

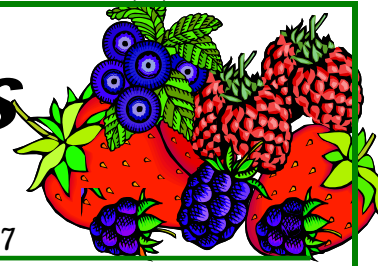


New York Berry News

CORNELL UNIVERSITY

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Well it seems that spring is finally here to stay, and summer just around the corner. Strawberries and blueberries are in bloom (keep your eye on those frost warnings) and the season is beginning to heat up literally and figuratively!

Lots of news and noteworthy information for you included in this issue, along with important small fruit dates to add to your calendar, and articles of interest. Feature articles include updates on strawberry insect control and uncommon fruits to consider for the home garden or specialty market.

On your mark, get set, go! Strawberry harvest is just around the corner. Check out the article on small fruit harvesting to review the game plan and get up to speed.

LETTERS TO THE EDITOR

Hi Cathy,
I'm enjoying looking through your April newsletter, trying to find stuff to use in my own. On one article, I suggest a different recommendation—rather than 'DON'T PICK A SINGLE BERRY UNTIL YOU HAVE A MARKET FOR THEM', I recommend 'DON'T PLANT A SINGLE BERRY UNTIL YOU HAVE A MARKET FOR THEM!!!' *Debby Wechsler, NC Strawberry Association, 1138 Rock Rest Rd., Pittsboro, NC 27312*

CURRENT EVENTS

June 3-5, 2007. *National Value-Added Agriculture Conference*, Lexington, Kentucky. For more information Jennifer Hunter at (859) 257-7272 X 246 or jhunter@uky.edu.

July 12, 2007. *Small Fruit Tour*, Germantown, NY. Currants, Gooseberries, Brambles, Mountain Range Farm. More information in news brief below.

July 19, 2007. *Small Fruit Twilight Tour*. NYS Agricultural Experiment Station, Geneva, NY. Black and Red Raspberries, More information in news brief below.

July 25, 2007. *Summer Fruit Tour*. NYS Agricultural Experiment Station, Geneva, NY. Cordon training of Ribes, Ribes disease control, small fruit insect research updates. More information in news brief below.

August 2, 2007. *High Tunnel Small Fruit Tour*, Ithaca, NY. Black raspberries, Blackberries, Cornell University College of Agriculture and Life Sciences. More information in news brief below.

August 10-12, 2007. *Northeast Organic Farming Association (NOFA) 33 Rd Annual Summer Conference*. – "A Celebration of Sustainable Living" at Hampshire College in Amherst, MA. For the full schedule of activities and further information go to www.nofamass.org, or contact Julie Rawson at (978) 355-2853 or julie@nofamass.org.

August 14-15, 2007. *NASGA Summer Tour*, Niagara Falls Canada and Niagara region of New York. See news brief below or for more information contact Kevin Schooley at kconsult@allstream.net or visit www.nasga.org.

September 15, 2007. *New York State Agricultural Experiment Station 125th Open House for the public*, Geneva, New York. For more information contact Gemma Osborne - gro2@cornell.edu.

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 or go to: www.smallfarmexpo.org.

A BERRY EXCITING SUMMER IN STORE FOR NY BERRY GROWERS!

The Cornell Small Fruit Program Work Team composed of small fruit faculty, staff, and extension personnel have put their heads together to come up with an exciting line up of events across the state this summer for New York Berry Growers. The events will be held throughout the months of July and August. More information will be forthcoming as the event dates approach. Mark your calendars now – you won't want to miss them!

*July 12th: **Small Fruit Tour** Germantown, NY*

*Currants, Gooseberries, Brambles, Mountain Range Farm
Hosts: Steven McKay, Extension Educator; Dr. Kerik Cox, small fruit pathologist*

Come and visit a commercial planting of red, pink, and white currants, as well as gooseberries and brambles. View the difference in plant health and fruit quality of red currants planted beneath plum trees. Compare the difference of two possible treatments for shoot dieback in trial blocks of red currant.

*July 19th: **Small Fruit Twilight Tour** NYS Agricultural Experiment Station, Geneva, NY.*

*Black and Red Raspberries, Darrow East Farm, NYSAES
Hosts: Dr. Courtney Weber, small fruits breeder, Greg Loeb, small fruit entomologist.*

*July 25th: **Summer Fruit Tour**: NYS Agricultural Experiment Station, Geneva, NY. Mark your calendars and save the day for an informative tour to show the exciting research going on for the fruit industry. DEC recertification training credits will be available.*

*Currants and Gooseberries, Crittenden North Farm, NYSAES
Hosts: Dr. Kerik Cox, small fruit pathologist and Steven McKay, Extension Educator*

Visit our cordon trained and bedded planting of gooseberries, and red and black currants. General questions about Ribes production and the potential for commercialization will be discussed.

This year we have an extensive biopesticide efficacy trial for leaf spot and white pine blister rust up and running. If disease pressure is as heavy as usual, you'll be able to compare differences among: organic and non-organic biopesticides programs, conventional programs, and hybrid programs of conventional pesticides and biopesticides. The newer phosphite fungicide chemistry is also heavily featured in the trial.

*Small Fruit Insect Research Updates, Darrow West Farm, NYSAES
Host: Greg Loeb, small fruit entomologist.*

*August 2nd: **High Tunnel Small Fruit Tour**, Ithaca, NY*

*Black raspberries, Blackberries, Cornell University College of Agriculture and Life Sciences
Hosts: Dr. Marvin Pritts and Mary Jo Kelly, small fruit horticulturalists*

*September 15th: **New York State Agricultural Experiment Station 125th Anniversary Public Open House.***

GOVERNOR SIGNS EXECUTIVE ORDER CREATING COUNCIL ON FOOD POLICY

Council Will Coordinate Policies to Promote Agriculture, Health and Nutrition

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."

A copy of the executive order is at http://www.ny.gov/governor/executive_orders/xeorders/13.pdf.

USDA TO BEGIN FEDERAL INSPECTIONS OF RESTRICTED USE PESTICIDE RECORDS

Ron Gardner, Pesticide Education and Management Program, Cornell University, Ithaca, NY 14853

"The USDA Federal Pesticide Recordkeeping Program will initiate restricted use pesticide (RUP) record inspections in early June of 2007. Five counties were selected for the inspections: Suffolk, Wayne, Orleans, Genesee and Monroe. Forty certified private applicators were randomly selected from each county. The USDA mailed letters of notification to the applicators informing them of their selection for inspection and will be contacted by a Federal inspector to schedule the inspection of the RUP records. Certified private applicators are required to show RUP records to credentialed Federal inspectors upon request, failure to do so can result in a civil penalty. The Federal inspectors are trained to offer compliance assistance to a private applicator that does not have adequate or complete records. It is the USDA's philosophy that compliance should be obtained through education not enforcement and it is in the applicators best interest to agree to the face to face inspection. Penalties will not be issued on the first inspection and applicators are given time to come into

compliance before another inspection, usually within a year of the first inspection. If you have any questions regarding the inspection process feel free to contact the USDA Pesticide Records Branch at 703-330-7826.”

Cornell Cooperative Extension has been highlighting the need to comply with not just DEC, EPA Worker Protection Standard, but also USDA Federal Pesticide Recordkeeping requirements for many years. The Trac Software for fruit growers has also incorporated necessary components of all the recordkeeping systems in the various reports. Most recordkeeping systems incorporate these requirements. The enforcement of those rules is about to begin. The basic Federal recordkeeping requirements and contact information are included below. Review your records to determine if the requirements are included in your system.

