.18	2.14
Geneva	85	60	73	5	165	2077	441	0.31	-0.39	16.84	2.86
Honeoye	85	57	73	4	162	2035	334	0.60	-0.10	18.56	4.79
Ithaca	86	54	72	5	154	1933	450	0.25	-0.52	12.46	-2.63
Penn Yan	85	58	74	5	169	2158	522	0.37	-0.33	14.16	0.18
Syracuse	89	62	75	7	181	2249	581	0.46	-0.31	15.61	-0.26
Warsaw	82	61	71	4	149	1733	451	0.25	-0.59	18.96	2.63
Western Plateau											
Alfred	85	58	72	7	155	1873	611	0.58	-0.19	17.97	2.26
Elmira	91	60	74	7	171	2054	483	0.50	-0.15	14.54	0.07
Franklinville	85	54	70	6	141	1642	487	0.48	-0.41	17.25	0.71
Sinclairville	85	55	73	7	160	1861	563	0.45	-0.53	18.25	-0.14
Eastern Plateau											
Binghamton	89	60	73	5	159	2051	524	0.43	-0.30	13.45	-1.74
Cobleskill	86	55	71	5	147	1844	427	1.40	0.63	14.89	-1.40
Morrisville	85	57	71	6	147	1811	459	0.75	-0.02	18.59	2.51
Norwich	88	49	71	5	147	1782	362	0.96	0.21	15.84	-0.32
Oneonta	87	56	71	6	151	1876	564	0.86	0.02	16.27	-1.43
Coastal											
Bridgehampton	88	52	74	3	172	2274	585	0.00	-0.77	9.10	-6.87
New York	93	68	80	5	212	3063	762	0.11	-0.73	9.76	-7.32

1. *D*eparture *from N*ormal 2. *Y*ear *to D*ate: Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning.

NY NASS WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, August 22nd, 2010

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	***Low***	***Avg***	***DFN[1]***	***Week***	***YTD[2]***	***DFN***	***Week***	***DFN***	***YTD***	***DFN***
Hudson Valley											
Albany	87	50	71	2	148	2389	474	0.25	-0.57	11.27	-4.41
Glens Falls	86	43	68	2	126	2023	345	1.75	0.91	12.57	-2.72
Poughkeepsie	88	52	72	3	158	2527	526	1.46	0.69	9.70	-8.44
Mohawk Valley											
Utica	77	50	64	0	97	1624	302	0.52	-0.62	19.90	-1.09
Champlain Valley											
Plattsburgh	86	45	67	1	121	1937	232	0.49	-0.49	15.88	1.15
St. Lawrence Valley											
Canton	80	48	65	-2	107	1902	376	0.81	-0.17	17.32	1.92
Massena	83	48	66	0	115	2017	406	0.33	-0.51	15.16	1.08
Great Lakes											
Buffalo	83	59	71	4	151	2276	449	1.11	0.13	17.84	2.28
Colden	80	57	68	3	130	1885	398	1.78	0.82	16.49	-1.40
Niagara Falls	87	57	72	4	155	2344	508	1.41	0.50	14.64	-0.39
Rochester	83	58	70	4	143	2306	538	1.08	0.29	17.72	4.29
Watertown	81	50	68	3	130	2031	488	0.52	-0.25	13.41	1.38
Central Lakes											
Dansville	82	55	69	2	133	2181	402	1.74	0.99	17.92	3.13
Geneva	82	53	69	1	135	2212	448	2.61	1.91	19.45	4.77
Honeoye	83	53	70	2	140	2175	339	2.36	1.59	20.92	6.38
Ithaca	85	51	70	4	141	2077	478	0.96	0.19	13.35	-2.51
Penn Yan	84	52	71	3	147	2305	541	0.86	0.16	15.02	0.34
Syracuse	84	54	71	4	148	2397	603	0.81	0.04	16.42	-0.22
Warsaw	78	55	67	3	119	1852	469	2.47	1.56	21.43	4.19
Western Plateau											
Alfred	82	55	69	5	133	2006	643	1.85	1.02	19.82	3.28
Elmira	88	50	71	4	150	2204	511	1.27	0.57	15.81	0.64
Franklinville	81	50	67	5	121	1763	515	1.99	1.08	19.24	1.79
Sinclairville	82	56	70	5	140	2001	600	1.52	0.48	19.77	0.34
Eastern Plateau											
Binghamton	84	54	70	3	139	2190	546	1.04	0.27	14.49	-1.47
Cobleskill	82	48	67	2	119	1963	434	0.96	0.19	15.85	-1.21
Morrisville	79	51	66	2	116	1927	469	0.47	-0.35	19.06	2.16
Norwich	84	49	67	2	121	1903	372	1.12	0.35	16.96	0.03
Oneonta	83	50	68	4	126	2002	588	1.91	1.07	18.18	-0.36
Coastal											
Bridgehampton	88	61	75	5	174	2448	613	0.16	-0.62	9.26	-7.49
New York	92	68	80	5	209	3272	796	0.24	-0.60	10.00	-7.92

1. *D*eparture *from N*ormal 2. *Y*ear *to D*ate: Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning.

