



# New York Berry News

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## CURRENT EVENTS

**June 22-23, 2009.** [\*The International Berry Health Benefits Symposium\*](#)~ Monterey, California. Hosted by the [\*National Berry Crops Initiative\*](#), seven North American berry organizations join together to feature the latest research by scientists worldwide on berries and human health.

**June 24, 2009.** 6:00 pm – *High Tunnel Production and Strawberry Renovation* will be the focus of a twilight meeting sponsored by the newly expanded Cornell Cooperative Extension Capital District Vegetable and Small Fruit Program. The meeting is hosted by the Stanton Family at their farm in Feura Bush, NY. Tim Stanton will discuss how he uses his two styles of high tunnels and Dr. Chris Wien of Cornell will talk about ongoing high tunnel research. Strawberry renovation information will follow. The Stanton's grow a wide array of fruit, vegetable and ornamental crops including strawberries in an annual bed system. The farm address is: 210 Onesquethaw Creek Road Feura Bush, NY 12067. For more information, call 518-746-2562.

**July 14-16, 2009.** *Plasticulture 2009*. Ramada Inn and Penn State University, State College, PA. For more information visit [www.plasticulture.org](http://www.plasticulture.org).

**August 11-12, 2009.** *NASGA 2009 Summer Tour* with stops in Michigan, Illinois, Indiana and Wisconsin. (see flyer that follows for details).

**November 8-10, 2009.** *Southeast Strawberry Expo*, Sheraton Imperial Hotel, Research Triangle Park, NC. For information, contact the NC Strawberry Association, phone 919-542-4037, [info@ncstrawberry.com](mailto:info@ncstrawberry.com).

**February 2-4, 2010.** *Mid-Atlantic Fruit and Vegetable Convention*, Hershey Lodge, Hershey, PA. For more information visit <http://www.mafvc.org/html/>.



# **INTRODUCING THE NEWLY REVISED AND EXPANDED CAPITAL DISTRICT VEGETABLE AND SMALL FRUIT PROGRAM!**

**T**he Cornell Cooperative Extension Associations of the Capital District are pleased to announce the expansion of the Capital District Vegetable Program and the hiring of two additional Specialists, Laura McDermott and Crystal Stewart, to assist current Specialist, Chuck Bornt. Originally covering Albany, Columbia, Rensselaer, and Schoharie Counties, the program will now serve the additional counties of Fulton, Greene, Montgomery, Saratoga, Schenectady, Warren, and Washington. In addition to vegetables, the expanded program will also serve the needs of small fruit growers.

Laura McDermott her BS from Cornell University and MS in Fruit Crops from the University of Florida and brings 20 years of fruit and vegetable experience to the expanded program. For the past 13 years, Laura has served the Cornell Cooperative Extension System as a horticulture educator in Washington County and most recently, as the Eastern NY Berry Specialist. She will be located at Washington County CCE.

Crystal Stewart her BS from the University of Wisconsin, Madison and MS in Horticulture also from the University of Wisconsin, Madison. Crystal brings 6 years of vegetable experience to the expanded program working for the South Dakota Cooperative Extension System and most recently for Cornell Cooperative Extension of Fulton and Montgomery Counties. She will be located at Fulton/Montgomery CCE.

Chuck Bornt received his BT from SUNY Cobleskill, and an MS in Plant Biology from the University of New Hampshire. Chuck has been a vegetable specialist in the Capital District Vegetable Program for 7 years. Prior to that Chuck served as vegetable specialist with the Lake Plains Vegetable Program for 5 years. Chuck will continue to be located at Rensselaer County CCE

The Capital District Vegetable and Small Fruits program provides commercial vegetable and small fruit producers, processors and the industry with high quality educational programs and cutting edge research-based information so they can profitably produce and market safe and healthful vegetable and fruit crops in an environmentally sound manner. This will benefit consumers by supplying safe, high quality, locally grown vegetable and small fruit products, and maintain viable farms to enhance the rural landscape and economy of NY State. To achieve this goal, local vegetable and berry growers, the Cornell Cooperative Extension Associations of the Capital District, Cornell University, and NYS Agriculture Experiment Station at Geneva have come together to fund and implement the program.