The pesticide recordkeeping regulations require the certified private pesticide applicator to record the following for each restricted use pesticide application, within 14 days of the application:

- ❖ The Brand or Product Name; that is, trademark name of the pesticide being used.
- ❖ The Environmental Protection Agency (EPA) Registration Number. The registration number is not the same as the EPA Establishment Number which is also located on the label.
- ❖ The total quantity of the pesticide applied in common units of measure. Such as pints, quarts, gallons, etc. of concentrated pesticide. Amount does not refer to the percent of active ingredient (a.i.).
- ❖ The date of the pesticide application, including month, day, and year.
- ❖ The location of the restricted use pesticide application. Not the address of the farm or business. Options are by:
 - County, range, township, or section or
 - Identification system established by USDA, such as plat IDs used by the Farm Service Agency (FSA) or the Natural Resource Conservation Service (NRCS), or
 - Legal property description, as listed on the deed of trust or county/city records, or
 - An applicator generated identification system that accurately identifies the location of the application, such as farm maps or block names.
- ❖ Crop Commodity, Stored Product, or Site being treated.
- ❖ Size of area treated. Record this information in the unit of measure (such as acres, linear feet, bushel, cubic feet, number of animals, etc.) which is normally expressed on the label in reference to the application being made.
- ❖ The name of the certified private applicator performing and/or supervising the application.
- ❖ The certification number of the private applicator. If the name of the certified private applicator and the certification number are kept together, this information only has to be listed once (Note: the name and certification number may be noted at the front of a record book if the same applicator is making the application).
- ❖ Spot treatments are especially useful in the control of noxious weeds if you apply restricted use pesticides on the same day in a total area of less than 1/10 of an acre, you are required to record the following:
 - Date of application including month, day, and year.
 - Brand or product name.
 - EPA registration number.
 - Total amount of pesticide applied.
 - Location of the pesticide application, designated as "Spot application" and short description.

For more information contact the USDA Pesticide Records Branch at 703-330-7826. Or go to the WEB site USDA Recordkeeping web site at <http://www.ams.usda.gov/Science/sdpr.htm> .

(Reprinted from: Lake Ontario Fruit Program Fruit Notes, Volume 07 Issue 11 May 16, 2007)

SENATE DEMOCRATS, REPUBLICANS REACH AGREEMENT ON IMMIGRATION

May 17, 2007 - A bipartisan coalition of Senate Democrats and Republicans has reached agreement on immigration reform. The AgJOBS bill – part of the overall immigration reform debate – was part of the agreement. The goal of AgJOBS is to help agricultural producers find a legal workforce.

This is the first step for immigration reform, and the measure will now go to the House of Representatives for more debate. If it passes the House, President George W. Bush has indicated that he will sign the bill into law.

“Convictions run deep on the matter of immigration, but with this bipartisan agreement I am confident leaders in Washington can have a serious, civil and conclusive debate so I can sign comprehensive reform into law this year. I urge all members to support this bipartisan immigration reform proposal,” Bush said.

The bill will provide a way for laborers to become legal citizens, but is not an amnesty program. If it passes, illegal workers will be able to apply for a “Z” visa, which puts them on the track to gaining citizenship after they pay a \$5,000 fine. Heads
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of households would have to return to their home countries to complete the requirements. The process would likely take eight years or longer, and won't begin until border security upgrades and a worker identification program are enacted, according to the Associated Press.

Growers in many parts of the country already are seeing worker shortages this season, and industry groups have been working to make their voices heard. More than 160 agricultural leaders flew in to Washington, D.C. to lobby Congress to include AgJOBS in comprehensive immigration reform legislation.

"While I still need to see the final language, today's agreement is an important start in the process of moving this bill forward," said Sen. Ken Salazar, a Democrat from Colorado. "This is a compromise that we can take to the floor process where I look forward to working with my colleagues to further improve it."

(Reprinted from: *Fruit Growers News*, May 2007. Available on line at: <http://www.fruitgrowersnews.com/pages/current.php>.)

RECENT LOSSES OF HONEY BEE COLONIES

Nicholas W. Calderone, Associate Professor, Department of Entomology, Cornell University, Ithaca, NY 14853

April 26, 2007. Recent reports in the news have highlighted a dramatic loss of honey bee colonies in as many as 24 states, and the number is growing. Honey bees are a critical player in the production of many fruit, vegetable and seed crops grown throughout the country, adding between \$8 and \$12 billion worth of value to US agriculture each year. Substantial losses, such as are currently being experienced, pose a serious threat to crops that rely on bees for pollination and portend diminished profits for growers and higher prices for consumers at the supermarket. It is not clear whether the current spate of losses, dubbed 'Colony Collapse Disorder' by some, is a new problem, a result of existing problems that have beleaguered the industry for a number of years, or both. Whatever the cause, the losses are real, rental fees for colonies used for pollination have risen sharply, and shortages of colonies for pollination are a real possibility. New York beekeepers are among those affected by this problem.

For the past 20 years, the big problem for beekeepers has been parasitic mites. These mites transmit viruses to bees and cause significant colony losses each year. Mite-related losses reached catastrophic proportions during the winters of 1995/1996 and 2000/2001 when colony deaths in northern states ranged between 50 and 100% in most beekeeping operations. Unfortunately, effective and sustainable controls have not yet been developed for these mites, despite considerable efforts at both state and federal levels. Pesticide resistance is a major problem that contributes to period catastrophic losses on the scale currently being seen.

While many of the colonies lost during the winter of 2006/2007 exhibited symptoms consistent with those typically observed with parasitic mites, about 25% of the colonies exhibited symptoms that are not consistent with mite damage or any other known cause. This suggests that some new, unidentified cause is at work. Several groups, including beekeepers, state regulatory personnel, USDA-APHIS and scientists from both USDA-ARS labs and university labs, are cooperating to determine if some other cause, such as a new pathogen or possible pesticide poisoning, is involved. Whatever the outcome, losses on this scale highlight the continued fragility of the commercial pollination system and the need to address the needs of the beekeeping industry in order to ensure a continued supply of healthy and affordable foods.

Background

Beekeeping is an essential component of modern agriculture, providing pollination services for over 90 commercial crops in the US, including several major crops in New York. The honey bee adds \$8-12 billion worth of value to agricultural crops each year, and nearly \$200 million of these benefits accrue directly to growers and consumers of fruit, vegetable and seed crops in New York. Beekeepers and honey bees also provide a background level of pollination that enables home gardeners to produce many of these same crops without having to worry about their pollination requirements; and they play a critical role in many food webs that support wildlife. The role of the beekeeper and managed bees is more important today than ever because parasitic mites have destroyed most of the feral honey bees across the US.

Beekeeping has suffered several major setbacks during the last two decades. First, invasive parasitic mites have decimated honey bee populations throughout the US, creating instability in the supply of bees rented for pollination and greatly increasing the costs of managing bees and renting hives for pollination. The development of pesticide resistance in the mite population has exacerbated this problem.

Second, the major bacterial disease affecting honey bees, American foulbrood, has developed resistance to the antibiotic used to prevent it. Although an alternative compound is now available, it is only a matter of time until resistance develops again.

Third, cheap, imported honey has maintained strong downward pressure on the prices paid to US honey producers. Combined with increased production cost attributable to mites and disease, this has contributed to a reduction in the number of beekeepers and colonies.

Fourth, the Africanized honey bee has begun to move into regions of the country critical to the sustainability of the US beekeeping industry. These areas, primarily in the southeastern US, are the major wintering grounds for migratory beekeepers and the major source of queen and package bees purchased by northern beekeepers to replace winter losses, which are high. Africanized bees out compete our traditional European bees in these areas and make it difficult to maintain pure lines of European ancestry. If germplasm from this highly defensive race of bees becomes common in the commercial population, colonies will become less manageable and liability issues for both beekeepers and growers may become significant.

Finally, the losses currently being experienced demonstrate that the problems that have plagued beekeepers for the past 20 years are not abating. Current losses also suggest that yet another significant problem may have beset this already troubled yet indispensable industry.

A weakened beekeeping industry affects not only beekeepers, but also fruit and vegetable growers, and the consumer; and the combined effects of these difficulties contribute to social stress in rural America and increase our dependence on foreign sources of food.

THAT'S A BERRY GOOD QUESTION!!!

[Kathy Demchak](#), Senior Extension Associate, Department of Horticulture, Penn State University

Q. Most of the new growth on our strawberry plants contains small holes. I can't see any pests on the plants. This is a second year crop grown on raised beds with plastic. Any suggestions on what may be causing this? What should I be looking for to determine the cause? Recommendations on what to do to control them? Thanks for your help.

A. The symptoms of damage match with those caused by strawberry rootworm. The adults emerge from overwintering in the spring, and feed on the leaves. I've seen them cause leaf damage on raspberries, and they also cause damage on blueberries and azaleas. Adults either are or will be laying eggs shortly, and the larvae feed on the roots, hence the name. If the planting is held throughout the summer (not likely in your case) a larger generation of adults will emerge later in the year and often causes even more noticeable leaf damage. The reason that you aren't seeing the adults is that they are active at night, and tend to hide under debris (like leaf litter or straw mulch) or in soil cracks during the day. The adults are small, black to brown beetles, only about 1/8-inch long. The roots and crowns may already have been damaged from earlier feeding, and you may notice a lack of plant thriftiness. You can dig some plants up and check the roots (they may appear short) and crowns (I've also found small holes in them in severe infestations) for damage.

