New York Berry News

CORNELL UNIVERSITY

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What's Inside

Wow! A full issue and no room for comment so jump in with both feet and find something for everyone on your berry production staff.

Training opportunities galore, a new state-wide berry production project starting up, on-farm research opportunities, new berry extension support staff, food safety opportunities, where to find the latest in pesticide information for New York State, fall berry checklists, blueberry viruses, fall raspberry gray mold control and more.

CURRANT EVENTS

October 5-6, 2007. *US Highbush Blueberry Council Fall Meeting,* Crowne Plaza Northstar Hotel, Minneapolis, Minnesota. For more information: http://www.blueberry.org/calendar.htm.

October 13-14, 2007. *Northeast Small Farm and Rural Living Expo*, Ulster County Fairgrounds. New Paltz, NY. For more information see news brief below or go to: www.smallfarmexpo.org.

November 1, 2007. *Weed Identification Workshop for Fruit Crops.* Green Acre Fruit Farms, (Host: Craig Michaloski), 3480 Latta Road, Rochester NY 14612. Sponsored by the NYFVI berry production project and the Lake Ontario Fruit Team. More information in the next issue; mark your calendars now. DEC credits applied for.

Nov. 5-6, 2007. *2007 Cornell Strategic Marketing Conference: "The Northeast Competitive Advantage Increasing Producer Access to Markets".* Henry A. Wallace Visitor and Education Center at the FDR Presidential Library and Home, Hyde Park, New York. For more information, see news brief below.

Nov. 11-13, 2007. *Southeast Strawberry Expo*. Sheraton Imperial Hotel in Research Triangle Park (Durham), North Carolina. New Grower workshop and farm tour on November 11; trade show and educational sessions on November 12-13. For more information, email ncstrawberry@mindspring.com or call 919-542-3687, or visit www.ncstrawberry.com.

December 4-6, 2007. Great Lakes Fruit, Vegetable and Farm Market EXPO, DeVos Place, Grand Rapids, MI, for more information: www.glexpo.com.

Jan. 29-31, 2008. (A berry triple header!)

Mid-Atlantic Fruit and Vegetable Convention, Hershey Lodge and Convention Center, Hershey, PA. For more information Contact William Troxell, 717-694-3596.

Annual meeting of the North American Strawberry Growers Association will be held in conjunction with the Mid Atlantic Fruit and Vegetable Convention (above), and the National American Bramble Growers meeting (below). For more information: Kevin Schooley at kconsult@allstream.net or visit www.nasga.org.

NABGA Annual Bramble Conference will be in Hershey, Pennsylvania in association with the Mid-Atlantic Fruit and Vegetable Convention and the North American Strawberry Growers Association. For more information contact: Debby Wechsler, 1138 Rock Rest Rd. Pittsboro, NC 27312, **nabga@mindspring.com**.

NYBGA AND NYFVI TEAM UP TO PROMOTE BERRY PRODUCTION EFFICIENCY IN NEW YORK

A two year project submitted by the New York Berry Growers Association (NYBGA), in conjunction with the Cornell Small Fruit Program Work Team, has been funded by the New York Farm Viability Institute (NYFVI). The purpose of this project is to establish a presence in New York State of two people to facilitate the demonstration and implementation of technologies that will improve the production efficiency of practices involved in producing high quality berry fruit.

The Board of Directors of the NYSBGA, together with selected members of the Fruit Program Work Team, will serve as the advisory board for the project.

Members of the NYSBGA Board of Directors have agreed to cooperate in demonstrations and applied research on their farms, and host on-farm meetings. In addition to the direct involvement of berry growers, information will be disseminated through printed and electronic mediums, twilight meetings, field days, and in-depth conferences.

NYSBGA will help design the tools to evaluate the project, identify willing participants for more in-depth evaluations, and be directly involved in project assessment.

Who Can Participate?
The project will be accessible to all commercial berry growers, regardless of scale, method of production, location within the state, or enrollment in a county organization. The goal is to have 75 farmers increase production efficiency by *10%* as a result of this project.

Berry Extension Support Specialists
The two new people, hired as berry extension support specialists (ESS) will work directly with faculty/staff to develop approaches, disseminate information, conduct on-farm demonstrations, make farm visits, organize small group meetings, write newsletter articles, record phone messages, and update web sites.

ESS will serve as a resource for berry growers throughout the state of New York, and be unencumbered by county or regional boundaries, or enrollment in extension. They will work with counties with limited small fruit extension support as well as with regional fruit teams to assist berry growers throughout the state improve production efficiency. One ESS will cover western New York counties; the other counties in eastern New York (Figure 1).

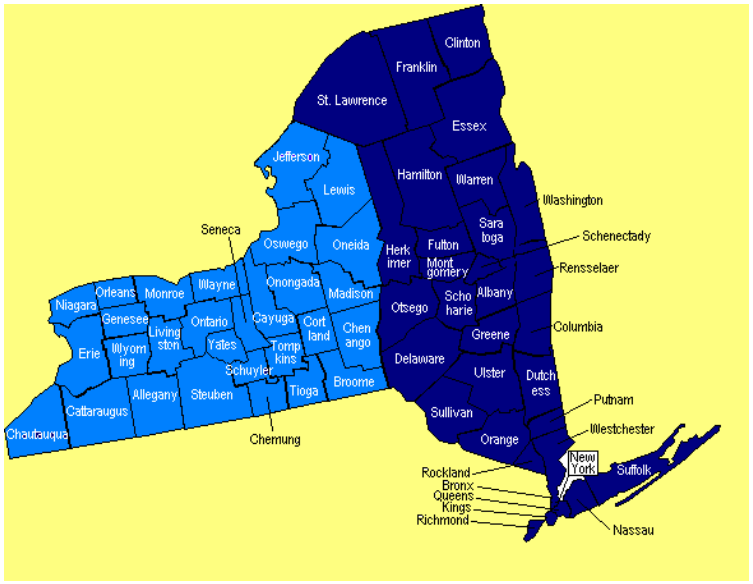

Figure 1: Coverage map for the new eastern and western New York State berry extension support specialists.

Dr. Pritts in the Department of Horticulture, Ithaca, will be the direct supervisor for the 2 new positions.

Project Background and Scope
Cornell has limited personnel resources allocated to berry crops, and few county extension systems have berry expertise. Although various parts of programs and resources exist that can contribute to meeting growers needs, we currently lack a mechanism for integrating and facilitating the delivery of critical information to growers in every corner of the state.

This proposal focuses on employing two individuals to demonstrate and integrate information on production practices, weed control, and pest management and make it available to berry growers throughout New York State. The primary sites

for the work will be on active berry farms. The ESS will serve as resources for other aspects of berry production and be "on call" to assist with problem-solving in the field.

The berry industry has many opportunities for expansion and market development as determined from grower surveys and other sources. A major limitation for growers, however, is production efficiency as costs continue to increase and labor becomes scarce.

Weed management is perhaps the single largest contributor to the labor requirement of berry growers. Practices that reduce weed pressure have the potential to significantly improve production efficiency. Preplant site history, in particular, affects subsequent weed pressure. Increasing knowledge of cover crop management in the years before planting, and proper selection of techniques for controlling specific weeds in established plantings can greatly reduce production costs in fruiting years. Therefore, greatly improved efficiency in weed management will be one focus of this project.

Improving marketable fruit is a second strategy to increase production efficiency. Providing easy-to-use tools for pest identification and management can contribute to improvements in yield. But even if a good management strategy is identified, it may not be effective if pesticide application equipment is not properly calibrated or spray patterns are less than optimal. A portion of this project will be devoted to educating growers about pest management and, in particular, working with them to modify their equipment to provide the best possible coverage for each berry crop and each control situation they encounter.

Effectively using labeled pesticides, testing promising alternatives to pesticides, and designing production systems that require less labor and other costly inputs are two related approaches that can significantly address this major barrier for berry growers.

Proposed Milestones and Activities

I. Growers will be informally surveyed about their best practices for improving production efficiency. The most promising practices will be implemented in small on-farm trials and, if successful, shared with the berry industry state-wide. One article will be written in each monthly issue of New York Berry News related to this topic. This newsletter will be sent electronically to growers and also be accessible from the Cornell fruit web site. Growers (in each of the two years) will be invited to attend the NYBGA-sponsored statewide berry meeting in Syracuse to learn about approaches for improving production efficiency.

II. Growers will be invited to attend educational activities or receive newsletters that teach them how to implement an intensive preplant program consisting of soil testing, cover crop rotations, timely cultivation, and if appropriate, herbicide applications to reduce subsequent weed pressure. In addition, training in proper weed identification and the selection of tools to manage particular weeds will be provided. Twilight meetings will be held to permit growers to observe and/or incorporate new cultivation tools, cultivation timing or methods to reduce weed pressure (e.g. mulches) in established plantings.

III. Growers will be provided with new and/or improved tools for pest identification and with guidance on the selection of control measures for problem pests. On-farm demonstrations will be organized to showcases different nozzle configurations that contribute to better coverage and enhanced pest control. Assistance will be provided to growers in evaluating sprayers for proper calibration and existing coverage, and modifications made when necessary.

For more information

Please contact your local CCE office for more information and/or to register your small fruit or market garden operation to participate in this project.

MEET THE NEW BERRY EXTENSION SUPPORT SPECIALISTS FOR EASTERN AND WESTERN NEW YORK

Two Berry Extension Support Specialists have been hired as part of the new NYFVI project to assist berry growers throughout the state in increasing berry production efficiency. One regional specialist will cover the eastern part of the state, the other the western part of the state (Table 1).

Laura McDermott has been hired to fill the eastern NY position. She will be covering counties in the north-south corridor of the state. Laura will also be assisting the Northeastern New York Fruit Program and the Hudson Valley Fruit Team in their support of berry growers in counties covered by their programs. In addition to supporting these existing programs, Laura will help berry growers across her region with information on all aspects of berry production.

Previous to this appointment, Laura has been the Horticulture Resource Educator for Cornell Cooperative Extension in Washington County. In that position she worked with commercial vegetable farmers, nursery and greenhouse growers and the landscape industry. She also coordinated the consumer horticulture program for the county.
Laura's previous research projects included an examination of compost based mulches in an intensive vegetable plasticulture system and a Forest mushroom production study. She has coordinated field demonstrations on photodegradable and biodegradable mulch and worked on several Agricultural worker training programs.