For more information, please contact your county CCE office.

## **NEIPM FUNDING TO SUPPORT REGIONAL WEBCAST SERIES FOR BERRY PRODUCERS**

**N**E Regional IPM funding was recently awarded to Cornell University Berry Specialist Dr. Marvin Pritts to support a 12 session webcast series aimed at bringing cutting edge berry research and extension information to commercial berry crop producers, research and extension professionals, consultants, and other industry leaders. Attendees wishing to participate in the webcasts may do so from the comfort of their own home with a high speed internet connection. Those who do not yet have access to a high speed internet connection will be able to participate at various CCE offices and other locations across the Northeast that will host large screen sessions for producers.

The series will kick off on Wednesday, Sept. 9<sup>th</sup> with a presentation on advances in strawberry production methods. Dr. Lewis Jett of West Virginia University will present his work with growing strawberries in high tunnels and Kathy Demchak of Pennsylvania State University will speak about plasticulture strawberry systems for northeast growers. More information about registration will follow.

# FARMERS MARKETS GRANTS AVAILABLE

**\$150,000 Available for Capital Improvements to Farmers Markets**

**Applications due July 27, 2009**

**J**une 1, 2009. New York State Agriculture Commissioner Patrick Hooker today announced the release of the Farmers Markets Grant Program Request for Proposals (RFP). This grant program provides up to \$25,000 in matching funds for the construction, reconstruction, improvement, expansion, or rehabilitation of farmers markets in New York State.

Farmers markets have become an increasingly popular venue for both farmers and consumers alike, the Commissioner said. They provide access to locally grown farm and food products for consumers and a direct sale for farmers. With Governor Paterson's support, we are pleased to be able to offer these grants that will help these markets make the permanent infrastructure improvements needed to meet the growing demand they are receiving.

As part of the Grow New York program, Governor Paterson allocated \$150,000 for this program in his Executive Budget that will aid in the construction of permanent infrastructure to support increased access to New York grown and produced food at farmers markets throughout the State. Applicants can apply for up to \$25,000 in matching funds, which should not exceed more than 50% of the project cost.

Eligible farmers markets are any building or property, owned or leased by any municipal corporation, market authority, public benefit corporation, not-for-profit or agricultural cooperative, that has two or more agricultural producers offering for sale farm and food products to consumers.

Proposals must involve physical improvement to a farmers market, such as construction, site preparation, water or electrical improvements, permanent signage, equipment or architectural or engineering designs.

Farmers Markets Grant applications are available by contacting Meg McCabe at the Department at 1-800-554-4501 or by downloading the form from the Departments website at <http://www.agmkt.state.ny.us/RFPS.html>. All applications for funding are due into the Department by July 27, 2009.

New York has approximately 1,000 farmers participating in nearly 400 farmers markets located throughout the State. The States Farmers Markets Grant Program has awarded \$995,400 to 63 farmers market facility improvement projects since the program began in 2000.

Farmers markets are becoming more popular in the nation and have more than doubled in number in the past ten years. Farmers markets benefit city, suburban and rural residents by allowing them more access to fresh food. They also help farmers enhance their revenues margins by enabling them to sell directly to the consumer.

## LEGISLATORS, FARM BUREAU URGE ALBANY TO OPPOSE ANTI-FARM BILL



*Labor Committee Moves Bill That Will Devastate Agriculture and Upstate Economy*

**J**une 1, 2009 – Albany. Senate and Assembly Agriculture Committee Chairs and Ranking Minority members showed a united front, along with the New York Farm Bureau President and family farmers, today in urging the State Senate and Assembly to reject the Farmworker Omnibus Bill. This bill will force many New York farms out of business, ultimately hurting the workers, and devastating the economy of Upstate New York.

"If passed, this bill would put our industry into a major tailspin and wreck the already struggling Upstate and Long Island economy," said Dean Norton, President of New York Farm Bureau and a dairy farmer from Batavia, N.Y.