The only pesticide I know of that is specifically labeled for strawberry rootworm is Pyrellin E.C., though the Pyganic label also would allow such use. Just make sure you spray either before bloom, or if it's too late, see if adults are still around after bloom. Also, watch for the next generation later this summer if keeping the planting. It's better to spray in the evening when the beetles will be coming out. This will help to protect any bees that might be out and about, even if the strawberries are past bloom – the bees could be busy pollinating other crops (or weeds). Both Pyrellin and Pyganic have only a short period of residual toxicity, though they are dangerous to pollinators at the time of application. Other broad spectrum insecticides like Thionex, Brigade, Sevin, and Malathion that would sometimes be applied early in the season also control strawberry rootworm, which might explain why this is a problem in some fields more so than others.

Grape colaspis, by the way, can cause similar damage, except that the holes will be larger, and you'll be able to find the beetles during the day. They're about twice as long.

Editor's Note: As always, I checked to see if we have the same products labeled for use in NY. Turns out from the 2007 Pest Management Guidelines for Berry Crops we don't have any products specifically labeled for SRW control in NY. I did find a NY label for Pyganic EC 5.0 in our PIMS data base which said: "Insects including *but not limited to...*" and "Small fruits and berries:...strawberries...". Here is an additional comment from our small fruit entomologist Greg Loeb, on possibilities for strawberry root worm control: "Pyganic is a natural pyrethrin product and as such, probably gives some control but will not have a lot of residual. Another product that has natural pyrethrins is Pyrenone and this has a very broad label as well. I would guess that Sevin, targeted against something like strawberry clipper, would provide good control of rootworm as well."

NASGA SUMMER TOUR: ONTARIO AND NEW YORK

Kevin Schooley, Executive Director, North American Strawberry Growers Association



Before the summer comes to an end, treat yourself to a mini-break and the annual NASGA Summer Tour, August 14-15, 2007. NASGA's summer tours provide a unique chance to see other farm businesses in full swing. The 2007 summer tour will be based in Niagara Falls, Ontario.

We will visit many interesting farms and markets. We will begin in Ontario on day one with some historic sites along the breathtaking Niagara Parkway. Stops include a beautiful farm market, and a neighboring strawberry farm with plasticulture and day neutral production. The Niagara area has a large greenhouse industry and we hope to visit a 25 acre operation that produces all its energy needs on site using wind and biofuel ingesters. Our last stop will be at Strawberry Tyme Farms where we will see a variety of activities including nursery production, plasticulture and matted row strawberries and approximately 30 acres of tunnel production.

On our second day we will cross the border to New York to tour fruit farms near the beautiful shores of Lake Ontario. We will visit berry farms, a first rate market and value-added enterprises where products such as fruit butters and fruit wines are made. At one stop, Andrew Landers, from Cornell University will host a sprayer demonstration. Our final stop will be along the south shore of Lake Ontario where we will enjoy the scenery and reflect on the last two days of tours.

A block of rooms is reserved at the beautiful Sheraton Fallsview. This is a busy time of the year in Niagara Falls so if you are considering participating in the tour, book a room now. The Sheraton has created a personalized website for us to reserve rooms for our event at <http://www.starwoodmeeting.com/StarGroupsWeb/res?id=0703190882&key=69157>. If you prefer to call in your reservation (1-877-353-2557) please quote group code NAH14A.

For more information and updates see: www.nasga.org.

PRECISE IRRIGATION COULD BOOST RASPBERRY HEALTH, PRODUCTION

Laura McGinnis, Public Affairs Specialist, Agricultural Research Service (ARS) News Staff, Beltsville, MD 20705-5129

May 16, 2007. Where is the best place to water raspberries—from above ground or below? That's a persistent question for berry growers throughout the Pacific Northwest. About 80 percent of the nation's raspberries are grown in California, Oregon and Washington, and irrigation methods tend to vary regionally. But are growers choosing the best watering methods to maximize their plants' growth, yield potential and general health? New research from Agricultural Research Service ([ARS](#)) scientists aims to answer that question.

Plant physiologist [David Bryla](#) and his colleagues in the [ARS Horticultural Crops Research Unit](#), Corvallis, Ore., are examining two irrigation methods to evaluate how each affects raspberry plants' yield and susceptibility to root rot. Improved irrigation methods could reduce the disease's frequency and severity, with major benefits for plant health and fruit production.

The scientists planted Meeker and Coho plants and watered them via overhead sprinklers or subsurface drips. They also applied varying amounts of water to different plants in order to observe the effects of over- and under-watering.

Results showed that the amount of water received affected berry yield more than the way the water was delivered. Neither irrigation method had a significant effect on yield. The sprinkler system produced more fruit-bearing canes, called floricanes, per plant and more berries per cane, but the berries were smaller, particularly on insufficiently irrigated plants.

In addition to producing larger fruit, drip irrigation considerably reduced the amount of water required. The scientists found no root rot in either cultivar.

It's worth noting that the study was conducted during the plants' first year of production, and that results may differ in older plants. Further testing will determine how mature plants respond to the same watering conditions. The scientists will also adjust the irrigation schedule, applying water more liberally before harvest, to more closely mirror a typical growing environment.

The results of this study could help raspberry growers throughout the Pacific Northwest make better informed management decisions to promote the health and productivity of their crops.

ARS is the chief in-house scientific research agency for the [U.S. Department of Agriculture](#).

IR-4 LAUNCHES SEARCHABLE DATABASE FOR BIOPESTICIDE AND ORGANIC PEST MANAGEMENT SOLUTIONS

Sherrilynn Novack, PR & Communications, IR-4 Project Headquarters, Rutgers, The State University of NJ, Princeton, NJ 08540

May 17, 2007, Princeton, NJ - The Interregional Research Project No. 4 (IR-4), headquartered at New Jersey's Agricultural Experiment Station at Rutgers University, announced today the launch of its Biopesticide / Organic database on the IR-4 website. The database, which is searchable by crop, pest, and state, will assist commercial and home growers of specialty crops. Specialty crops include fruits, vegetables, ornamentals and turf, but IR-4 also includes minor pests that are found on major row crops in this database. IR-4 Biopesticide Manager, Dr. Michael Braverman explained, "This project was conceived out of the observation that most growers or homeowners were unaware of the variety of today's biopesticides. There are a few Biopesticides that show up on conventional product websites, but there isn't a database for just biopesticides and organics. Creating this database is a tool for helping growers find answers to their pest problems."

How it Works

Locate the database at: www.ir4.rutgers.edu/Biopesticides/LabelDatabase/index.cfm and click on the "Find Answers" prompt. Once opened, the database enables growers to input their crop, pest and state and it responds by providing a list of EPA registered product labels that fit their criteria. It also supplies the manufacturer contact information and other pertinent data. "Of course it is ultimately the responsibility of the end user to follow label directions," Braverman continued. "Organic growers will find this particularly useful too, as the database can limit the search to organically approved pest management products."

Why Biopesticides?

Biopesticides are primarily natural products or organisms that are compatible with integrated pest management. They have broad modes of action which avoids resistance problems that may exist with some conventional products. Biopesticides often work best in rotation with conventional products so that optimal pest management can be obtained.

Most biopesticides have no restricted entry interval requirements. Whereas conventional products often limit the time growers can return to the fields following a treatment. This can hamper pruning, weeding, irrigation or other cultural practices. Homeowners as well may have difficulty keeping children and pets off treated areas, using biopesticides can alleviate these concerns. Another advantage of biopesticides is reduce time to harvest. If a late season pest is discovered close to harvest or if a field contains a crop with multiple harvests, there may not be a conventional product option - biopesticides can fill in that gap.

Buyers and consumers are becoming increasingly selective in their purchasing habits. Illegal residues can result in loss of markets, fines, and consumer avoidance. Biopesticides often contain natural food products that are normally consumed and do not have residue concerns.

There are still many pest problems that conventional products do not address. Since biopesticides are, in general, broadly labeled, growers of minor crops with obscure pest problems may find a biopesticide can provide a solution to their needs.

Funding for Database

Part of the funding for this database was made possible through a grant from EPA Region 2. Technical assistance was provided by those at EPA headquarters and many Biopesticide Industry Alliance manufacturers. Additionally, many individual companies contributed their information to help create the database. "We will be updating the data continually and welcome user comments. We hope this resource will be a valuable tool for our stakeholders," concluded Braverman.