NY NASS WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, August 29th, 2010

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	***Low***	***Avg***	***DFN[1]***	***Week***	***YTD[2]***	***DFN***	***Week***	***DFN***	***YTD***	***DFN***
Hudson Valley											
Albany	81	49	66	-3	115	2504	466	1.13	0.36	12.40	-4.05
Glens Falls	79	45	65	-2	102	2125	340	1.08	0.24	13.65	-2.48
Poughkeepsie	80	49	67	-3	117	2644	512	4.09	3.30	13.79	-5.14
Mohawk Valley											
Utica	75	47	59	-4	66	1690	283	3.81	2.60	23.71	1.51
Champlain Valley											
Plattsburgh	78	52	65	0	110	2047	236	1.21	0.28	17.09	1.43
St. Lawrence Valley											
Canton	78	48	63	-2	90	1992	367	2.79	1.81	20.11	3.73
Massena	80	48	66	2	112	2129	418	2.42	1.53	17.58	2.61
Great Lakes											
Buffalo	80	51	66	-2	113	2389	441	0.21	-0.77	18.05	1.51
Colden	80	47	63	-2	95	1980	392	0.33	-0.69	16.82	-2.09
Niagara Falls	81	50	66	-2	116	2460	504	0.45	-0.49	15.09	-0.88
Rochester	82	50	65	-2	109	2415	532	0.64	-0.15	18.36	4.14
Watertown	79	43	65	0	105	2136	489	1.71	0.87	15.12	2.25
Central Lakes											
Dansville	80	47	63	-4	94	2275	379	0.98	0.21	18.90	3.34
Geneva	80	52	64	-4	98	2310	430	1.21	0.44	20.66	5.21
Honeoye	81	47	63	-5	94	2269	309	0.41	-0.36	21.33	6.02
Ithaca	81	46	63	-4	89	2166	460	2.41	1.63	15.76	-0.88
Penn Yan	80	52	65	-3	103	2408	528	2.57	1.80	17.59	2.14
Syracuse	81	52	65	-3	106	2503	593	4.51	3.67	20.93	3.45
Warsaw	78	47	62	-2	82	1934	461	0.48	-0.43	21.91	3.76
Western Plateau											
Alfred	80	47	63	0	95	2101	648	0.69	-0.15	20.51	3.13
Elmira	82	46	64	-3	101	2305	502	0.63	-0.07	16.44	0.57
Franklinville	80	45	62	1	88	1851	519	0.17	-0.75	19.41	1.04
Sinclairville	80	46	64	0	97	2098	603	0.25	-0.81	20.02	-0.47
Eastern Plateau											
Binghamton	77	50	63	-3	93	2283	531	2.26	1.49	16.75	0.02
Cobleskill	79	46	62	-4	82	205	415	3.43	2.59	19.28	1.38
Morrisville	79	48	61	-4	76	1996	443	3.09	2.24	22.37	4.62
Norwich	81	47	62	-3	88	1991	359	2.11	1.30	19.07	1.33
Oneonta	80	47	63	-1	91	2093	587	3.02	2.18	21.20	1.82
Coastal											
Bridgehampton	81	52	69	-2	133	2581	609	1.23	0.39	10.49	-7.10
New York	84	64	73	-2	160	3432	790	2.00	1.16	12.00	-6.76

1. *D*eparture *from N*ormal 2. *Y*ear *to D*ate: Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning.

NY NASS WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, September 5th, 2010