Laura holds a masters degree in Fruit Crops from the University of Florida and a B.S. from Cornell University in Plant Protection. Laura lives in Hebron, NY with her husband John and their four children.

Laura's contact information:
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Cathy Heidenreich has been hired to fill the western NY position, covering counties in the east/west corridor of the state. She will also be assisting the Lake Ontario Fruit Team and the South Central Agriculture Program in their support of berry growers in counties covered by their programs.

Cathy previously served part-time as Extension Support Specialist in the Department of Horticulture at Cornell University, and as Research Support Specialist in the Department of Plant Pathology at the New York State Agricultural Experiment Station, Geneva.

She will continue to work part-time as a key resource person for berry crop production in New York State under the direction of Dr. Marvin Pritts. Her responsibilities include collaborating and providing leadership for certain statewide outreach activities involving faculty, regional specialists, extension educators, consultants, and grower organizations. She coordinates annual updates to Cornell Pest Management Guidelines and manages content for the recently updated berry pages on the Cornell Fruit Resources website found at http://www.hort.cornell.edu/extension/commercial/fruit/berry.html. Cathy currently serves as interim editor of the New York Berry News newsletter which may be found at http://www.nysaes.cornell.edu/pp/extension/tfabp/newslett.shtml. She also responds to requests for information from commercial growers, serves as liaison with grower organizations, and gives presentations at meetings, workshops and field days.

Cathy's previous research projects included a strawberry soil compaction survey with Dr. Marvin Pritts and a strawberry powdery mildew biology and epidemiology study with Drs. Bob Seem and David Gadoury of Geneva, and Dr. Arne Stensvand of Norway. Other areas of research included small fruit diseases, (including strawberries, brambles, blueberries, and ribes), tree fruit diseases, and fungicide testing with Drs Bill Turechek and Tom Burr of Geneva.

Cathy holds a masters degree in Forest Pathology/Mycology, from State University of New York, College of Environmental Science and Forestry, and is a graduate in Horticulture from the State University of New York, College of Agriculture and Technology at Morrisville. She also holds a BA in French and Spanish from the University of Rochester. Cathy is a native New Yorker from the Adirondack region of the state and resides in Lyons, New York with her husband Gregg and their family of cats.

Cathy's contact information: NYSAES Cornell University
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Table 1. Regional Coverage - Berry Extension Support Specialists

Western NY ESS (Cathy)	Lake Ontario Fruit Team	South Central Ag Program	Eastern NY ESS (Laura)	NE NY Fruit Program	Hudson Valley Fruit Team
Allegany	Monroe	Chemung	Delaware	Albany	Columbia
Broome	Niagara	Cortland	Franklin	Clinton	Dutchess
Cattaraugus	Orleans	Schuyler	Fulton	Essex	Orange
Cayuga	Wayne	Tioga	Greene	Saratoga	Rensselaer
Chautauqua		Tompkins	Hamilton	Washington	Ulster
Chenango			Herkimer		
Erie			Montgomery		
Genesee			Nassau		
Jefferson			Otsego		
Lewis			Putnam		
Livingston			Rockland		
Madison			Schenectady		
Oneida			Schoharie		
Onondaga			St. Lawrence		
Ontario			Suffolk		
Oswego			Sullivan		
Seneca			Warren		
Steuben			Westchester		
Wyoming			New York, Queens, Kings, Richmond, Bronx		
Yates					

FALL INTO GAPS

Betsy Bihn, GAPs Program Coordinator, Cornell University's College of Agriculture and Life Sciences, Department of Food Science, Ithaca, NY 14853

The cool temperatures are a good indication that fall is on its way with winter sure to follow. This is always a good time of year to review your farm food safety plan and make plans to implement new GAPs or modify practices that may need improving. Produce food safety is very important to your business and to the success of the produce industry. On September 17, 2007, Dole recalled its Heart's Delight Salad Mix due to *E. coli* contamination. This recall occurred just one year after the spinach outbreak in September 2006 and these are just a few of the outbreaks in leafy

greens. There have been other outbreaks in other commodities, so all fresh fruit and vegetable producers should have a farm food safety plan and be implementing GAPs.

For anyone who may be thinking of building a new packinghouse or renovating a building used for fresh produce packing, you may want to attend a sanitary design workshop that is being held in Ithaca, NY on October 15-17, 2007. You can view the flyer at the GAPs website under Events Calendar (http://www.gaps.cornell.edu/eventscalendar.html). This is a great workshop that will cover sanitary design and its importance to implementing the most effective and efficient food safety program in a packinghouse.

If you need more information about how to develop a farm food safety plan or have any questions, visit www.gaps.cornell.edu or contact me directly at (315) 787 2625.

BLUEBERRY SURVEY IS UNCOVERING VIRUSES IN NEW YORK

Juliet Carroll, NYS IPM Program, Geneva, NY 14456, jec3@cornell.edu

Strange virus-like symptoms troubling a blueberry planting in NY were associated with ToRSV, tomato ringspot virus, according to results from Agdia, Inc. tests. However, other plants with virus-like symptoms did not test positive. Marc Fuchs, virologist, and Kerik Cox, extension fruit pathologist, both Assistant Professors in Plant Pathology, Cornell, at NYSAES, Geneva, accompanied me back to the planting where we met with Molly Shaw, Extension Educator, Southern Tier Ag Program, and the grower to collect more samples and examine the planting.

Figure 1. Probable tomato spotted ringspot disease on blueberry cv. Patriot.

Characteristically, ToRSV spreads in a roughly circular pattern in blueberry fields. This was not the case in this planting where most plants of the variety "Patriot" are affected, some quite severely. Symptoms of tomato ringspot disease in blueberry are most severe in spring when temperature is cool. Even now, after the hot summer conditions, symptoms could be found on leaves (Figure 1). According to the Compendium for Blueberry and Cranberry Diseases, ToRSV has not been reported from New York blueberries.

Figure 2. Unknown virus-like symptoms on cv. Blue Crop.

Samples from this planting have been sent out to Robert Martin, USDA ARS, Corvallis, Oregon, for testing for other viruses that may be present (Figure 2). Soil samples were collected to check for the presence of the ToRSV nematode vector, *Xiphenema americanum*. Next month we will share our results. Stay tuned, and remember – purchase certified virus-free plants.

NEW YORK FARMS ON PAR WITH NATIONAL AVERAGE IN COMPUTER USAGE

William Blackson, New York National Agricultural Statistics Service (NASS, (518) 457-5570, nass-ny@nass.usda.gov, http://www.nass.usda.gov/ny .

August 15, 2007. A total of 63 percent of New York farms had access to a computer, unchanged from 2005, according to Stephen Ropel, Director of USDA's National Agricultural Statistics Service, New York Field Office.

The U.S. average was also 63 percent of farms have computer access, up from 59 percent in 2005. A total of 59 percent of New York farms now have access to the Internet, up from the 55 percent in 2005. This figure is 4 points above the U.S. average of 55 percent of farms with access to the internet. The U.S. average is up from 51 percent in 2005. Additional details of farm computer usage are available at our website at http://www.usda.gov/nass/.

Farm Computer Usage: Access, Ownership, and Use by State in Northeast Region, 2005 and 2006

State	Number of Farms	% Farms with computer access		% Farms that lease or own computers		% Farms using computers for farm business		% Farms with internet access	
	2006	2005	2006	2005	2006	2005	2006	2005	2006
NH 1/	27,950	78	78	76	75	52	50	65	67
NY	35,000	63	63	59	59	34	36	55	59
PA	58,200	55	62	53	58	27	29	47	55
U.S. 2/	2,089,790	59	63	55	59	32	35	51	55

1/ Includes CT, ME, MA, NH, RI, and VT.
2/ Excludes AK and HI.

NEW YORK BEGINNING FARM LOAN PROGRAM

New York State is making it easier for beginning farmers to acquire agricultural land and equipment by offering low-cost financing through the New York Beginning Farmer Loan Program (BFLP). Through the BFLP, beginning farmers can borrow up to $250,000 to help start a farming business or facilitate inter-generational transfer of a farm business. To obtain BFLP financing, the beginning farmer works with a Lender to arrange the terms of a loan. The interest rate is based on the applicant's credit rating, the type of loan, etc. The BFLP acts as a conduit by issuing and selling a tax-exempt bond (aggie-bond) to the lender with the funds being loaned to the farmer and the loan assigned back to the bank. With the loan being tax-exempt, the bank can give a better interest rate to the farmer, usually around 1 to 2 percentage points less than the usual taxable interest loan.

To be eligible for BFLP financing the Beginning Farmer must:

- Be engaged in farming or wish to engage in farming in NYS.
- Be a NYS resident at least 18 years old.
- Not have previously owned farmland with a value greater than $125,000 and acreage greater than 30% of the median farm size in the county where the parcel of land is located.
- Possess adequate education, training and experience in the type of farming to be financed
- Perform the farm labor or management, or delegate these duties to his or her spouse/fiancé and/or minor children.

The BFLP is administered by the NYS Environmental Facilities Corporation (EFC) in partnership with the NYS Department of Agriculture and Markets.

For more information on the BFLP, call 800.200.2200 (NYS). Visit www.nysefc.org and click on "Programs" and "Beginning Farmer", or e-mail beginningfarmer@nysefc.org.

JOHANNS OFFERS $1 MILLION TO DEFRAY COSTS OF ORGANIC CERTIFICATION FOR PRODUCERS IN 15 STATES

WASHINGTON, Aug. 29, 2007 - U.S. Department of Agriculture Secretary Mike Johanns today announced the availability of $1 million to defray annual organic certification costs in the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia and Wyoming. This funding is particularly important to smaller producers so that they can meet the voluntary uniform standards set forth by the National Organic Program regulations for the production of organic products that are to be labeled as "100 percent organic," "organic" or "made with organic ingredients."

"Without this assistance, many farmers wouldn't be able cover the costs of organic certification because the process is lengthy and costly," said Johanns. "In the 2007 Farm Bill proposal, the Administration recommends that this program be re-authorized and expanded to include all 50 states and permit producers and handlers to be eligible as well as increase the cost share reimbursement which will help small organic farmers meet these costs."