About IR-4

For over forty years, the IR-4 Project has been the major resource for supplying pest management tools for specialty crops by developing research data to support registration clearances. To date, IR-4 has facilitated over 10,000 food use registrations and 10,000 registration expansions on nursery/ornamental crops.

IR-4 operates as a unique partnership between the State Agricultural Experiment Stations, the USDA (ARS and CSREES), specialty crop growers and the crop protection industry to accomplish its goal. It uses an extensive stakeholder driven process to prioritize research ensuring the most critical pest management needs are being addressed.

Over 80% of IR-4's research effort has involved new pest management technologies with biopesticides and lower risk chemistries.

USHBC – YOUR NATIONAL BLUEBERRY GROWER ORGANIZATION

Blueberries
U.S. Highbush Blueberry Council



The U.S. Highbush Blueberry Council (USHBC) is a national research and promotion program for the highbush (cultivated) blueberry industry established by a vote of the industry and formally titled "Blueberry Promotion, Research and Information Order (7CFR 1218)". A final rule established the program on August 16, 2000; Council members were elected in 2001 and approved by the Secretary of Agriculture. This order authorizes the USHBC to conduct a coordinated program of promotion, research and consumer and industry information in order to maintain and expand the market for cultivated blueberries. This effort is funded through the collection production assessments.

These funds are then being used by USHBC to increase U.S. blueberry demand through market promotion activity (consumer/ food service publicity campaigns, magazine advertising, food manufacturer publicity, export market development) as well as to support continued blueberry research, with particular interest in blueberry/health research.

Under this program, all highbush blueberry growers (producing more than 2,000 pounds per year) are assessed at a rate of \$12 per ton. This includes blueberry growers who market their produce directly (including those marketed through U-pick operations, road side stands, etc.) and those who sell their blueberries to a blueberry first handler. In the case where a grower sold blueberries to a first handler, the handler is responsible for collecting the assessment.

A grower report is mailed to all growers annually. Production reporting, payment calculation and payment instructions, as well as report due date and late payment fees are detailed in the instructions section on the reverse side of the grower report. A completed grower report for the current year and any assessment checks that may be due are sent by all growers in the return envelope that is included. Assessments were collected beginning with the 2001 crop. (Program details are found in Federal Register Vol. 65 No. 137, July 17, 2000 pages 43961 to 43969).

Other grower benefits include:

- ❖ Funding of health related research for age-related diseases such as diabetes, etc.
- ❖ USHBC website featuring blueberry resources: promotional materials: brochures, recipes, posters etc
- ❖ On line blueberry supplier locator listing, searchable by state, company name, contact, product.
- ❖ Monthly newsletter USHBC Bluespaper
- ❖ Research reports to growers on project completion.
- ❖ Development of overseas markets such as Asia and United Kingdom.
- ❖ Trade leads.

The fourteen-member U.S. Highbush Blueberry Council (USHBC) administers the program under the supervision of the U.S. Secretary of Agriculture. The USHBC is represented by one member and alternate from each of the following regions:

Western	Midwest	Northeast**	Southern
Alaska	Illinois	Connecticut	Alabama
Arizona	Indiana	Delaware	Arkansas
California	Iowa	New York	Florida
Colorado	Kansas	Maine	Georgia
Hawaii	Kentucky	Maryland	Louisiana
Idaho	Michigan	Massachusetts	Mississippi
Montana	Minnesota	New Hampshire	North Carolina
Nevada	Missouri	New Jersey	Oklahoma
New Mexico	Nebraska	Pennsylvania	Puerto Rico
Oregon	North Dakota	Rhode Island	South Carolina
Utah	Ohio	Virginia	Tennessee
Wyoming	South Dakota	Vermont	Texas
Washington	Wisconsin	Washington D.C.	
		West Virginia	

There is also one member and alternate from each of the top six blueberry producing states: Michigan, New Jersey, Oregon, North Carolina, Georgia and Washington (currently). Other members and alternates include: importer, exporter, first handler, and public. Producers are nominated by State commissions or producers. All other members are nominated by USHBC council members.

Duties of the USHBC include the following:

1. Develop annual budgets
2. Appoint members of USHBC to serve on committees
3. Develop and evaluate projects of promotion, research, and information and pay costs of such projects
4. Collect assessments; receive investigate, and report to Secretary complaints of violations off the order
5. Recommend amendments to order
6. Employ staff to administer program
7. Prepare and submit to Secretary financial reports
8. Cause books of USHBC to be audited
9. Recommends to Secretary regulations to carry out the terms of the order

Every five years, the U.S. Secretary of Agriculture will hold a referendum to determine whether producers and importers of cultivated blueberries favor the continuation of the order. The Order will continue if it is favored by a majority of producers and importers voting for approval who also represent the majority of the volume of blueberries represented by the referendum. In addition, the Secretary may hold a referendum at any time after the effective date of the program. Additional referenda may be requested by the USHBC or 10 percent of all cultivated blueberry producers and importers. The most recent referendum was held August 1-22, 2006 and a continuance was approved (89.6%) through 2011.

Additional information concerning the USHBC and its activities can be found at their website at <http://www.blueberry.org/>.

INSECT AND MITE MANAGEMENT ON STRAWBERRIES

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During the prebloom period the **strawberry bud weevil (clipper)** is the main arthropod pest to watch out for. Clipper often is a more severe problem along borders of plantings, near woods. The adults emerge from their overwintering sites (woods or weedy strawberry fields) when temperatures reach 60F and migrate to strawberry fields to feed on strawberry pollen by puncturing the unopened flower. In recent years we have learned that many strawberry cultivars, such as Jewel and Seneca, can tolerate a fair amount of bud loss from this pest, although at sufficient densities, it can still be a problem. As a rough rule of thumb, treat for clipper when you observe more than one clipped primary or secondary flower bud or more than 2 tertiary buds per truss, on more than one truss per foot of row. Note that once flowers are open they are no longer at risk from clipper. Lorsban (chlorpyrifos), Brigade (bifenthrin), and Danitol (fenpropathin) are labeled for clipper in New York.

Also during the prebloom period (and extending through harvest and sometimes after renovation) **two-spotted spider mite** can be a problem in some plantings. Look for whitish or yellowish stippling on leaves. Current threshold is 5 mites per leaf or about 25% of leaflets have at least 1 mite. This is likely a conservative threshold for a healthy planting. There are several compounds labeled for mites on strawberries in New York: Kelthane [dicofol], Vendex [hexakis], Agri-mek [abamectin], Savey [hexthiazox], Acramite, Zeal Miticide 1, Kanemite, Danitol [fenpropathrin] and Brigade. Acramite is only labeled for nonbearing plantings. Kelthane, Danitol and Brigade are hard on predatory mites. Agri-mek label calls for 2 applications, 2 weeks apart. For all these materials, coverage is very important, especially on the underside of leaves.

Tarnished plant bug (TPB) is the key insect pest of strawberries during bloom to near harvest. Both adult bugs and the nymphs cause injury (deformed fruit) but nymphs are probably of the greatest concern for June-bearing cultivars. The economic threshold is half a nymph per flower cluster (you sample by tapping cluster over a white plate and counting nymphs that fall off). It is worth sampling for this pest on a regular basis since it varies in population size from place to place and from one year to the next. Spraying a pesticide when nymph counts are below threshold costs you money and can kill beneficial arthropods unnecessarily. Insecticides labeled for control of TPB in strawberries in NY include malathion, Brigade, Danitol, and Pryenone [pyrethrin]. Good weed management can help reduce problems with TPB.

Cyclamen mite is a potentially serious pest that seems to cause problems some years and then not be very noticeable in others. The mites get active in the spring with populations peaking after bloom. The mites like to feed on young leaf tissue (just as the leaves are unfolding). The mites themselves are difficult to see without a good hand lens. Cyclamen-damaged leaves tend to be stunted and crinkled. Prior to bloom or after renovation are good times to treat for this pest. Thionex

[endosulfan] is labeled for use against cyclamen mites. Use lots of water for thorough coverage. Treatment should be carried out either prebloom or during bed renovation where it is easier to achieve coverage of the crown leaves.

Two more insect pests deserve mention at this time. The first is **Strawberry sap beetle (SSB)**. This small, brownish beetle seems to be increasing as a pest in New York strawberries. Both the adult beetles and the larvae feed on ripe and overripe fruit. We still are exploring the best ways to control SSB. Two pyrethroids are labeled in New York for its control: Dantitol and Brigade. Note that Brigade does not have a preharvest interval while for Danitol it is 2 days. However, Brigade is more expensive. For both materials, good coverage is likely to be important for its control. Note that SSB probably does not move into strawberry fields in significant numbers until fruit begins to ripen.