"The tragic irony of the situation is that the sponsors are primarily from New York City or urban areas, and most of them have never been on a farm", said Norton. "If the bill's sponsors spent some time understanding the issue, talking to farmers and farm workers, they would know that the bill doesn't actually benefit the worker."

"Proponents of this bill have all the best of intentions, but this bill would hurt farm workers and farmers alike. It does not do what they intend it to do," said state Sen. Darrel J. Aubertine (D-Watertown), Chair of the Senate's Standing Agriculture Committee. "At this point in time, there already isn't enough money in the system to cover the cost of production. This legislation would be counterproductive and cost both farm workers and farmers their livelihood."

Said Assemblyman Bill Magee (D-Nelson), chairman of the Assembly Ag Committee: "This bill couldn't happen at a worse time for farmers, with the economy struggling and our farmers facing rising prices of fuel, fertilizer, seed, and other agricultural inputs. I've worked extremely hard with my colleagues from New York City to get more New York farm products into the New York City markets, and if this bill is adopted, it could seriously jeopardize the ability of our farm families to provide fresh fruits, vegetables, and dairy products into the New York City markets."

The bill will cost the farm families of New York more than \$200 million per year, devastating both farmers and farm workers and the overall Upstate economy. Jon Greenwood, a dairy farmer from St. Lawrence County, estimated the bill would cost him \$6,000 a week in overtime costs alone.

The Senate Labor Committee today voted in favor of the bill that would require mandatory payment of overtime to farm workers, even though this year many farm workers will make more than the farmers themselves. The bill has moved through Committee in the Assembly, and is pending a vote in that chamber.

The bill also makes mandatory the payment of unemployment insurance for small farm employers, even for seasonal workers, requires disability insurance for injuries off the job and collective bargaining and union organizing. No other state, except California, has such a comprehensive labor mandate on their farm families.

The bill comes as the costs of doing business in New York skyrocket, with increased taxes and fees slamming farmers during the worst recession in decades.

Said Senator Catharine Young (R,I,C-Olean): "If these bills go through, it will cause a nuclear explosion that destroys our state's top industry. Thousands of farms will go under, and countless jobs at farms, processing plants, and farm supply businesses will be lost. Crops will rot in the fields because farmers won't have the money to harvest them, and dairy cows will be taken to processing facilities because farmers can't afford to milk them. We have to hold politicians accountable for their actions this year. It will be the final nail in the coffin for Upstate's economy."

"The passage of this legislation would be devastating to the farm community who already are forced to deal with razor thin margins, frequent weather related challenges and crops that must be picked when ready. Every farmer that I know pays a good wage and provides other major economic benefits to their employees, that can even include housing, in order to keep them," said Assemblyman Cliff Crouch, Ranking Minority Member of the Assembly Agriculture Committee.

New York farmers compete with Canada, Mexico, and China, none of which require the payment of overtime, unemployment insurance or other state mandates or have such a costly climate to do business in.

Norton said, "This is a major pocketbook issue for our family farmers. Farmers will remember this vote for years to come, as it is the defining issue for the survival of our farm businesses in New York State."

"Like all small businesses in our state family farms--struggle against one of the adverse economic climates in the nation. This bill is wrong for New York's critical agriculture industry and wrong for our economy, and ought to be resoundingly rejected by the Legislature," said Mike Elmendorf, New York State Director of the National Federation of Independent Business (NFIB), New York's leading small business advocacy association.

*New York Farm Bureau is the statewide lobbying/trade organization that represents thousands of member families. Its members and the public know the organization as "The Voice of New York Agriculture." New York Farm Bureau is dedicated to solving the economic and public policy issues challenging the agricultural community.*

# CAMPAIGN TO SAVE FARMERS' LIVES ENTERS THIRD YEAR

## Rebate Effort Surpasses 600 Tractors

**Cooperstown, N.Y.** – The New York Center for Agricultural Medicine and Health (NYCAMH) announces that it has fitted the 630<sup>th</sup> tractor with a rollover protection system (ROPS) through its rebate program, now entering its third year. According to the Centers for Disease Control and Prevention, 1,412 workers on farms died from tractor overturns between 1992 and 2005. NYCAMH's efforts have saved hundreds of New York farmers from potential injury and death.