The Agricultural Management Assistance Program, authorized by the Federal Crop Insurance Act (7 U.S.C. 1524); will allocate funds to the 15 states in proportion to the number of organic producers in each state. The states, in turn, will reimburse each eligible producer for up to 75 percent of its organic certification costs, not to exceed $500. Each state is allowed to retain 4 percent of the total amount granted as an administration fee.

This program is in addition to and separate from the National Organic Certification Cost Share Program, which also is administered by USDA's Agricultural Marketing Service. The National program, part of the Farm Security and Rural Investment Act of 2002, received one-time funding of $5 million, which was obligated to participating states through cooperative agreements.

In order to be eligible for reimbursement, an organic production operation must be located within one of the 15 designated states, meet the USDA national organic standards for organic production, and have received certification or update of certification by a USDA-accredited certifying agent during the period of Oct. 1, 2007, through Sept. 30, 2008.
A notice announcing the program was published in the Aug. 29, 2007 Federal Register.
Applications by states for federal assistance and cooperative agreements must be requested from and submitted to: Robert Pooler, Agriculture Marketing Specialist, National Organic Program, USDA Stop 0268, Room 4008-S, 1400 Independence Ave., SW, Washington DC 20250-0268; tel. (202) 720-3252; fax (202) 205-7808.

Additional information about the National Organic Program is at www.ams.usda.gov/nop and the farm bill proposals are at www.usda.gov/farmbil.

GENETIC SURVEY FINDS ASSOCIATION BETWEEN HONEYBEE CCD AND VIRUS

Kim Kaplan, ARS News Service Agricultural Research Service, USDA (301) 504-1637, kim.kaplan@ars.usda.gov

WASHINGTON, Sept. 6--A team led by scientists from the U.S. Department of Agriculture's Agricultural Research Service (ARS), Pennsylvania State University (PSU), and Columbia University (CU) has found an association between colony collapse disorder (CCD) in honey bees and a honey bee virus called Israeli acute paralysis virus, according to a paper published in the journal Science this week.

ARS entomologist Jeffery S. Pettis, research leader of the agency's Bee Research Laboratory in Beltsville, Md.; Diana L. Cox-Foster, a professor in the PSU Department of Entomology; and W. Ian Lipkin, director of the Center for Infection and Immunity at the Columbia University Mailman School of Public Health, led the team that did genetic screening of honey bees collected from 30 colonies with CCD and 21 colonies with no CCD from four locations in the United States.

The genetic screening allowed the researchers to identify pathogens to which the sampled honey bees had been exposed. In total, the honey bees--both CCD and non-CCD honey bees--were found to harbor six symbiotic types of bacteria and eight bacterial groups, 81 fungi from four lineages, and seven viruses.

The search for potential pathogens was done using a new means of sequencing the genetic material from the healthy and unhealthy bees. This technology, termed high-throughput sequencing, allows for an unbiased look at DNA from all the organisms, bacteria, fungi and viruses present in the bees. Then the DNA sequences are searched against known genomic libraries for best matches. This gives a very precise picture of the organisms present, at least to the family or genus level. Often specific species can be identified, and unknown organisms--if present--can also be catalogued for further study. The sequencing work was led by Michael Egholm, vice president of 454 Life Sciences Corp. of Branford, Conn., followed by a large group effort to further identify specific groups of microorganisms.

The only pathogen found in almost all samples from honey bee colonies with CCD, but not in non-CCD colonies, was the Israeli acute paralysis virus (IAPV), a dicistrovirus that can be transmitted by the varroa mite. It was found in 96.1 percent of the CCD-bee samples.

This is the first report of IAPV in the United States. IAPV was initially identified in honey bee colonies in Israel in 2002, where the honey bees exhibited unusual behavior, such as twitching wings outside the hive and a loss of worker bee populations. IAPV has not yet been formally accepted as a separate species; it is a close relative of Kashmir bee virus, which has been previously found in the United States.

"This does not identify IAPV as the cause of CCD," said Pettis. "What we have found is strictly a strong correlation of the appearance of IAPV and CCD together. We have not proven a cause-and-effect connection."

Even if IAPV proves to be a cause of CCD, there may also be other contributing factors--which researchers are pursuing--that stress the bee colony and allow the virus to replicate.
The next step is exposing healthy hives to IAPV and seeing if CCD develops.

CCD became a matter of concern in the winter of 2006-2007 when some beekeepers began reporting losses of 30 to 90 percent of their hives. While colony losses are not unexpected during winter weather, the magnitude of loss suffered by some beekeepers was highly unusual.

The main symptom is finding no or a low number of adult honey bees present with no dead honey bees in the hive. Often there is still honey in the hive and immature bees (brood) are present.

Pollination is a critical element in agriculture, as honey bees pollinate more than 130 crops in the United States and add $15 billion in crop value annually. There were enough honey bees to provide pollination for U.S. agriculture this year, but beekeepers could face a serious problem next year and beyond if CCD becomes more widespread and no treatment is developed.

More information about CCD can be found at http://www.ars.usda.gov/is/br/ccd/.

ARS is the U.S. Department of Agriculture's chief scientific research agency.

NEW YORK FARM VIABILITY INSTITUTE APPLIED RESEARCH PARTNERSHIP GRANTS

The Applied Research Partnership program supports practical, on-farm research efforts that are designed to result in measurable, beneficial impacts to participating farms within the lifespan of the project. The New York Farm Viability Institute seeks proposals for projects of no more than two years in duration that work directly with agricultural producers.

Sectors of interest include, but are not limited to, field and horticultural crops, livestock, dairy, greenhouse, nursery, turf grass, equine, aquaculture and other agricultural enterprises. Proposals for up to $250,000 over the life of the project will be accepted from producer groups, researchers and educators at academic institutions, Cooperative Extension staff and other groups, agencies and businesses involved in research, development, technology adoption and business assistance in the agricultural sector. **Proposals are due October 1, 2007.**

Fore more information: **http://www.nyfarmviability.org/downloads.asp#Focus%20Opportunity%20Grant%20Program**

GOVERNOR SIGNS EXECUTIVE ORDER CREATING COUNCIL ON FOOD POLICY

Governor Eliot Spitzer today announced that he has signed an executive order establishing a New York State Council on Food Policy. The Council will coordinate state agriculture policy and make recommendations on developing food policy that will help ensure the availability of safe, fresh, nutritious and affordable food for all New Yorkers, especially low income residents, senior citizens and children. The Council will look at ways to increase sales of New York agricultural products to New York consumers, with a special emphasis on expanding the consumer market for organic food.

Ensuring that all New Yorkers have access to safe, fresh and nutritious food is a top priority that the Council on Food Policy will be addressing head-on, said Governor Spitzer. The Council will bring the public, producers and government together to explore ways in which we can improve
our existing food production and delivery systems, expand capacity, and in particular, address the critical needs of children and low-income New Yorkers. Additionally, by expanding the sale of locally grown products, we can help struggling farmers, and expand the local agriculture and state economy.

The New York State Council on Food Policy will include 21 representatives from all areas of the food system, including six agency heads. The State Agriculture Commissioner, Patrick Hooker, will serve as the Chairperson. He will be joined by the Commissioners of Health, Office of Temporary and Disability Assistance, Aging, Economic Development and the Consumer Protection Board. The other members will be appointed by the Governor and will include the Dean of the New York State College of Agriculture and Life Sciences; 1 farm organization representative; 1 school food administrator; 1 consumer representative; 2 food assistance organization representative; 1 nutritionist; 1 anti-hunger advocate; and 3 representatives from the food industry at large, which could include producers, distributors, processors or retailers with at least one involved in organic production. There will also be four appointed positions for members with experience and expertise related to agriculture, nutrition or food policy that will be recommended by the Temporary President of the Senate, the Speaker of the Assembly, the Minority Leader of the Senate, and the Minority Leader of the Assembly.

In addition to coordinating food policy, the Council will develop a strategic plan to ensure access to affordable, fresh, healthy, nutritious food and expand agricultural production, especially locally-grown and organically-grown food. The sale of organic food is an emerging market, with more than $13 billion spent on organic food in 2005 The Council will make recommendations to the Governor on state regulations, legislation and budget proposals in the area of food policy to ensure a coordinated and comprehensive inter-agency approach to state food policy issues. The Council will deliver a written annual report to the Governor.

Lieutenant Governor David A. Paterson said, "The overall health of our state will improve if we can make our eating habits healthier. The creation of the New York State Council on Food Policy demonstrates that government can work in partnership with communities and food producers to insure that all New Yorkers, particularly senior citizens, children, and those who struggle to afford healthy foods are aware of and have easy access to a nutritious, balanced diet."

New York State Agriculture Commissioner Patrick Hooker said, New York has 36,000 family farms that work day in and day out to produce an abundance of fresh, healthy and wholesome food for our 19 million consumers. I am honored to chair the Council on Food Policy and believe it will serve as a valuable forum in discussing the States complex, yet critical food system
for the benefit of consumers, farmers, processors, distributors and retailers.

Office of Temporary and Disability Assistance Commissioner David A. Hansell said, "The ability to obtain nutritious and affordable food is of particular importance to low-income families, who are stretching limited resources to meet food and other vital needs. In forming this Council, Governor Spitzer is ensuring that the needs of these families are considered and acted upon in the development of food policy in New York State."

New York State Health Commissioner Richard F. Daines, M.D., said, "Government decisions about food policy have driven consumers' eating habits for decades, but not always to the benefit of personal health. I appreciate Governor Spitzer's attention to these important issues that
affect the quality and longevity of people's lives, and look forward to working with the Council to help create better policies and healthier diets."

To view the executive order: (http://www.ny.gov/governor/executive_orders/exeorders/13.pdf)

THE PESTICIDE MANAGEMENT EDUCATION PROGRAM (PMEP) WEBSITE AT CORNELL UNIVERSITY

William G. Smith, Senior Extension Associate, Pesticide Management Education Program (PMEP)/Pesticide Sales and Use Reporting Database Group(PSUR), Department of Entomology, Cornell University, Ithaca, NY 14853

Where can you go to find out if a product is labeled for use in New York State, and on what crops? What about finding a NY State label for a particular product? Or section 18 uses of products, and the accompanying labels? Where can you get information on how to get a pesticide license? Which license do you need? What is required to get one? What courses are available to take for recertification credits for those who already have licenses? When and where may you attend them? All this and more is available from the Pest Management Education Program (PMEP) at Cornell University, and may be accessed from their web site.