Spittlebug starts appearing on leaves, stems, and flowering racemes about this time (bloom) and extending into harvest. They overwinter as eggs in the soil and hatch out as temperatures rise in the spring. The nymphs crawl up the plant and begin feeding on the xylem tissue (the water conducting vessels of the plant). There are not a lot of nutrients in xylem and therefore nymphs need to process a lot of sap, extracting the few nutrients out for their use and excreting the remaining water. This water is frothed into white spittle, which helps protect the nymphs from desiccation and natural enemies. You can often find several nymphs within a spittle mass. Feeding by spittlebugs, if extensive, can stunt plants and reduce berry size. Perhaps more importantly, the spittle masses are a nuisance to pickers. Threshold for spittle bug masses is 1 mass per foot row. Thionex, Provado, Brigade and Danitol are labeled for use against spittlebugs. Weedy fields tend to have more problems with spittlebugs.

Root weevil (there are several species) is the last strawberry pest I want to discuss in this issue. The larvae feed on roots and crowns and when abundant can cause serious damage to plantings. Beds with heavy infestations show distinct patches or spots that appear stunted and have reduced yields. Drought stress aggravates the injury from larval feeding. Chemical control (Brigade) is targeted at the adults that emerge in mid- to late June. Look for characteristic adult feeding damage on leaves (notching from the edge) to help determine timing. Note that the adults are active at night rather than the day time. The adults feed for a few days before starting to lay eggs. Some growers have also had success controlling root weevil larvae using parasitic nematodes. These can be applied either in the spring (late April and early May) and/or in the fall. Use sufficient water to get good penetration. Rotation out of strawberries is the best remedy for root weevils. They are wingless and do not move a great distance. However, new plantings should be placed 50 meters or more from an infested planting.

UNCOMMON FRUIT PLANTS FOR THE HOME GARDEN

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If you're tired of going to the grocery store and having the same fruit all the time, you might consider growing some of the less common fruit plants that have become available to gardeners over the past ten years. Some of them are native to the US, and some have been imported. In most cases, what's being offered by the nurseries is a group of edible varieties selected for good flavor, showiness in the landscape, cold and disease resistance, and general ease of growing. Most folks are not aware that many of the less common fruits are more nutritious than those we have most commonly available. Trees, shrubs, vines, and ground cover berries are choices that lend themselves to different landscape situations in the home garden.

Following is a list of some of the more common plants with a few comments about them. For more information, see *Uncommon Fruits for Every Garden*, by author Lee Reich or the other references listed at the end of this article. Finally, many nursery catalogs have good descriptions of both plants and fruits.

Trees

Persimmons (*Diospyros virginiana*): Small American persimmons must be ripened and eaten soft. Trees are medium-sized, slow growing. 'Szukis' is a variety recommended for fruit quality and plant hardiness.

Paw Paws (*Asimina triloba*): Hard to transplant, seedlings need shade. Very slow growing, large trees. Slow to bear, but fruit is delectable with tropical fruit (*Annona*) flavor.

Mulberries (*Morus spp*) Fruit like blackberries, but fragile...red, black, and white. Be sure varieties you choose are cold tolerant. Selected trees have larger-sized fruit than those that come up wild.

Medlar (*Mespilus germanica*) Small tree bears in 3-4 years. Fruits soften on the tree to become edible and have an apple sauce texture and flavor.

Cornelian Cherries (*Cornus mas*) Bush to small tree in size. Large fruited varieties from Russia are now available. 'Red Star' and 'Sunrise' are recommended varieties. Hardy to minus 30 F

Mountain Ash (*Sorbus spp*) A 12-15 foot tree with yellow to red showy fruit. Fruit is often bitter and needs processing, but is commonly used for making jelly and liquor. 'Rabina' is recommended as producer of fresh fruit that can be eaten raw.

Shipova (*Sorbus aucuparia* X *Pyrus* sp) A hybrid of pear and mountain ash produces a small to medium-sized tree with delicately flavored fruit similar to a small pear.

Shrubs

Aronia (*Aronia melanocarpa*) This shrub grows rapidly and suckers. It produces the highest antioxidant fruit which is astringent and sour, but when processed has a great flavor which is also good blended.

Elderberry (*Sambucus nigrum*) The flowers and fruits of this shrub are edible and also very high in antioxidants. They can be trained and pruned to a bush that has branches cut out annually after they have fruited.

Honeyberry (*Lonicera caerulea*) Related to the honeysuckle, this fruit is very soft and mild-flavored. Shrubs only grow to about two to three feet high.

Sea Buckthorn (*Hippophae rhamnoides*) Tall-growing shrubs with ferny leaves are showy for the garden. The orange berries are touted for health benefits and must be cooked for use.

Chinese Hawthorne (*Crataegus pinnatifida*) This shrub has showy flowers and flavorful fruit that is claimed to be beneficial for people with heart disease.

Vines

Kiwi (*Actinidia spp*) Smooth-skinned fruit with superb flavor. Vines must be trellised and kept in control. Plants are slow to fruit, but worth waiting for.....four to six years at least.

Akebia (*Akebia spp.*) Two vines needed for pollination. Fruits are similar in shape to a starfish. The flesh is sweet but bland and without much flavor. The purple to pink color and shape of fruit make it a curiosity item.

Sandra Berry (*Schisandra chinensis*) Beautiful flowers and foliage. Fruit can be eaten or used in tea. High in antioxidants. Fruits in one year, 12 years to have a mature vine.

Ground Covers

Lingonberry (*Vaccinium vitis-idaea*) Needs acid, organic soil like blueberry. Sensitive to over-fertilization and likes some shade. Berries are smaller than cranberry.

Cranberry (*Vaccinium macrocarpon*) Yes, cranberries can be grown without a bog. They are low-growing, and periodically benefit from having sand placed over them, just leaving the tips exposed.

Alpine Strawberry (*Fragaria vesca*) A cousin of the wild strawberry. These fragrant fruits have plants that are started from seeds. They like organic, slightly acid soils.

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3. Cornell Small Fruit Nursery Guide - <http://www.fruit.cornell.edu/Berries/nurseries/index.html> To find a source for a particular cultivar, go to the site, select a crop, find the cultivar of interest, note the nursery links, then click on those links for address, phone number, email address, web sites and FAX numbers, etc. for a particular nursery. This guide is updated annually.

HARVESTING SMALL FRUIT . . . POINTS TO PONDER

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This is the second in a series of three small fruit articles on marketing, harvesting, and postharvest handling/storage, of small fruit. Whether you wholesale, retail, or U-pick, it is important to do your homework before berry harvest. Although harvest here in New York is still some weeks away, its not too soon to begin getting ready. A little time now can save a lot of headaches and



profit losses later. Below are some points to ponder in putting together your harvest game plan.

I. Harvest Labor

Small fruits, in general, are highly perishable and have shorter shelf lives than other fruits. Untimely delays in small fruit harvest may result in overripe fruit in storage or complete crop loss! Be sure to secure sufficient harvest labor well in advance of the harvest period: pickers, field supervisors, cashiers, truck drivers, tractor drivers, parking lot attendants, farmer's marker workers etc. You might also want to consider hiring one or more "floaters" whose job would be to fill in for absent employees or provide additional assistance during peak harvest periods.

Don't shortchange yourself during the hiring process! Ask for a written application from each potential employee which includes things like contact information, education and background, and work experience, emergency contact etc. Be sure to ask for 3-5 references. Spending a few minutes checking references before interviewing and hiring is one of the keys to getting good workers! Keep a file for each employee with this information. Add any other employment records to this file over the course of the season. In a larger operation this helps in deciding who gets a return job offer for next year.

The second key to having good workers is communication. Clearly communicate to your employees what it is you are asking them to do. Provide each worker or each type of worker with a specific job description *prior* to the interview process. This job description might be as simple as a list of duties and responsibilities, and expected work ethics (i.e. punctuality,



attendance, dress code, politeness to customers, use of cell phone during work hours, etc.) Be sure to include information on lunch periods and breaks, length and terms of employment, compensation information, and other worker expectations. After the interview process or at hiring, ask workers to sign a copy of the job description indicating they have received it and understand what the job will require. Provide tours and training as needed to help workers be successful in getting the job done. Set reasonable and documentable job expectations.