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	***Low***	***Avg***	***DFN[1]***	***Week***	***YTD[2]***	***DFN***	***Week***	***DFN***	***YTD***	***DFN***
Hudson Valley											
Albany	93	52	76	11	184	2688	542	0.00	-0.77	12.40	-4.82
Glens Falls	91	50	73	10	159	2284	407	0.00	-0.79	13.65	-3.27
Poughkeepsie	93	54	75	9	179	2823	574	0.00	-0.84	13.79	-5.98
Mohawk Valley											
Utica	85	47	70	10	138	1828	350	0.44	-0.83	24.15	0.68
Champlain Valley											
Plattsburgh	93	54	76	13	181	2228	325	0.01	-0.85	17.10	0.58
St. Lawrence Valley											
Canton	88	50	73	12	166	2211	502	0.29	-0.69	18.83	1.47
Massena	90	51	75	13	175	2304	508	0.18	-0.71	17.76	1.90
Great Lakes											
Buffalo	89	52	73	8	164	2553	496	0.07	-0.85	18.12	0.66
Colden	88	52	71	8	145	2124	448	0.78	-0.31	17.60	-2.40
Niagara Falls	90	52	74	9	169	2629	565	0.42	-0.49	15.51	-1.37
Rochester	90	51	74	9	167	2582	594	0.18	-0.59	18.54	3.55
Watertown	89	56	73	11	165	2301	563	0.61	-0.23	15.73	2.02
Central Lakes											
Dansville	90	49	71	7	150	2486	484	0.29	-0.50	20.03	3.68
Geneva	90	52	73	8	162	2472	486	0.09	-0.68	20.75	4.53
Honeoye	90	50	73	7	160	2429	356	0.00	-0.77	21.33	5.25
Ithaca	90	49	71	8	148	2314	514	0.14	-0.70	15.90	-1.58
Penn Yan	90	52	74	9	171	2579	593	0.00	-0.77	17.59	1.37
Syracuse	92	54	74	10	173	2676	660	0.08	-0.79	21.01	2.66
Warsaw	88	49	71	10	148	2082	531	0.43	-0.55	22.34	3.21
Western Plateau											
Alfred	88	49	70	9	144	2245	714	0.32	-0.52	20.83	2.61
Elmira	91	49	71	7	146	2451	549	0.01	-0.69	16.45	-0.12
Franklinville	87	45	67	7	119	1970	566	0.65	-0.32	20.06	0.72
Sinclairville	90	49	69	8	138	2233	655	0.75	-0.37	20.77	-0.84
Eastern Plateau											
Binghamton	87	48	72	9	155	2438	592	0.00	-0.77	16.75	-0.75
Cobleskill	88	52	71	9	150	2195	499	0.00	-0.86	19.28	0.52
Morrisville	85	48	69	7	134	2127	491	0.00	-0.91	22.37	3.71
Norwich	90	50	70	8	142	2133	413	0.06	-0.79	19.13	0.54
Oneonta	89	49	71	10	150	2243	658	0.02	-0.82	21.08	0.86
Coastal											
Bridgehampton	93	53	77	9	189	2770	673	0.87	0.03	11.36	-7.07
New York	96	65	83	11	233	3665	868	0.00	-0.84	12.00	-7.60

1. *D*eparture *from N*ormal 2. *Y*ear *to D*ate: Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning.

NY NASS WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, September 12th, 2010

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	*Low*	*Avg*	*DFN*[1]	*Week*	*YTD*[2]	*DFN*	*Week*	*DFN*	*YTD*	*DFN*
Hudson Valley											
Albany	87	44	65	2	103	2791	552	0.09	-0.61	12.49	-5.43
Glens Falls	84	39	61	0	80	2364	410	0.14	-0.62	13.79	-3.89
Poughkeepsie	87	44	66	1	110	2933	581	0.02	-0.82	13.81	-6.80
Mohawk Valley											
Utica	80	45	57	-2	49	1877	342	0.88	-0.45	25.03	0.23
Champlain Valley											
Plattsburgh	80	44	61	-1	78	2306	326	0.19	-0.59	17.29	-0.01
St. Lawrence Valley											
Canton	82	42	59	-2	67	2278	498	0.81	-0.12	19.64	1.35
Massena	83	43	62	3	87	2391	525	1.45	0.61	19.21	2.51
Great Lakes											
Buffalo	89	47	64	-1	98	2651	498	1.05	0.19	19.17	0.85
Colden	85	43	58	-3	59	2183	432	0.97	-0.15	18.57	-2.55
Niagara Falls	88	45	64	0	96	2725	566	0.34	-0.57	15.85	-1.94
Rochester	89	45	63	-2	91	2673	591	0.39	-0.34	18.93	3.21
Watertown	86	40	63	2	90	2391	576	0.31	-0.48	16.04	1.54
Central Lakes											
Dansville	86	43	59	-5	66	2552	457	0.60	-0.24	20.63	3.44
Geneva	80	50	61	-3	81	2553	475	0.44	-0.33	21.19	4.20
Honeoye	88	42	61	-4	82	2511	337	1.00	0.23	22.33	5.48
Ithaca	87	43	61	-2	76	2391	510	0.34	-0.50	16.11	-2.21
Penn Yan	87	47	63	-1	91	2670	592	0.31	-0.46	17.90	0.91
Syracuse	88	47	64	0	97	2773	664	0.44	-0.47	21.45	2.19
Warsaw	82	44	58	-3	54	2136	519	0.62	-0.36	22.96	2.85
Western Plateau											
Alfred	86	43	59	-2	64	2309	714	0.61	-0.23	21.44	2.38
Elmira	90	38	62	-2	84	2535	548	0.16	-0.59	16.61	-0.71
Franklinville	83	41	57	-3	47	2017	553	1.2/	0.30	21.34	1.02
Sinclairville	85	43	59	-2	65	2298	649	0.74	-0.38	21.51	-1.22
Eastern Plateau											
Binghamton	83	47	62	0	82	2520	593	0.07	-0.75	16.82	-1.50
Cobleskill	83	45	60	-2	74	2269	476	0.08	-0.83	19.36	-0.31
Morrisville	80	44	58	-3	59	2186	479	1.09	0.15	23.46	3.86
Norwich	85	44	60	-2	71	2204	409	0.22	-0.69	19.30	-0.20
Oneonta	85	44	60	2	75	2318	667	0.30	-0.54	21.38	0.32
Coastal											
Bridgehampton	82	50	68	2	125	2892	683	0.19	-0.65	11.63	-7.64
New York	90	62	73	3	161	3826	887	0.00	-0.84	12.00	-8.44

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