The PMEP website, http://pmep.cce.cornell.edu/, promotes the safe use of pesticides for the applicator, the consumer, and the environment, and also serves as a pesticide information/education network for those interested in pesticides. Presently, there are 13 separate directories that a user can select subject matter from including a subscription to a dedicated listserv that delivers pesticide information to a designated email address. The most popular directories that users access most are:

1. Chemical Information
    - -Material Safety Data Sheets
    - -New York State pesticide product registration decisions
    - -Chemical information for specific pesticide active ingredients that also includes product registration letters posted from the NYS Department of Environmental Conservation

2. Pesticide Regulations, Registrations, and Reporting

-Databases that provide pesticide product registrations for New York State
-current products,
-archive products, and
-site-pest-product searches
-Pesticide sales and use reporting information for the New York State
- State and federal pesticide regulations

3. Pesticide Applicator Certification and Recertification

-This directory includes education/information resources for pesticide applicators that need to be certified/recertified to apply and purchase certain pesticides in New York State. It also includes the recertification training course database that lists the availability of recertification courses and credits that applicators need in order to be recertified.

4. Fact Sheets/Slide Sets/Self-Study Tutorial

-This directory contains fact sheets, slide sets and self-study tutorials relating to pesticide use and safety. A link to the Resource Center at Cornell University is also provided.

Other directories available from the PMEP website include:

-Pesticide Issues
-Pesticide Use Information-surveys and crop profiles
-IR-4 Minor Use Program (pesticide registrations for minor crops)
-Integrated Pest Management (IPM) Resources – (various web sites with IPM-related information)
-External Links (noteworthy sites containing pesticide-related information)

BERRY CROPS FALL CHECK-LISTS

Sonia Schloemann, UMass Extension, sgs@umext.umass.edu

STRAWBERRY

√ **General**: Flower bud initiation deep in the crown of the plants is happening now, determining next years' yield. So, maintaining good plant health into the fall is important. In addition to keeping up with the fertilizer program, suppressing leaf diseases improves the ability of the plant to carry on photosynthesis and store starch in the crowns. Don't let leaf spot or powdery mildew get ahead of you. Narrow the rows to about 12" and cultivate the alleys in fruiting fields and new plantings for the last time before mulching. Plant winter rye in plowed down fields as soon as possible in order to get good establishment and growth before winter.

√ **Nutrition**: Nitrogen fertilizer should be applied to bearing beds in early September to bring your seasonal total up to 100-120 lbs/acre. Most growers apply about 70-80 lbs of nitrogen on at renovation. The fall application should provide another 30-50 lbs (more on soils with low organic matter content). This stimulates good root growth in the fall and supplies nitrogen needed for flower bud initiation. New fields need to have a total of 80 - 100 lbs/acre of nitrogen with about 40 lbs applied in the fall. Ammonium nitrate (35% N) is a good fertilizer for the fall application. If your leaf tissue analysis shows deficiencies in magnesium or boron, early fall is a good time for foliar applications of Epsom salts (15lbs/100gal/acre for magnesium) and Solubor (3lbs/100gal/acre) for boron. Don't make these applications on hot humid days, however, or phytotoxicity could result. Read the labels.

√ **Weeds**: Weed management in the early fall is limited to cultivation and hand weeding/hoeing. The only herbicide you should consider using is Poast® for controlling grasses. Poast® will only work on relatively small grasses. Big clumps of crabgrass will have to be pulled by hand. However, quackgrass can be knocked down by cultivation or mowing and then treated with Poast® when new growth is less than 6" high. One note of caution; Poast®, which is used with a crop oil surfactant, can injure strawberry foliage in cold weather. I would recommend its use as a spot treatment at this time of year rather than a broadcast treatment of the whole field. Weed management later in the fall can include applications of preemergent materials such as Devrinol® and Sinbar®.

√ **Diseases**: Clean up severe infections of leaf spot and powdery mildew. Nova® and Pristine® may be good materials for this use. Healthy leaves are important at this time of year to supply the plant with the energy to produce flower buds for next year's crop and to store energy in the roots for the first flush of growth next spring. Apply Ridomil Gold®, Alliette® or Phostrol® in September or early October in areas where Red Stele has been identified. It is best to apply these

materials when the soil is beginning to cool but before heavy fall rains begin. This should not be considered an alternative to good site selection for strawberries.

√ **Insects**: Check fields for infestations of leafhopper or aphids. Generally, plants can take a fair amount of feeding by these insects, but heavy infestations can be a problem. And, aphids in particular, can vector virus diseases and should not be allowed to build up especially when they are in the winged form and can disperse to other fields.

RASPBERRY

√ **General**: Encourage hardening off of canes in summer bearing varieties of red and black raspberries and blackberries by avoiding nitrogen fertilizers and supplemental watering at this time. Do not remove spent floricanes until later in the winter unless they are significantly infected with disease. Fall bearing raspberries can still benefit from irrigation in dry weather to help maintain fruit size.

√ **Nutrition**: Based on soil and tissue test results, apply non-nitrogen containing fertilizers and lime as needed. For example, Sul-Po-Mag or Epsom Salts can be applied now so that fall rains can help wash it into the root zone for the plants.

√ **Weeds:** Now is a good time to do a weed survey and map of problem areas, so that you can use this information do develop an effective management strategy. A late fall application of Casoron® (dichlobenil) for pre-emergent control of broadleaf weeds next spring should be made only when temperatures are below 40°F, preferably just before rain or snow.

√ **Diseases**: Fall bearing raspberries can suffer fruit rot problems due to increased moisture present in the planting (more frequent precipitation, longer dew retention, longer nights) late in the growing season. The majority of this fruit-rot is *Botrytis cinerea*, gray mold. Captan 68 WDG **is** labeled for use on brambles. In addition Elevate®, Switch®, Pristine® are additional materials available for this use. Frequent harvesting and cull-harvesting are the best practices, but are expensive and impractical in many cases. Thinning canes in dense plantings can also help. Scout summer bearing brambles to look for powdery mildew and treat if necessary. See the *Cornell Pest Management Guidelines for Berry Crops* for recommended materials and rates. If Phytophthora root rot has been identified in a field, treat the affected area with Ridomil Gold®, Alliette®, or Phostrol® in September or early October. This timing is important to get the material in place in the root zone before the onset of cool wet weather (and soil) in the fall.

√ **Insects**: Now is the time to check plantings for crown borers. Adults of this pest look like very large yellow jacket, but is actually a moth. They are active in the field in August and September laying eggs. Scout the fields for crown borer damage by looking for wilting canes. This symptom can also indicate Phytophthora root rot, so when you find a plant with a wilting cane (or two), dig up the plant and check the roots for brick red discoloration in the core of the roots (Phytophthora) or the presence of crown borer larvae in the crown. Rogue out infested crowns and eliminate wild bramble near the planting, since they will harbor more of this pest.

BLUEBERRY

√ **General**: Blueberry plants should be encouraged to harden off for the winter. This means no nitrogen fertilizer at this time. Flag bushes that show premature reddening of leaves compared to others of the same variety. This can be an indicator of infection with virus or other pathogens. If you haven't done it already, make some notes on observations from this year that might be helpful in coming years (e.g., variety performance, sections of the field that did well or poorly, how well some practices worked, or didn't, etc.). Relying on memory isn't always accurate enough. Nothing can replace a detailed field history when trying to diagnose problems.

√ **Nutrition**: Hold off on any nitrogen fertilizers. Based on leaf tissue tests and soil tests, sulfur, lime, and some fertilizers can be added now. Apply these before fall rains begin and also before adding any supplemental mulch to the plants.

√ **Weeds**: As with other small fruit crops, now is a good time to do a weed survey and map the weed problems in your planting. This information will be very useful in tailoring your weed management plant so that is effective and not wasteful. A late fall application of Casoron® (dichlobenil) for pre-emergent control of broadleaf weeds next spring should be made only when temperatures are below 40°F, preferably just before rain or snow.

√ **Diseases**: Weak plants can easily be detected at this time of year because they tend to turn red earlier than healthy bushes. Upon finding weakened bushes, try to determine the reason for weakness. Is the root system damaged? If so, is it likely from a disease infection or root damage by voles or grubs? If the roots are healthy, could a crown borer (Dogwood borer) be the culprit? Or is stunt disease the cause? Or Scorch? Accurate diagnosis is the first step in resolving the problem and avoiding spread. Enlist the help of specialists if you have trouble determining the cause of problems. See the fact sheet on Blueberry Scorch at www.umass.edu/fruitadvisor for help diagnosing this disease.

√ **Insects**: The main worry now is for sharp-nosed leafhopper which is the vector for stunt disease (see article below). If you have determined that you have bushes infected with stunt disease in your planting, an application of malathion to the infected bushes and any immediately surrounding bushes should be made to control leafhoppers BEFORE removing the infected bushes. Failing to do this will likely cause the spread of the disease to clean bushes even after infected bushes have been removed. In eastern areas of the state, growers are concerned about infestations of Winter Moth. Go to www.umassgreeninfo.org/fact_sheets/defoliators/w m_id_man.html for more information on this alarming new pest. For now, growers should know that any moths seen flying in their plantings are likely NOT Winter Moth or Canker Worm moths. These moths do emerge and begin flight until November.

(Reprinted with permission from: UMASS Berry Notes, Vol. No. September 2007)

BOTRYTIS GRAY MOLD CONTROL IN FALL RASPBERRIES

Annemiek Schilder, Department of Plant Pathology, Michigan State University

Gray mold, caused by the fungus *Botrytis cinerea*, is one of the most important diseases affecting fall raspberries. Fall raspberries are usually at greater risk of infection than summer raspberries because of the prevailing weather conditions, such as lower temperatures, heavy dews and frequent precipitation.

Cool, wet weather and heavy rains in the late summer and fall that keep the plants wet for extended periods are conducive to development of the fungus and infection of the fruit.

Typical symptoms include a brown discoloration of the fruit and the presence of a gray fuzzy mold, which can rapidly develop and spread to neighboring healthy berries. Symptoms tend to be more severe inside the canopy and on clusters that are closer to the ground. Even if berries look perfectly healthy at harvest, they can change to a moldy mass within 24-48 hours. *Botrytis cinerea* is a ubiquitous fungus, which is able to grow and sporulate profusely on dead organic matter. It overwinters in old infected canes and plant debris. The spores are airborne and can travel long distances on the wind. When the spores land on plant surfaces, they germinate and can invade the plant tissues directly or through wounds. Overripe berries and bruised berries are particularly susceptible to infection. Latent flower infections are not as important in raspberries as they are in strawberries.