After workers are hired and on the job, give regular feedback on whether or not they are meeting expectations. Consider rewarding those who consistently meet or exceed expectations in some way – ex. half day off with pay, gift certificate to a local restaurant, end of season bonus, \$20 free produce from stand, etc. Provide specific feedback to those not meeting expectations. Start by giving them another copy of their job

description and explain which expectations are not being met, and why. . Then explain what steps they need to take to reach those expectations. *Do this when its needed, each time its needed, as soon the need arises!*

Encourage workers to share concerns or suggestions on how their job might be done more efficiently. Get everyone on the same page! Think about having short worker meetings at the beginning of each day or week to discuss the goals for that time period and what each person's part in meeting those goals will be. Its easier during peak work times for everyone to function together as a unit if each understands the role they play, and the role of others.

The third key to having good workers is creating an environment of worker safety and engaging workers to be a part of it. Instruct all workers in good agricultural practices such as hand washing each time before and after harvesting fruit or after using restroom facilities. Provide handwashing stations, adequate restroom facilities, and potable water on site.

Explain any farm- or equipment-related safety procedures. Provide additional safety training as needed. Pinpoint locations of pesticide central posting boards, first aid kits, fire extinguishers, and emergency phone access for all locations. Post signage indicating steps to be taken in case of an emergency.

II. Equipment and Supplies

Nothing can be more frustrating than to have equipment failures or problems on the 1st or 21st day of harvest. Minimize these problems by checking and servicing all needed equipment prior to use; tractors, wagons, ATV's, golf carts, scales, coolers, refrigeration units etc. Maintain equipment on a regular basis during harvest and prior to storage for next year's use.

Clean and disinfest harvest equipment and facilities before harvest begins: packing/sorting equipment, cold storages, in-store coolers, farm market



areas, plastic pails, grape lugs, etc. Have in place specific procedures and assign responsibility for regular maintenance/cleaning of equipment and areas during harvest. Check cleanliness on a regular basis to keep those responsible on their toes. Repeat the same process at the end of harvest.

What could be worse than running out of fiber baskets during the peak week of harvest? Check inventory before the harvest begins. Obtain and keep on hand sufficient quantities of packaging materials and labeling: fiber baskets, clam shells, flats, pails, etc. Leftover materials are a head start on next year's inventory. At the end of harvest, collect and return unused materials to a clean central storage area for next year.

"Where do I go from here?" Much time and effort can be saved by developing and using signage. Streamline harvest operations by designing and posting needed signage and instructions prior to harvest. These may include things like parking signs, arrows directing u-pick customers to specific fields, restroom cleaning instructions etc. Purchase and have on hand flagging tape, wire flags, and other needed marking materials as appropriate. Keep an inventory list of needed signage and determine what worked or didn't work. Note any additional signage needs at the end of the season. Collect and store signage after harvest for next year's use, to keep materials clean and in good condition.

If you have a retail operation, be sure to check that supply list as well: price tags, bags, produce containers, and so on. Don't forget to print lots of copies of your business promotional piece or ads for your next harvest to tuck into the bag along with each purchase.

III. The Mechanics of Small Fruit Harvest

Small fruits are probably the most perishable of all fruits. Production of high quality small fruit requires special attention to a number of preharvest and postharvest factors, as well as the mechanics of harvest itself. Preharvest factors to consider include cultivar selection, growing site, plant health and nutrition, and disease and pest management. For more information on these important topics, see the references listed at the end of this article.

Harvest conditions should also be considered for maximum berry quality. For example, avoid harvesting wet berries whenever possible. Waiting a few hours after rain or heavy dew to begin harvesting can significantly reduce post harvest diseases and improve fruit quality. Visible decay can develop in less than 12 hours on warm, wet berries.

Along the same lines, temperature can play a significant role in berry quality. Berries harvested early in the morning or in the evening when temperatures tend to be cooler have better shelf life. Harvested small fruit should never be left in the sun; their dark colors readily causes them to absorb heat. Berries also continue to respire after harvest, generating their own internal heat, and causing shrinkage and reduced sweetness. Low temperature is one factor that helps to slow the respiration process, which is much faster in berry fruit than oranges or apples, for example. Berries should be cooled no later than 4 hours after harvest; sooner if possible. You'll get a much better return on your investment by making several trips to the cooling facility, than by making only one or two trips per day! More on this important topic in the next month's article on postharvest handling and storage.



Harvesting Strawberries

Strawberries ripen quickly under field conditions (28-30 days after full bloom) and at an even more rapid pace after harvest. To maintain good strawberry fruit quality during harvest, attention must be paid to two key factors: 1) stage of berry ripeness at harvest and 2) handling.

Strawberries should be harvested before they are fully ripe to extend shelf life and berry quality in storage. It is critical to harvest fields once every two days to minimize over ripened berries. Bright red berries harvested with a slight white tip will retain their firmness longer than fully ripe fruit; they also lose less water in storage. However, that intense strawberry flavor is not fully developed at this stage, and it becomes a compromise between flavor and storage potential. This may be minimized to some degree by selection of appropriate varieties.

Train workers in strawberry harvest, demonstrating the desired degree of ripeness and manner in which fruits should be harvested to minimize damage. Consider hiring pickers on hourly wages to harvest and remove over ripe and/or rotting berries to prevent other pickers from contaminating marketable berries during the harvest process. Be sure to dispose of cull berries away from fields under harvest to prevent recontamination of ripening berries.

Because of the fragile nature of strawberry fruit, container choice is also critical to berry quality. Wider, shallower

containers help to minimize berry damage and crushing. Berries should be picked directly into market containers, not into larger containers then transferred to market containers later.

Rules For Strawberry Pickers



Keep your hands clean at all times. Wash hands after each visit to the restroom.



Harvest only bright uniformly red berries. Be sure to keep berry caps intact while harvesting.



Berries should be removed by snapping the stems between the thumb and forefinger, keeping the hand cupped under the berry to avoid dropping it.



Select berries of uniform ripeness to fill containers. Do not mix berries of different ripenesses in containers.



Place berries gently into containers to avoid bruising.



Do not overfill containers.



Do not put trash or cull berries into the container.



Never allow harvested fruit to remain in the sun. Move harvested berries to cold room or cooler as soon as possible.

Strawberries should be harvested in early morning after fruit have dried. Retain caps on harvested fruit for best shelf life.

Harvesting Blueberries

A mature blueberry bush will typically produce 7-10 lb of fruit per year. Blueberries, which do not ripen simultaneously, should be picked several times during the harvest period, generally at 7-10 day intervals. Blueberries continue to enlarge and ripen after they turn blue. Waiting 3-5 days after berries turn blue to harvest can significantly improve berry size and flavor. Temperature has an adverse effect on fruit quality; above average temperatures during harvest may call for shorter harvest intervals. Harvest intervals should decrease as the season progresses. Late varieties tend to require fewer pickings.

Blueberries are highly perishable and are easily damaged by rough handling or adverse temperatures. Studies have shown most blueberry consumers (including wholesalers) associate appearance and firmness with blueberry freshness and quality. Efforts to maximize quality must begin in the field at harvest. Instruct workers in blueberry harvest, demonstrating desired fruit ripeness and proper picking techniques.



Encourage workers to remove all damaged fruit during harvest to minimize fruit handling. Consider offering a premium to those workers whose flats are consistently free of damaged or poor quality fruit. Employ a responsible person to supervise pickers at all times. This person should randomly inspect one or two pints from each flat. Empty the pint into a shallow pan so each berry may be inspected individually. More than 6 to 8% poor quality fruit per pint should be considered unacceptable (and also not eligible for premiums). If pails are used in berry harvest, they should be of rigid construction and 5 qt or smaller in size to prevent crushing of fruit.

Rules For Blueberry Pickers



Keep your hands clean at all times. Wash hands after each visit to the restroom.



Harvest only ripe berries with completely uniform blue color, with no green or reddish color at the stem end. Leave immature fruit for the next harvest.



Berries should be removed with the thumb and forefinger, keeping the hand cupped under the berry to avoid dropping it.



Don't overfill your hands to avoid bruising or crushing fruit



Do not squeeze or roll ripe fruit. Over handling the berries will remove the bloom (whitish, dusty appearance of the blueberry surface, considered a highly desirable quality by blueberry consumers).



Do not put trash or cull berries into the container.



Never allow harvested fruit to remain in the sun. Move harvested berries to cold room or cooler as soon as possible.