“Our campaign has increased by ten-fold the number of farmers making their tractors safe by retrofitting them with rollover protection systems,” said Dr. John May, director of NYCAMH. “This is important because a farmer’s risk of dying on the job is 800 percent higher than that of the average American worker.”

Tractor overturns are the primary cause of these fatal and permanently crippling injuries. In the event of a rollover, the use of ROPS and a seatbelt reduces the risk of injury by 99 percent. Tractors built after 1985 have built-in rollover protection, but most tractors in use today are older than that.

In January 2009, NYCAMH began its ROPS print advertising campaign featuring New York farmer Don Tetreault of Hidden View Farm in Champlain, New York. “When my tractor flipped over, I broke all the ribs on one side,” Tetreault said in one ad. “I had tractor tracks on my back when they pulled me out. I couldn’t work for months and almost lost the family farm, and I was one of the lucky ones.” Since that time, Tetreault has retrofitted all of his tractors with ROPS.

“We are grateful to the New York State Legislature for their support of this program, in particular lead proponents State Senators James L. Seward and Catharine M. Young, both members of the Senate Agriculture Committee,” Dr. May said. “It is especially important in this economic climate to continue to make this financial assistance available.” In fact, the average out-of-pocket cost to farmers is just \$380 compared in many cases to nearly \$1,000 before the ROPS program.

Farmers should call toll free **1-877-ROPS-R4U (or 1-877-767-7748)** for more information. By calling the “ROPS-R4U” hotline, farmers can both receive information on the program and allow hotline staff to do the legwork for them. In addition to saving farmers money, the ROPS program is specifically designed to reduce the hassle of retrofitting a farm tractor with an approved rollbar and seatbelt. The rebate amounts to 70 percent of the cost of purchasing and installing rollover protection on a tractor, a savings of up to \$765.



“We almost lost a brother, our farm, our way of life... We installed ROPS on all of our tractors to make sure it doesn't happen again.” –*Richard B. Burt, Hidden View Farm*

**New 2009 Rebate 70% off**  
Save up to \$765 on costs to retrofit your tractor

More than half of rollover injuries require a trip to the hospital and result in 30 lost workdays due to the injury. 1 in 7 farmers involved in tractor overturns are permanently disabled.

Install rollover protection now and we'll pick up part of the bill. Call now and receive a rebate of 70% (up to \$765) for the entire cost of retrofitting your tractor. We will help you find the right model and dealer.

Now, getting rollover protection has never been easier or more affordable.

**CALL 1-877-ROPS-R4U**

80% OF DEATHS CAUSED BY ROLL-OVERS HAPPEN TO UNPROTECTED DRIVERS. Sources: James L. Seward and Catharine M. Young

## SURVEY REPORTS LATEST HONEY BEE LOSSES

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

**W**ASHINGTON, May 19, 2009--Honey bee colony losses nationwide were approximately 29 percent from all causes from September 2008 to April 2009, according to a survey conducted by the Apiary Inspectors of America (AIA) and the U.S. Department of Agriculture.

This is less than the overall losses of about 36 percent from 2007 to 2008, and about 32 percent from 2006 to 2007, that have been reported in similar surveys.

"While the drop in losses is encouraging, losses of this magnitude are economically unsustainable for commercial beekeeping," said Jeff Pettis, research leader of the Agricultural Research Service (ARS) Bee Research Laboratory in Beltsville, Md. ARS is USDA's principal intramural scientific research agency. The survey was conducted by Pettis; Dennis vanEngelsdorp, president of AIA; and Jerry Hayes, AIA past president.

About 26 percent of apiaries surveyed reported that some of their colonies died of colony collapse disorder (CCD), down from 36 percent of apiaries in 2007-2008. CCD is characterized by the sudden, complete absence of honey bees in a colony. The cause of CCD is still unknown.

As this was an interview-based survey, it is not possible to differentiate between verifiable cases of CCD and colonies lost as the result of other causes that share the "absence of dead bees" as a symptom.