Cultural methods are very important for control of Botrytis gray mold. Choosing a site with good air flow can reduce humidity in the canopy considerably. Low density plantings, narrow rows and trellising can also reduce a buildup of humidity. Good weed control and moderate fertilizer use to avoid lush growth are also important. Selecting a resistant cultivar or, at the minimum, avoiding highly susceptible cultivars will help to reduce the need for control measures. During picking, avoid handling infected berries, since spores can be transferred on hands to healthy berries. Timely harvesting and rapid post-harvest cooling can also help to reduce losses to Botrytis gray mold. Several fungicides are labeled for control of Botrytis in raspberries. Fungicide sprays during bloom are important to prevent pre-harvest infections, while post-harvest infections can be reduced by sprays close to harvest. Switch (cyprodinil + fludioxonil) is a reduced-risk fungicide with excellent systemic and protectant activity against gray mold. It has a zero-day pre-harvest interval (PHI). Another good option is Elevate (fenhexamid), which is a reduced-risk, locally systemic fungicide with a zero-day PHI. Since these fungicides are in different chemical classes, they can be alternated for fungicide resistance management. My recommendation is to save Switch and Elevate for critical sprays, e.g., during wet periods and for sprays closer to harvest. Other fungicides that may be used in the spray program are Captevate (captan + fenhexamid) (3-day PHI), Pristine (pyraclostrobin + boscalid) (zero-day PHI), and Rovral (iprodione) (zero-day PHI). To improve the efficacy of Rovral, an adjuvant may need to be added. Pristine also provides excellent control of late leaf rust, which sometimes infects the leaves and fruit of fall raspberries.

(Editor's not: Product information has been edited from the original article to reflect product labeling in New York State. Reprinted with permission from: Michigan Fruit Crop Advisory Team Alert, Vol. 22, No. 16, August 21, 2007)

LEAFHOPPERS AND STUNT

Gary Pavlis, Rutgers University

Stunt disease of blueberry plants is caused by a mycoplasma-like (MLO) organism as previous stated. MLOs are microscopic organisms that have no definite shape, unlike uniformly shaped types of bacteria or viruses. The MLO of stunt disease live mostly in the transport tissues of the plant, primarily in the phloem. Leafhoppers of many species feed on plants by piercing the surface of leaves or stems and sucking juices from the phloem tissues. Any leafhopper feeding in the phloem of a stunt-infected blueberry plant has the potential to pick up some stunt MLO in its meal.

Fortunately, only one species of leafhopper is known to be able to harbor these Melos in its body and transmit them to other plants. This is the blueberry sharp-nosed leafhopper, *Scaphytopius magdalensis*. This leafhopper feeds and reproduces on a relatively wide range of blueberry cultivars and on the wild blueberry which grows nearly everywhere in the pinelands of New Jersey. Sharp-nosed leafhoppers are not pest unless the following steps are completed:

1) They must feed on stunt-infected plants.
2) They must move to healthy plants.
3) They must feed long enough to transmit the MLO to the plants.

Stunt disease will spread quickly if these three steps are favored by the particular situation in a blueberry field. Disrupting any of these steps to a sufficient degree can reduce the spread of stunt disease.

Of course, getting rid of all leafhoppers in an area would halt the spread of stunt disease. This is a very impractical solution, since the wild blueberry plants in our area provide for a large population of leafhoppers in the areas around our cultivated fields. We can't control the development of these populations, so we must defend our cultivated plantings from them. We do this with insecticide treatments, made during the periods when adult leafhoppers are active. Only adult leafhoppers have wings and the ability to move great distances, so these are the real pests in the stunt disease problem.

Pesticides can affect only the second and third steps of stunt disease spread listed above. Leafhoppers are either killed before they reach healthy plants or they die before feeding long enough to transmit the MLO to a new plant. Errors in detecting the presence of adult leafhoppers and problems with the timing of pesticide treatments make it difficult to achieve 100 percent stunt control by chemicals alone. This is why the roguing of disease bushes provides an important factor in stunt disease control. Stunted bushes are easy to find especially when symptoms become bold in the fall. Attacking the stunt disease transmission cycle at steps one, by the removal of infected plants, is both simple and very effective.

Remember that it is highly recommended to spray stunt-infected plants with a short residual insecticide like Sevin or Malathion before the plant is removed. This will keep any MLO carrying leafhoppers on the infected plant from dispersing to healthy plants when the infected bush is disturbed during removal.

Many growers have told me they have trouble identifying stunt. Plants with this disease are usually the first to turn red in the fall. This may help with identification.

(Reprinted with permission from: Blueberry Bulletin, Vol. 23, No. 22, August 27, 2007)

THE BEST IPM TOOL TO CARRY IS A MAGNIFIER

Why use a magnifier?

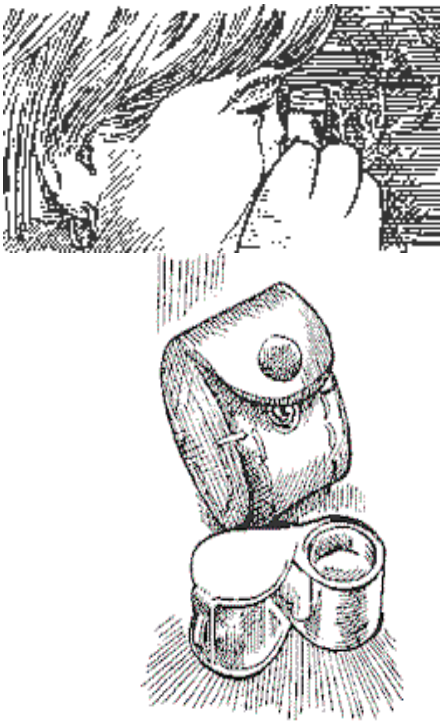
Visually inspecting your plants on a regular basis is an important component of an effective pest monitoring program. Careful, systematic inspections will help keep track of the health of your plants and identify any potential weed or pest problems. A magnifier is an important part of visual inspection. Magnifiers let you see small details that are helpful in identification of weeds and pests.

How do magnifiers work?

Magnifiers work by bending light rays to produce an image of the object that is larger than life. The more the surface of the lens is curved, the more the light is bent and the greater the magnification. The degree of magnification is then determined by the curvature of the lens surface. Greater curvature limits the lens size, which means that higher powered magnifiers are going to be smaller.

How is magnification expressed?

Magnification is expressed as "x." A 20x magnifier shows you an object 20 times larger than life. The lower the magnification, the greater the "depth of field" and "field of view", so be sure to choose the lowest magnification needed for your task. For example, at 2x you may be able to see an entire insect clearly, from the tips of its antennae down to its tarsi (toes).



A 10x magnifier is a good starting point for most pest scouting. At 10x, you'll see either antennae or tarsi in detail, but you won't see both at the same time.

Magnification	You can . . .
2 - 5x	Scan large areas for insects, eggs, mites, disease
6 - 10x	View details on larger insects and plant parts
11 - 25x	Identify insects and some eggs and mites
26 - 45x	Identify small insects, eggs, mites and many diseases
46x +	Identify most diseases, nematodes and other organisms barely visible or invisible to the naked eye

10x or less is a good choice to start with for most pest scouting. Once a pest is located, a larger power lens may come in handy. With practice and increasing skill in scouting, you will eventually want to equip yourself with a wider range of magnifiers to be able to complete nearly all of your sampling and identification tasks in the field.

What different types of magnifiers are there?

There are many forms of magnifiers; loupes, linen testers, watchmaker's loupes, aspheric, lighted, folding pocket, etc. One style is not necessarily better than another. It depends on the style of magnifier you feel comfortable using.

What are the different types of lens systems?

When using magnifiers, be aware of distortion, and chromatic or spherical aberration errors that can occur. Distortion is a defect in a lens where images of straight lines appear curved. Chromatic aberration errors are when the lens cannot focus light of different colors at a single point, causing a blue-red image. Spherical aberration errors cause rays to focus at

Spaced Doublet (Double Lens Magnifier) Achieves limited correction.

different distances.

Different types of lens systems offer varying levels of correction for these problems. The simplest type of lens is the single aspheric lens. This lens is designed for small powered magnification because it is one lens. The lens has a series of different curves on the surface for sharper focus over the entire surface.

Spaced Doublet is two lenses with air space in between them. This lens system is inexpensive, but does not offer much distortion or color correction.

Coddington Lens are made of a single lens with a grooved diaphragm around the circumference. This groove allows for sharp images at higher magnifications.

Cemented Triplet is the last type of lens, also called a **Hastings**. The Hastings lens is three lenses cemented together, providing the sharpest color-corrected image.

Consists of 2 plano-convex lenses with air space in between.

Cemented Triplet (Hastings magnifier) Two concave elements cemented to a double convex element. Two kinds of glass are used.

Coddington Single lens with a groove diaphragm around its circumference. The thickness of the lens aids correction.

Dos and Don'ts of Using Magnifiers	
Do:	**Don't**
• Use the proper technique in using a magnifier. • Select the proper magnification for the job. • Know how to select a lens system for your needs.	• Think all lenses are the same. • Only use the largest magnification. • Forget to visually inspect your plants.

Hands-free Magnifier Reduces Eye Strain

Have you experienced headaches or eye strain after extensive monitoring for small insects or plant diseases? Does the use of a hand lens during scouting make it difficult to manipulate samples with your hands? Repetitive sampling and scouting are key components of IPM. But juggling a hand lens in addition to a sample can be inconvenient and time consuming. One solution that allows you the freedom to work with your hands plus reduce eye strain is the OptiVisor® magnifier. With a magnification power of 3.5x and a focal distance of four inches, the OptiVisor® is a good tool for scanning large areas for insects, eggs, mites and plant disease.

The OptiVisor®, a hands-free magnifier with 3.5x magnification power, is a good tool for scanning large areas without getting eye strain.