How many pickers will be needed? A general rule of thumb is 2 to 4 pickers per acre at the beginning and end of the season, and 8-10 pickers per acre during peak harvest periods.

Harvesting Brambles

Bramble fruits, raspberries and blackberries in particular, are very perishable. However, careful attention to harvest and post harvest handling and storage should provide reasonable shelf life for marketing and consumption.

Raspberries ripen quickly, but not uniformly over the plant or planting. This necessitates harvest on as tight an interval as every other day. For best fruit quality, raspberries should be harvested before they are fully ripe. They should be picked when they are uniformly bright red in color, but before any darker color develops. Because of their highly perishable nature, brambles should always be picked directly into market containers. Half pint containers are preferable; containers should never hold more than 4 layers of berries to prevent crushing of fruit.



Rules For Raspberry Pickers



Keep your hands clean at all times. Wash hands after each visit to the restroom.



Do not touch berries before they are ready to harvest.



Harvest only light colored berries. Leave immature fruit for the next harvest.



Berries should be removed with the thumb and forefinger, keeping the hand cupped under the berry to avoid dropping it. Don't overfill your hands to avoid bruising or crushing fruit



Do not put trash or cull berries into the container.



Never allow harvested fruit to remain in the sun. Move harvested berries to cold room or cooler as soon as possible

Harvesting Currants and Gooseberries

Currants and gooseberries ripen over a 2-4 week period. Two to three harvests are usually sufficient to harvest fruit at peak ripeness.

Currants. Avoid mesh baskets for currants as individual berries become caught in the mesh, tear and leak. Damaged fruit should be discarded or used for processing as post harvest rots may quickly develop. Half pint or pink containers are good for fresh fruit; solid baskets and clear clam shells also work well.



Red and white currants. Yields for these vary greatly depending on cultivar, growing conditions etc. In general yields range from 3-10 lb/ plant. Fruit for storage should be picked firm and dry. To avoid damaging fruit during harvest, pick whole strigs (berry clusters) by stems and not individual berries. Pickers should be careful not to crush the top berry on each strig while harvesting. Red currants intended for fresh market fruit should be picked before skins change from bright to dull red in color. White currants should be harvested while skins remain bright and translucent.

Black currants. Unlike red and white currants, berries on strigs ripen at different times. Individual ripe berries should be harvested, not entire strigs. Average yield for European black currant varieties is about 10 lb/bush; for American varieties, slightly less. Berries should be uniformly black or dark blue with no trace of green when harvested. Pick berries for storage while still firm and dry.



Gooseberries. Average yield for gooseberries is 8-10 lb/bush; for cordon trained plants (single stem) expected yields are 1-2 lb/plant. Gooseberries present some challenges during harvest because of thorns. Pickers should wear a leather glove on the hand holding branch up or steady while harvesting. Berries should be gingerly harvested with other ungloved hand, avoiding thorns as best as possible.



Rules for Currant and Gooseberry Pickers



Keep your hands clean at all times. Wash hands after each visit to the restroom.



Pick and pack fruit only when dry; never harvest fruit wet.



Red and white currants should be harvested as whole strigs. Avoid crushing the top berry of each strig while harvesting.



Black currants should be harvested as individual ripe berries.



Watch out for thorns when harvesting gooseberries!



Damaged fruit becomes easily infected by post harvest fungi, and should be discarded or kept for processing.



Do not put trash or cull berries into the container.



Never allow harvested fruit to remain in the sun.



Move harvested berries to cold room or cooler as soon as possible.

In Conclusion

Avoid a fumble at the 2 yard line! After a season's worth of effort getting high quality berries ready for harvest, take them over the goal line for a touch down by having your harvest game plan in place and operating even before the 2007 berry season game begins.

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WEATHER NOTES

NEW YORK CROP WEATHER SERVICE NOTES

Week ending April 29th: The week began with warm, dry weather as temperatures climbed well into the 80's on Monday. Monday night, as a strong cold front tracked through the region, severe thunderstorms tracked through western and central New York, with wind damage reported around Syracuse and Utica. Tuesday through Saturday, the region was stuck in an unsettled pattern as waves of low pressure tracked along the old cold front that stalled just south of our region. On Wednesday and Wednesday night, between a tenth and half inch of rain fell over much of New York. On Friday morning parts of southern New York received over 1 inch of rain, locally over 2 inches. Friday afternoon through Saturday, weak low pressure brought another few hundredths to a quarter of an inch of rain to the state. Snowmelt was another issue during the week, as runoff from snowmelt caused flooding in the Adirondacks, Lake George, Saratoga and northern Taconics regions. Growing Degree Day totals since April 1st were above normal in all areas of the state. Departures from normal ranged from +3 to +37. Rainfall totals for the season were also above normal across the state.

Week ending May 6th: A cold front tracked south of the region Monday, April 30th providing cooler weather to begin the week. In addition, a wave of low pressure developed over the Ohio Valley Tuesday and tracked just south of the area with light rainfall observed across most of the region. Amounts were around one tenth of an inch recorded in the rain bucket, locally higher amounts toward the lower Hudson Valley. Thereafter, most of the time was dominated by high pressure with a minor exception. The first full weekend of May, a cold front tracked from north to south providing frost and freeze conditions in the Hudson Valley as the growing season has started. The recent dry weather resulted in cool crisp nights and at times favorable fire weather conditions. Area rivers and streams did take several days to finally recede below flood stage with some fluctuations along the Hudson River as area reservoirs did controlled releases from time to time.

Week ending May 13th: Warm, dry conditions prevailed during much of the week. Temperatures averaged from 4 to 10 degrees above normal. Most regions received below normal rainfall. Weekly amounts ranged from none at Dansville to 2.14 inches at Oneonta. The higher amounts were the result of locally heavy thunderstorms. Growing Degree Day accumulations since April 1st ranged from 70 to 308. Departures from normal are above normal across the state. In Schuyler County, frost occurred on May 13th affecting fruit crops. In Onondaga County, strawberries looked good, but were running slightly behind of schedule. In the Long Island fruit region, strawberry plantings were in bloom. However, some low spots in fields were showing minor frost injury.

BERRY TYME



Look for these thirty-five berry-related words that may be found in columns, rows, on the diagonal, or in reverse!

BASKET	BUSHES	ELDERBERRY	ICE CREAM	PRESERVES
BERRY PATCH	CANES	FIELD	JAM	RED RASPBERRY
BLACK RASPBERRY	CEREAL	FRUIT SALAD	JELLY	ROWS
BLACKBERRY	COBBLER	FRUIT SMOOTHIES	MUFFINS	SHORT CAKE
BLUEBERRY	CREAM	GLAZE	PAILS	STRAWBERRY
BRAMBLES	CURRANT	GOOSEBERRY	PICKING	SYRUP
BRIARS	DEWBERRY	HARVEST	PIE	TARTS

Q U C O B B L E R S E I H T O O M S T I U R F
 J U I C E B E R E L D E R B E R R Y B A B A S
 Y R R E B P S A R D E R C S Y R U P Z L E S T
 F R U I T S A L A D K F P O L C R E A M I P N
 L J A S E N A C M A A O U G N I K C I P F Y I
 A S T R A U Q J E L C G L A Z S K P Y D R G P
 E H A R V E S T A R T A M I A B R R E R O A H
 R S E R T M B J O P R I Y B E E R W E O W R C
 E R O I X A L S A F O V P R S E B B S K S V T
 C A P M W E C Y J M H B R E B E E E T N G E A
 S I T U P R U E N R S Y R W R U B F I E L D P
 E R E F S C R I D E P V A R L E I S W Z A Y Y
 H B B F D E R P X K E R Y B R H K W F X Z L R
 S E R I P C A Q O S T E O R S L I A P G E L R
 U K O N W I N O F S I V Y B R A M B L E S E E
 B X S S R E T I Y R R E B S A R K C A L B J B

(Solution in next month's issue)