The OptiVisor® is mounted to an adjustable headband and can be tilted up when you're not using it. An optional OptiLoupe, an attachable lens that adds 2.5x power to one eye, is also available. This combination creates a powerful monitoring tool. You can scan large areas with the OptiVisor®, and then swing the OptiLoupe into place to "zoom in" when more detailed examination is necessary.

When selecting a magnifier, keep in mind that:

- Magnification power is described as "x". For example, the OptiVisor® is rated at 3.5x. That lets you observe an object 3.5 times larger than life.
- Your viewing area decreases in size as magnification power increases.

For more information on these products, please contact GEMPLER'S Technical Service Department by phone at 1-800-874-4755, or E-mail at techserv@gemplers.com.
(This tech fact sheet, located on line at (http://www.gemplers.com/pages/tech/ibesttool.aspx was reprinted with permission from Gemplers (http://www.gemplers.com). Our thanks to Gemplers for allowing us to reprint this information in the NYBN.)

JAPANESE BEETLE MANAGEMENT FOR ORGANIC FRUIT FARMS

Mary Barbercheck and Elsa Sánchez, Penn State University Departments of Entomology and Horticulture, respectively

Japanese beetles were out in force this year. Several growers noted this and we also had larger than typical populations at the research farm. In fact, they were found feeding on strawberries in our day-neutral plots. That's the first time we've seen that! If you're thinking about next year, below are some options for Japanese beetle management.

Both adult Japanese beetle adults and the soil-dwelling larvae (white grubs) can be destructive plant pests. Knowing the life cycle of Japanese beetle can help with understanding how to manage this pest. The mobile adult beetles feed on the foliage and fruits of several hundred species of fruit trees, ornamental trees, shrubs, vines, and field and vegetable crops. The larvae (grubs) develop in the soil, feeding on the roots of various plants and grasses and in high numbers can damage turf and pastures. Because adults and larvae live and feed in two different environments, management of each stage is quite different. A good IPM program incorporates a diversity of control tactics – cultural, physical, biological, and when necessary, appropriate chemical controls – for vulnerable life stages of a pest.

The adults are present and feed and reproduce in early to mid-summer. During the feeding period, females intermittently leave plants, burrow about 3 inches into the ground – usually into sod or pasture – and lay a few eggs. This cycle is repeated until the female lays 40 to 60 eggs. By mid- to late summer, the eggs hatch, and the young grubs begin to feed in the soil. Each grub is about an inch long when fully grown and lies in a curled C-shaped position. In autumn, the grubs burrow 4 to 8 inches into the soil and remain inactive all winter. This insect spends about 10 months of the year in the ground in the larval stage. In early spring, the grubs move towards the soil surface and feed on grass roots until late spring, when they develop into pupae. Development of adults from the pupal stage takes about 2 weeks, after which time adults emerge from the ground. This life cycle takes a year.

Japanese beetle flight is greatest on clear days with temperatures between 84° and 95° F and winds less than 12 miles per hour. Arrival of new beetles into a field can challenge any control program. When these weather conditions exist, check plants frequently for new arrivals. A few beetles on plants or moderate damage will attract more beetles because they produce aggregation pheromones that will attract others to feed and mate. Also, volatile odors from damaged plants may attract more beetles and keep numbers high. Keeping numbers and damage low can result in fewer new arrivals.

Management of adults:
Cultural options:
Hand Picking: If you have only a few plants to protect, pick off the first adults that arrive and destroy these scouts that attract additional pests. Adults are less active in the early morning or late evening. They can be destroyed by dropping into a container of soapy water.

Plant selection: Plant non-attractive plants or remove attractive plants from borders of vulnerable crop area. Japanese beetles are highly attracted to plants in the apple (*Malus* spp., *Prunus* spp., *Rubus* spp.) family. They are also attracted to wild grape, Virginia creeper, linden and sassafras. Removing attractive non-crop species from the areas around your fields

may help with management of adults. The adults do not like to feed on ageratum, arborvitae, ash, baby's breath, garden balsam, begonia, bleeding heart, boxwood, buttercups, caladium, carnations, Chinese lantern, cockscomb, columbine, coral bells, coralberry, coreopsis, cornflower, daisies, dogwood (flowering), dusty-miller, euonymus, false cypresses, firs, forget-me-not, forsythia, foxglove, hemlock, hollies, hydrangeas, junipers, kale (ornamental), lilacs, lilies, magnolias, maple (red or silver only), mulberry, nasturtium, oaks (red and white only), pines, poppies, snapdragon, snowberry, speedwell, sweet pea, sweet-William, tulip tree, violets and pansy, or yews (taxus). Having a well-dispersed mixture that favors non-preferred species can reduce the level of beetle-caused damage.

Ripe and damaged fruit removal: Adult Japanese beetles are attracted to ripe fruit; therefore, harvesting on a tight schedule as well as harvesting all ripe fruit helps manage this pest. Diseased and poorly nourished trees and plants are especially susceptible to attack by beetles. Therefore, keep your plants healthy. Also, prematurely ripening or diseased fruit is very attractive to beetles. Remove this fruit from the plants and the ground. The odor of such fruit will attract beetles, which are then in a position to attack sound fruit.

Physical options:
Row covers: Row covers may be appropriate for some high value, susceptible crops where larval populations do not exist or have been controlled.

Traps: Traps for adult Japanese beetles are commercially available. Under favorable conditions, a trap will capture only about 75% of the beetles that approach it. Traps operate primarily with a combination of a pheromone, or sex attractant and a floral lure to attract male and female adult beetles to the trap. Adult beetles can fly long distances, so those caught in traps may have come from up to a mile away. Traps are not recommended for general use unless special conditions can be met. Traps have been demonstrated to be effective in reducing damage and populations only when landscapes are isolated from other Japanese beetle breeding areas or when mass trapping (everyone in the area) is used. In most areas, traps tend to attract more beetles into the area than would normally be present. If you use traps, be sure **not** to put traps near your fruit crops or susceptible plants. Put them at the borders of your property, away from plants the beetles may damage.

Biological Control:
Japanese beetles are an invasive pest from Asia that entered the US without the parasites that keep it under control in its native lands. Two parasites of the Japanese beetle have been brought to the US from Asia. Researchers have established these insects in areas inhabited by the Japanese beetle, and the parasites are now functioning as important biological control agents of the beetle. These parasites are not yet commercially available; however, you can contact your local Extension educator to see if they are established in your area. If they are, planting the appropriate food plants will attract these parasites and increase the rates of parasitism, and help control the Japanese beetle on your property.

Parasites: Tiphia vernalis, a parasite of the Japanese beetle grub, and *Istocheta aldrichi*, a parasite of the adult, have been shown to be important in regulating the population dynamics of the beetle in the NE US. The fly, *Istocheta aldrichi,* is an internal parasite of the adult Japanese beetle. The female flies are capable of depositing up to 100 eggs during a period of about 2 weeks. The eggs are usually laid on the thorax of the female beetles. Upon hatching, the maggot bores directly into the beetle's body cavity, killing the beetle. Because it does not take this fly long to kill the beetle, *I. aldrichi* can suppress Japanese beetle populations before beetles can reproduce. Another food source for *I. aldrichi* is aphid nectar deposited on Japanese knotweed (*Polygonum cuspidatum*), a persistent perennial weed native to Japan.

Chemical control:
Pyganic targets adults and is listed as a restricted product by OMRI (Organic Materials Review Institute) and can be used if other methods provide inadequate control.

Kaolin clay particle film (e.g., Surround) acts as a repellent by creating an unsuitable surface for adult feeding, and the white color may disrupt the insect's host-finding ability. Particles of kaolin act as an irritant to the insect. After landing on a treated surface, particles of kaolin attach to the insect's body and trigger an excessive grooming response that distracts the pest from feeding. Apply Surround a soon as beetles begin to emerge. Kaolin clay, especially when applied later in the season, may not be a good option for managing Japanese beetles on fruit for direct markets. The whitish coating left on fruit may discourage buyers. Informing consumers about kaolin clay may be necessary to promote sales. Washing the fruit, particularly small fruit, prior to marketing can promote postharvest disease development and decrease shelf-life.

As always, contact your certifier to verify that using any product will not compromise your certification.

Management of soil-dwelling larvae:
Cultural options:
Removal of sod cover between rows: A survey in Michigan revealed farms using cultivation between rows had Japanese beetle larvae populations 72% lower compared to farms with sodded row middles. A study conducted in Michigan verified these results; cultivation of row middles in the spring and fall reduced Japanese beetle populations over 50%. Incorporation of cover crops and green manures into a rotation can help maintain soil quality, increase soil fertility, suppress weeds, prevent soil erosion and conserve soil moisture. Some growers are placing shredded bark mulch peat moss, straw, or similar material or landscape fabric between rows; although, this can be costly on a large scale.

Biological controls:
Nematodes: Insecticidal nematodes are microscopic insect-parasitic roundworms that actively seek out grubs in the soil. Upon infecting a grub, the nematode progresses through its own life cycle, reproducing and ultimately killing the grub. When the resources inside the nematode-killed grub are used up, the nematodes leave the cadaver to seek new host insects. The two nematodes that are most effective against Japanese beetle grubs are *Steinernema glaseri* and *Heterorhabditis bacteriophora*. The latter is commercially available. More information on using insect-parasitic nematodes can be found at http://www.ento.psu.edu/extension/factsheets/nematode.htm.

When using nematodes (and any biological control), remember they are alive and should be ordered when needed and used in a timely fashion. They should also be protected from high temperatures and direct sunlight until used.

Bacteria: Milky spore is a bacterium that is applied to the soil to kill larvae. It is costly; although, at least one grower mentioned finding it in commercial quantities, therefore, making it more economical. When grubs eat spores in the soil, spores germinate in the grub's gut, and enter the blood, where they multiply. The buildup of spores in the blood causes the grub to take on a characteristic milky appearance. Milky spore disease builds up in soil slowly (over 2-4 years) as grubs ingest the spores, become infected, and die, each releasing 1-2 billion spores back into the soil. Milky spore disease can suppress the development of large beetle populations. It works best when applied in community-wide treatment programs. Check with your Extension educator regarding the availability of milky spore material.

Bacillus thuringiensis (Bt) var. *BuiBui is* a naturally occurring soil bacterium typically used as a microbial insecticide. The Bt strain registered for the Japanese beetle is for use on the grub stage only. Bt is a stomach poison and must be ingested to be effective. Apply it to the soil as you would insecticides. Effectiveness is similar to that of insecticides. Check with your Extension educator regarding the availability of *Bt* var. *BuiBui*.