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

**WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT
NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, April 29th, 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	87	32	56	6	51	62	32	0.40	-0.30	5.90	3.01
Glens Falls	85	29	54	6	36	39	21	0.11	-0.61	4.52	1.65
Poughkeepsie	84	30	54	7	39	48	28	0.34	-0.34	3.99	1.29
Mohawk Valley											
Utica	76	28	47	3	12	17	3	0.72	-0.33	4.96	0.48
Champlain Valley											
Plattsburgh	82	35	55	7	45	61	34	1.10	0.40	3.14	0.33
St. Lawrence Valley											
Canton	76	39	52	4	32	46	17	0.91	0.21	2.94	0.17
Massena	78	31	50	4	23	28	13	1.34	0.57	4.95	1.97
Great Lakes											
Buffalo	79	32	53	6	37	51	30	0.74	-0.03	2.59	-0.43
Colden	79	38	51	5	25	29	13	1.14	0.29	3.58	-0.07
Niagara Falls	79	34	51	6	24	34	19	1.11	0.20	4.38	0.68
Rochester	89	39	59	8	61	72	28	0.84	-0.04	8.09	4.73
Watertown	81	33	53	6	34	40	22	0.92	0.29	1.81	-0.62
Central Lakes											
Dansville	82	38	54	5	36	41	10	0.93	0.25	2.84	0.12
Geneva	82	33	52	4	31	39	12	1.05	0.35	3.29	0.48
Honeoye	83	37	54	6	40	51	23	1.08	0.38	3.69	0.84
Ithaca	77	39	53	3	30	42	9	0.88	0.17	3.12	0.07
Penn Yan	84	32	53	7	34	42	27	0.79	-0.08	5.52	2.17
Syracuse	84	33	55	6	44	54	21	1.16	0.39	4.33	1.11
Warsaw	76	36	49	4	22	27	15	1.14	0.36	4.20	0.94
Western Plateau											
Alfred	78	30	49	4	17	19	8	1.13	0.50	3.40	0.72
Elmira	82	32	54	6	40	52	28	0.63	-0.02	1.96	-0.63
Franklinville	77	35	50	6	20	20	12	1.07	0.30	3.66	0.49
Sinclairville	79	34	51	6	24	34	19	1.11	0.20	4.38	0.68
Eastern Plateau											
Binghamton	74	37	55	6	40	48	29	1.23	0.32	6.69	2.85
Cobleskill	79	33	53	7	29	39	23	0.67	-0.03	3.21	0.46
Morrisville	85	48	62	8	86	118	37	1.93	1.02	11.78	8.12
Norwich	80	30	53	6	33	42	24	0.61	-0.02	3.14	0.57
Oneonta	81	31	50	4	20	23	5	0.81	-0.03	4.39	1.14
Coastal											
Bridgehampton	76	28	47	3	12	17	3	0.72	-0.33	4.96	0.48
New York	81	32	52	5	33	37	17	0.94	0.24	3.45	0.64

1. Departure from Normal

2. Year to Date: 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.

**WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT
NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, May 6th, 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	68	36	52	-2	20	82	21	0.19	-0.51	6.09	2.50
Glens Falls	66	28	49	-3	4	43	1	0.38	-0.39	4.90	1.26
Poughkeepsie	76	36	55	2	36	108	28	0.07	-0.89	8.16	3.84
Mohawk Valley											
Utica	61	29	45	-3	0	17	-12	0.20	-0.81	5.16	-0.33
Champlain Valley											
Plattsburgh	60	30	46	-5	0	48	5	0.12	-0.52	4.11	0.77
St. Lawrence											
Canton	61	30	47	-4	5	44	9	1.70	-0.53	3.38	-0.07
Massena	63	29	48	-4	5	47	6	0.10	-0.46	3.24	0.11
Great Lakes											
Buffalo	66	39	52	0	17	63	6	0.06	-0.61	3.00	-0.44
Colden	65	32	49	-2	2	31	-5	0.06	-0.77	3.64	-0.84
Niagara Falls	67	36	52	-2	18	60	-4	0.02	-0.68	3.14	-0.61
Rochester	68	37	53	0	21	81	14	0.01	-0.61	3.43	0.29
Watertown	63	27	47	-3	5	45	7	0.17	-0.41	1.98	-1.03
Central Lakes											
Dansville	68	31	51	-2	10	51	-9	0.12	-0.51	2.96	-0.39
Geneva	67	35	50	-2	9	48	-6	0.16	-0.51	3.45	-0.03
Honeoye	67	28	50	-3	10	61	6	0.15	-0.49	3.84	0.35
Ithaca	65	28	48	-4	5	42	-1	0.13	-0.57	3.58	0.07
Penn Yan	67	33	51	-1	14	75	21	0.13	-0.54	3.27	-0.21
Syracuse	65	36	52	-2	14	68	3	0.11	-0.66	4.44	0.45
Warsaw	66	35	49	2	5	32	3	0.10	-0.67	4.30	0.27
Western Plateau											
Alfred	68	27	49	0	5	24	-4	0.06	-0.56	3.46	0.16
Elmira	70	27	50	-3	11	63	14	0.07	-0.60	2.03	-1.23
Franklinville	66	27	48	2	5	25	4	0.12	-0.65	3.78	-0.16
Sinclairville	71	35	53	5	20	54	22	0.64	-0.22	5.02	0.46
Eastern Plateau											
Binghamton	65	37	52	0	13	64	19	0.07	-0.67	2.66	-1.10
Cobleskill	63	33	49	-2	0	33	-6	0.27	-0.50	7.11	3.16
Morrisville	64	36	48	-2	1	29	-5	0.23	-0.54	5.18	1.43
Norwich	67	30	49	-2	3	26	-15	0.50	-0.31	4.89	0.83
Oneonta	72	32	52	4	17	59	25	0.51	-0.41	6.03	1.76
Coastal											
Bridgehamton	75	35	53	2	29	77	34	0.21	-0.70	6.90	2.15
New York	81	48	62	6	87	205	73	0.42	-0.49	12.20	7.63

1. Departure from Normal

2. Year to Date: 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, May 13th, 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	84	36	62	7	88	170	66	1.19	0.42	7.28	2.92
Glens Falls	85	27	59	6	70	113	37	0.59	-0.21	5.49	1.05
Poughkeepsie	88	36	64	8	97	205	75	0.20	-0.78	8.36	3.06
Mohawk Valley											
Utica	80	32	57	7	53	70	18	0.05	-0.93	5.21	-1.26
Champlain Valley											
Plattsburgh	85	32	60	7	78	126	49	0.26	-0.37	4.37	0.40
St. Lawrence Valley											
Canton	81	27	57	6	66	110	45	0.27	-0.36	3.65	-0.43
Massena	84	31	59	7	71	118	44	0.31	-0.25	3.55	-0.14
Great Lakes											
Buffalo	82	39	60	6	71	134	38	0.11	-0.59	3.11	-1.03
Colden	83	30	57	5	61	92	26	0.30	-0.47	3.94	-1.31
Niagara Falls	82	33	59	4	66	126	19	0.05	-0.58	3.19	-1.19
Rochester	86	35	60	6	79	160	48	0.06	-0.50	3.49	-0.21
Watertown	79	27	56	4	54	99	31	0.01	-0.56	1.99	-1.59
Central Lakes											
Dansville	88	30	60	6	75	126	26	0.00	-0.63	2.96	-1.02
Geneva	85	33	58	5	66	114	22	0.80	0.17	4.25	0.14
Honeoye	84	29	58	5	69	130	36	0.08	-0.53	3.92	-0.18
Ithaca	84	28	58	6	69	111	34	0.33	-0.37	3.91	-0.30
Penn Yan	86	34	60	7	77	152	60	0.75	0.12	4.02	-0.09
Syracuse	86	35	60	5	73	141	31	0.04	-0.66	4.48	-0.21
Warsaw	82	35	58	7	61	93	38	0.37	-0.40	4.67	-0.13
Western Plateau											
Alfred	85	27	56	5	50	74	20	0.13	-0.47	3.59	-0.31
Elmira	86	27	58	5	64	127	41	0.65	-0.05	2.68	-1.28
Franklinville	85	26	55	6	52	77	36	0.21	-0.56	3.99	-0.72
Sinclairville	86	32	59	8	65	119	61	0.15	-0.69	5.17	-0.23
Eastern Plateau											
Binghamton	82	36	61	8	80	144	63	0.85	0.10	3.51	-1.00
Cobleskill	84	31	60	8	76	109	39	1.84	1.07	8.95	4.23
Morrisville	81	35	58	6	62	91	26	0.33	-0.48	5.51	0.95
Norwich	85	30	58	6	59	85	12	0.76	0.08	5.65	0.75
Oneonta	85	32	61	10	79	138	76	2.14	1.16	8.17	2.92
Coastal											
Bridgehampton	75	34	57	4	58	135	58	0.01	-0.86	6.91	1.29
New York	82	48	65	5	103	308	107	0.87	-0.01	13.07	7.62

1. Departure from Normal

2. Year to Date: Season accumulations are for April 1st to date

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