Parasites: Tiphia vernalis is a small, parasitic wasp of Japanese beetle grubs resembling a large, black, winged ant. Its current distribution is believed to be throughout the NE US and south to North Carolina. After a brief period of feeding and mating during the spring, the female wasp digs into the soil, paralyzes a grub by stinging, and then deposits an egg on the grub. When the egg hatches, the emerging wasp larva consumes the grub. Other food sources for adult wasps of this species include the honeydew of aphids associated with the leaves of maple, cherry, and elm trees and peonies. In North Carolina, the nectar of tulip poplars has been found to be an important food source for the adult wasps.

(Reprinted from: Penn State Vegetable and Small Fruit Gazette, Vol. 11, No. 9, September 2007.)

WEATHER NOTES

NEW YORK CROP WEATHER SERVICE NOTES

Week ending August 19th: The week was dominated by a series of relatively fast moving frontal systems, moving from west to east across the state. Despite frequent frontal passages, temperatures averaged near to slightly above normal for the week, although temperatures fell to below normal levels by the 18th. Precipitation generally averaged below normal, except for southeast New York and Long Island where precipitation averaged near to above normal, as showers and embedded thunderstorms associated with the frontal systems lingered a bit longer.

Week ending August 26th: Most of the beginning of this period was dominated by high pressure with cooler than normal temperatures and little in the way of precipitation. In fact, temperatures were generally in the 60's-70 near New York City for high temperatures. This changed rather abruptly by the end of the week with a strong warm front lifting northward. This brought back the heat and humidity to the state with scattered thunderstorms and some accompanied by locally heavy rainfall. Temperatures quickly climbed back toward the 90 degree and above with high humidity values. In the Finger Lakes fruit region, the long term average date for reaching 1898 degree days in 2006 was August 19th. This was reached 6 days earlier in 2007.

Week ending September 2nd: Most of this time period was dominated by high pressure with a couple of fronts that provided changes to temperatures and scattered showers and thunderstorms. The first front was progressing through the region Sunday, August 26th. The next front approached Thursday with additional shower and thunderstorm activity. In fact, the air mass ahead of this front was quite warm and humid which resulted in the highest temperatures for this week. A few residual showers were around on Friday, mainly southeast New York State, then the start of the holiday weekend was dominated by high pressure and pleasant temperatures and humidity levels. For the average of this past week, temperatures were at or above normal with precipitation below normal.

Week ending September 9th: Temperatures averaged about 5 degrees above normal with precipitation below normal most areas except along the western and eastern plateau and Great Lakes Climatic Divisions where precipitation was at or above normal as a result of thunderstorms which occurred on Friday night and Saturday. The week started out dry and warm on Sunday and Monday with high pressure across the state. A cold front swept through the state late Monday and Monday night which was followed by dry and seasonable temperatures on Tuesday and Wednesday as high pressure built back across the state. The high pressure system moved east off the Atlantic coast on Thursday setting up a return flow of warmer and increasingly more humid air from Thursday through Saturday with temperatures topping 90 degrees in some areas on Friday and Saturday. Thunderstorms developed out ahead of a cold front which moved into the state on Saturday and produced locally heavy rainfall with a few locations receiving several inches of rain mainly across western and southern portions of the state.

Week ending September 16th: Temperatures averaged near normal with precipitation above normal in most areas. The week started out wet and cool in most areas on Sunday into early Monday as low pressure tracked east along a stationary front draped across southeast New York State. Another low pressure system moved east from the eastern Great Lakes dragging a cold front through the state late Tuesday bringing more rain to the state. High pressure built into the region on Wednesday and Thursday with dry weather lasting into Friday and temperatures moderating each day. A strong cold front swept through the state late Friday night and early Saturday bringing more rain and very cool air to the state.

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www.nysaes.cornell.edu/pp/extension/tfabp

WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, August 19th, 2007

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	***Low***	***Avg***	***DFN[1]***	***Week***	***YTD[2]***	***DFN***	***Week***	***DFN***	***YTD***	***DFN***
Hudson Valley											
Albany	86	48	69	-1	137	2059	201	0.07	-0.75	21.48	6.14
Glens Falls	85	47	66	-2	115	1693	65	0.15	-0.69	14.75	-0.18
Poughkeepsie	89	52	71	1	151	2212	271	0.55	-0.25	22.28	4.47
Mohawk Valley											
Utica	82	44	63	-2	93	1370	88	0.21	-0.90	16.24	-4.25
Champlain Valley											
Plattsburgh	90	43	66	-3	111	1593	-63	0.51	-0.47	17.01	2.70
St. Lawrence Valley											
Canton	85	46	65	-2	106	1628	148	0.53	-0.44	15.73	0.75
Massena	87	43	64	-3	102	1683	119	0.46	-0.38	14.51	0.79
Great Lakes											
Buffalo	85	53	70	1	141	2049	276	0.14	-0.84	9.16	-5.98
Colden	84	47	65	-2	105	1544	102	0.57	-0.35	11.62	-5.85
Niagara Falls	85	50	69	-1	132	1983	201	0.32	-0.59	9.94	-4.70
Rochester	90	51	69	2	138	2087	370	0.07	-0.70	8.72	-4.36
Watertown	84	44	66	-2	115	1665	170	0.21	-0.55	9.10	-2.60
Central Lakes											
Dansville	89	47	67	-2	122	1816	91	1.18	0.46	11.25	-3.21
Geneva	89	47	68	-1	130	1867	157	0.32	-0.38	10.96	-3.42
Honeoye	91	45	66	-4	114	1719	-60	0.58	-0.16	13.32	-0.89
Ithaca	87	45	66	-2	114	1678	127	0.34	-0.43	14.00	-1.53
Penn Yan	91	49	69	0	133	2022	312	0.35	-0.35	11.28	-3.10
Syracuse	89	47	69	1	133	1989	248	0.59	-0.18	13.41	-2.90
Warsaw	86	46	65	1	109	1548	207	0.31	-0.57	14.66	-2.19
Western Plateau											
Alfred	85	42	63	-2	95	1346	25	0.16	-0.64	13.62	-2.56
Elmira	89	46	69	-2	118	1787	145	0.06	-0.61	12.11	-2.76
Franklinville	83	42	65	0	97	1414	205	0.32	-0.59	13.12	-3.94
Sinclairville	84	44	66	0	110	1578	220	0.08	-0.93	16.59	-2.39
Eastern Plateau											
Binghamton	86	49	69	0	123	1832	237	0.01	-0.76	16.06	0.43
Cobleskill	83	46	63	-4	96	1593	111	0.24	-0.53	21.23	4.50
Morrisville	85	46	65	-1	108	1531	118	0.51	-0.28	17.00	0.46
Norwich	85	45	65	-3	103	1580	96	1.28	0.51	19.64	3.04
Oneonta	89	46	69	3	123	1905	533	0.42	-0.42	20.07	1.89
Coastal											
Bridgehampton	86	55	72	1	154	2023	250	0.17	-0.60	17.34	0.93
New York	89	62	79	4	203	2850	449	0.80	-0.04	30.18	12.62

1. *D*eparture *from N*ormal
2. *Y*ear *to D*ate: Season accumulations are for April 1st to date

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WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, August 26th, 2007

	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	51	69	1	133	2192	205	0.10	-0.68	21.58	5.46
Glens Falls	91	39	66	-1	113	1806	65	0.63	-0.21	15.38	-0.39
Poughkeepsie	93	56	68	-2	130	2342	264	1.06	0.29	23.34	4.76
Mohawk Valley											
Utica	85	43	62	-2	83	1453	81	0.77	-0.41	17.01	-4.66
Champlain Valley											
Plattsburgh	94	39	65	-1	109	1702	-65	0.43	-0.53	17.44	2.17
St. Lawrence Valley											
Canton	85	38	66	1	111	1743	159	0.59	-0.39	16.32	0.36
Massena	85	38	64	-2	103	1786	116	0.48	-0.38	14.99	0.41
Great Lakes											
Buffalo	86	59	71	4	148	2197	300	0.91	-0.07	10.07	-6.05
Colden	87	52	68	4	126	1670	124	1.34	0.35	12.96	-5.50
Niagara Falls	89	54	70	3	141	2124	218	0.22	-0.69	10.16	-5.39
Rochester	93	59	71	5	150	2237	402	0.36	-0.45	9.08	-4.81
Watertown	86	42	69	4	132	1797	193	0.38	-0.43	9.48	-3.03
Central Lakes											
Dansville	92	52	69	3	137	1953	106	0.96	-0.19	12.21	-3.02
Geneva	91	53	68	0	126	1993	161	0.71	-0.03	11.67	-3.45
Honeoye	91	52	68	-1	126	1845	-63	1.91	1.14	15.23	-0.25
Ithaca	93	48	67	2	120	1798	137	1.07	0.30	15.07	-1.23
Penn Yan	92	54	70	3	139	2161	329	0.99	0.25	12.27	-2.85
Syracuse	92	51	69	3	137	2126	264	0.84	0.03	14.25	-2.87
Warsaw	88	51	66	4	117	1665	229	1.09	0.18	15.75	-2.01
Western Plateau											
Alfred	87	49	64	2	103	1449	33	1.24	0.40	14.86	-2.16
Elmira	93	51	68	2	127	1914	157	1.03	0.33	13.14	-2.43
Franklinville	87	53	65	4	110	1524	227	1.59	0.68	14.71	-3.26
Sinclairville	88	55	67	3	118	1696	240	1.93	0.88	18.52	-1.51
Eastern Plateau											
Binghamton	91	52	67	2	118	1950	243	0.88	0.11	16.94	0.54
Cobleskill	87	36	62	-4	83	1676	88	0.28	-0.53	21.51	3.97
Morrisville	87	47	64	-2	98	1629	115	0.53	-0.31	17.53	0.15
Norwich	91	44	65	0	107	1687	97	0.74	-0.04	20.38	3.00
Oneonta	92	46	68	5	127	2032	564	0.43	-0.41	20.50	1.48
Coastal											
Bridgehampton	83	54	69	-3	132	2155	240	0.76	-0.06	18.10	-0.87
New York	91	58	71	-4	150	3000	428	1.31	0.47	31.49	13.09

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WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, September 2nd, 2007

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	***Low***	***Avg***	***DFN*[1]**	***Week***	***YTD*[2]**	***DFN***	***Week***	***DFN***	***YTD***	***DFN***
Hudson Valley											
Albany	90	46	70	4	143	2335	234	0.62	-0.15	22.20	5.31
Glens Falls	88	37	65	2	109	1915	76	0.43	-0.39	15.81	-0.78
Poughkeepsie	90	48	71	4	149	2491	290	0.00	-0.83	23.34	3.93
Mohawk Valley											
Utica	82	42	64	4	99	1552	103	0.05	-1.20	17.06	-5.86
Champlain Valley											
Plattsburgh	87	39	65	1	104	1806	-59	0.20	-0.69	17.64	1.48
St. Lawrence Valley											
Canton	89	38	63	0	94	1837	162	0.04	-0.94	16.36	-0.58
Massena	87	38	63	-1	90	1876	115	0.06	-0.85	15.05	-0.44
Great Lakes											
Buffalo	88	49	69	4	137	2334	322	0.00	-0.95	10.07	-7.00
Colden	86	41	64	1	100	1770	130	0.01	-1.05	12.97	-6.55
Niagara Falls	90	45	69	3	133	2257	238	0.00	-0.94	10.16	-6.33
Rochester	92	46	68	3	129	2366	422	0.00	-0.77	9.08	-5.58
Watertown	87	38	64	1	104	1901	200	0.04	-0.80	9.52	-3.83
Central Lakes											
Dansville	93	42	67	2	121	2074	116	0.03	-0.74	12.24	-3.76
Geneva	90	44	67	2	119	2112	170	0.02	-0.75	11.69	-4.20
Honeoye	92	37	65	-3	105	1950	-76	0.05	-0.72	15.28	-0.47
Ithaca	87	39	65	1	106	1904	143	0.00	-0.82	15.07	-2.05
Penn Yan	88	46	68	3	126	2287	345	0.03	-0.74	12.30	-3.59
Syracuse	90	47	68	3	126	2252	280	0.01	-0.83	14.26	-3.70
Warsaw	88	43	66	4	112	1777	258	0.06	-0.89	15.81	-2.90
Western Plateau											
Alfred	85	35	62	-2	82	1531	32	0.03	-0.81	14.89	-2.97
Elmira	89	36	66	1	111	2025	164	0.01	-0.69	13.15	-3.12
Franklinville	85	40	63	2	91	1615	241	0.00	-0.95	14.71	-4.21
Sinclairville	86	41	65	3	105	1801	257	0.00	-1.10	18.52	-2.61
Eastern Plateau											
Binghamton	84	47	68	4	126	2076	269	0.00	-0.77	16.94	-0.23
Cobleskill	84	45	66	3	112	1785	103	0.01	-0.83	21.52	3.14
Morrisville	82	42	65	2	105	1732	130	0.08	-0.81	17.61	-0.66
Norwich	86	44	67	3	118	1805	121	0.00	-0.84	20.38	2.16
Oneonta	92	44	69	8	136	2168	615	0.00	-0.84	20.50	0.64
Coastal											
Bridgehampton	85	55	71	3	146	2301	256	0.00	-0.84	18.10	0.03
New York	86	63	77	4	187	3187	455	0.00	-0.84	31.49	12.25

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WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, September 9th, 2007

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	***Low***	***Avg***	***DFN[1]***	***Week***	***YTD[2]***	***DFN***	***Week***	***DFN***	***YTD***	***DFN***
Hudson Valley											
Albany	90	47	71	7	148	2483	282	0.21	-0.52	22.41	4.79
Glens Falls	89	39	67	6	121	2036	113	0.03	-0.74	15.84	-1.52
Poughkeepsie	92	53	72	7	156	2647	337	0.59	-0.25	23.93	3.68
Mohawk Valley											
Utica	87	44	65	6	105	1657	145	0.37	-0.94	17.43	-6.80
Champlain Valley											
Plattsburgh	91	47	68	7	129	1935	-14	0.15	-0.66	17.79	0.82
St. Lawrence											
Canton	92	39	67	6	120	1957	206	0.10	-0.86	16.46	-1.44
Massena	92	38	66	6	118	1994	156	0.06	-0.79	15.11	-1.23
Great Lakes											
Buffalo	92	56	75	10	173	2507	393	0.48	-0.41	10.55	-7.41
Colden	90	43	69	8	136	1906	185	0.53	-0.59	13.50	-7.14
Niagara Falls	92	54	73	9	166	2423	303	0.56	-0.35	10.72	-6.68
Rochester	95	54	73	9	163	2529	486	0.93	0.17	10.01	-5.41
Watertown	95	41	69	8	134	2035	251	0.05	-0.77	9.57	-4.60
Central Lakes											
Dansville	94	42	71	7	148	2222	165	0.11	-0.72	12.35	-4.48
Geneva	95	51	72	8	152	2264	224	0.08	-0.69	11.77	-4.89
Honeoye	93	46	70	6	143	2093	-39	0.10	-0.67	15.38	-1.14
Ithaca	92	47	70	8	141	2045	197	1.50	0.66	16.57	-1.39
Penn Yan	94	54	74	10	167	2454	414	0.40	-0.37	12.70	-3.96
Syracuse	95	53	73	10	165	2417	346	0.11	-0.80	14.37	-4.50
Warsaw	89	45	69	10	137	1914	324	0.32	-0.66	16.13	-3.56
Western Plateau											
Alfred	88	36	68	8	126	1657	88	0.38	-0.46	15.27	-3.43
Elmira	92	47	71	8	150	2175	223	2.15	1.43	15.30	-1.69
Franklinville	89	47	68	9	129	1744	304	0.37	-0.61	15.08	-4.82
Sinclairville	89	41	69	8	131	1932	312	0.52	-0.60	19.04	-3.21
Eastern Plateau											
Binghamton	90	55	72	10	158	2234	340	0.91	0.11	17.85	-0.12
Cobleskill	91		62	1	96	1881	118	0.09	-0.81	21.61	2.33
Morrisville	85	45	67	7	124	1856	178	0.50	-0.41	18.11	-1.07
Norwich	89	43	68	6	124	1929	164	0.20	-0.69	20.58	1.47
Oneonta	96	44	71	12	150	2318	694	0.26	-0.58	20.76	0.06
Coastal											
Bridgehamton	83	51	70	4	141	2442	279	0.00	-0.84	18.10	-0.81
New York	90	67	78	7	197	3384	504	0.00	-0.84	31.49	11.41

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WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, September 16th, 2007

	Temperature				Growing Degree Days (*Base 50*)			Precipitation (*inches*)			
	High	***Low***	***Avg***	***DFN[1]***	***Week***	***YTD[2]***	***DFN***	***Week***	***DFN***	***YTD***	***DFN***
Hudson Valley											
Albany	73	42	61	-2	77	2560	275	2.25	1.55	24.66	6.34
Glens Falls	73	34	58	-3	58	2094	102	1.50	0.78	17.34	-0.74
Poughkeepsie	84	41	64	2	106	2753	350	1.44	0.63	25.37	4.31
Mohawk Valley											
Utica	68	35	56	-2	42	1699	137	3.21	1.89	20.64	-4.91
Champlain Valley											
Plattsburgh	73	36	57	-3	56	1991	-27	1.20	0.46	18.99	1.28
St. Lawrence											
Canton	76	34	57	-2	57	2014	200	1.66	0.75	18.12	-0.69
Massena	78	35	58	-2	58	2052	152	1.17	0.33	16.28	-0.90
Great Lakes											
Buffalo	83	41	62	-2	86	2593	391	1.13	0.29	11.68	-7.12
Colden	80	36	58	-3	64	1970	182	1.05	-0.07	14.55	-7.21
Niagara Falls	81	40	62	-2	83	2506	299	1.63	0.73	12.35	-5.95
Rochester	82	40	61	-2	81	2610	479	0.85	0.15	10.86	-5.26
Watertown	80	38	60	0	72	2107	254	0.73	-0.04	10.30	-4.64
Central Lakes											
Dansville	79	37	61	-2	78	2300	158	1.51	0.69	13.86	-3.79
Geneva	76	45	61	-3	76	2340	216	2.07	1.30	13.84	-3.59
Honeoye	79	38	60	-4	76	2169	-56	1.21	0.44	16.59	-0.70
Ithaca	73	39	59	-2	68	2113	191	1.67	0.83	18.24	-0.56
Penn Yan	74	45	61	-2	79	2533	409	1.28	0.51	13.98	-3.45
Syracuse	77	44	63	1	92	2509	353	1.78	0.87	16.15	-3.63
Warsaw	78	35	57	-3	55	1968	319	1.09	0.11	17.22	-3.45
Western Plateau											
Alfred	78	34	57	-2	56	1711	84	1.94	1.10	17.21	-2.33
Elmira	74	37	60	-2	74	2249	219	1.23	0.47	16.53	-1.22
Franklinville	78	39	58	1	62	1803	310	1.85	0.89	16.93	-3.93
Sinclairville	80	39	59	0	68	2000	316	0.92	-0.20	19.96	-3.41
Eastern Plateau											
Binghamton	74	39	60	-2	70	2304	337	1.06	0.27	18.91	0.15
Cobleskill	72	39	58	-2	59	1958	128	1.98	1.07	23.59	3.40
Morrisville	71	41	58	-2	58	1914	172	2.11	1.13	20.22	0.06
Norwich	76	42	60	1	75	2004	172	1.23	0.32	21.81	1.79
Oneonta	84	42	64	6	97	2415	732	1.40	0.56	22.16	0.62
Coastal											
Bridgehamton	82	48	66	2	114	2556	289	1.35	0.51	19.45	-0.30
New York	86	55	72	3	156	3540	526	0.90	0.09	32.39	11.50

1. *D*eparture *from N*ormal
2. *Y*ear *to D*ate: Season accumulations are for April 1st to date

The information contained in these weekly releases are obtained from the New York Agricultural Statistics Service (http://www.nass.usda.gov/ny/), who in turn obtains information from reports from Cornell Cooperative Extension agents, USDA Farm Service Agency, Agricultural Weather Information Service Inc., the National Weather Service and other knowledgeable persons associated with New York agriculture.