However, among beekeepers that reported any colonies collapsing without the presence of dead bees, each lost an average of 32 percent of their colonies in 2008-2009, while apiaries that did not lose any bees with symptoms of CCD each lost an average of 26 percent of their colonies.

To strengthen the beekeeping industry, ARS recently began a five-year area wide research program to improve honey bee health, survivorship and pollination. Honey bee pollination is critical to agriculture, adding more than \$15 billion to the value of American crops each year.

The survey checked on about 20 percent of the country's 2.3 million colonies.

A complete analysis of the survey data will be published later this year. An abstract of the data is available on line at: <http://maarec.cas.psu.edu/pdfs/PrelimLosses2009.pdf>.

## BEE-KILLING PARASITE'S GENOME SEQUENCED

Dennis O'Brien, ARS News Service, Agricultural Research Service, USDA (301) 504-1624, [dennis.obrien@ars.usda.gov](mailto:dennis.obrien@ars.usda.gov)

**J**une 5, 2009. Agricultural Research Service (ARS) scientists have sequenced the genome of an invasive parasite called *Nosema ceranae* that can kill honey bees and is one of the many suspects in the mysterious ailment known as colony collapse disorder (CCD).

ARS researchers Jay Evans, Yanping (Judy) Chen and R. Scott Cornman also have nearly completed sequencing the genome of *Nosema apis*, a native "cousin" of the parasite.

The scientists are using genetic tools and microscopic analysis at the ARS Bee Research Laboratory (BRL) in Beltsville, Md., to examine the two parasites suspected as a partial cause of CCD. They are working with BRL research leader Jeff Pettis, Yan Zhao of the ARS Molecular Plant Pathology Laboratory in Beltsville, and researchers from the University of Maryland, Columbia University, and 454 Life Sciences of Branford, Conn.

In 2006, CCD began devastating commercial beekeeping operations, with some beekeepers reporting losses of up to 90 percent. Researchers believe CCD may be the result of a combination of pathogens, parasites and stress factors, but the cause remains elusive. At stake are honey bees that add up to \$15 billion in value to crops in the United States.

*Nosema* is a fungus-related microbe that produces spores that bees consume when they forage. Infection spreads from the bees' digestive tract to other tissues. Within weeks, colonies are either wiped out or lose much of their strength. *N. apis* was the leading cause of microsporidia infections among domestic bee colonies until recently, when *N. ceranae* jumped from Asian honey bees to the European honey bees used commercially in the United States.

Sequencing the genomes should help scientists figure out how *N. ceranae* became dominant, trace its migration patterns, help resolve how the microbes spread infection, and develop diagnostic tests and treatments. A report on the work was published today in the journal PLOS Pathogens.

*ARS is the principal intramural scientific research agency in the U.S. Department of Agriculture.*

## **THAT'S A BERRY GOOD QUESTION!!!**

### *Sowbugs and Strawberries*

*Kathy Demchak, Penn State Horticulture*

**Q**. A local grower mentioned he was having trouble with sowbugs eating holes in his strawberries last year. However, the literature says that sowbugs eat dead and decaying organic matter, and that they typically aren't a problem for crops. Have you ever heard of this happening anywhere else? Are there any materials that can be used to help with this problem?

**A**. Yes, and yes. We had major problems with sowbugs eating holes in strawberry fruit in our high tunnels. I thought the problems we were having were isolated incidents, but since then, I've heard from a few strawberry growers with sowbug problems, and the problem has occurred in the field as well as in high tunnels. Maybe the problem wasn't as isolated as I thought.

In every case where sowbugs have been a problem, there has been organic matter involved, either as a mulch, a compost, an unharvested root crop, or wood for permanent raised beds that started to decompose, as in our tunnels. In these situations, the sowbug population starts building on an abundant organic (organic meaning carbon-containing, in this case) source of food, but once the population becomes high and the original food source decomposes further, the sowbugs will eat whatever they can find that is soft enough. Strawberries certainly fit the bill.

One of the growers had tried a product called Sluggo Plus (other trade names exist) that is labeled for control of both snails and sowbugs (and some other soil-dwelling pests), and apparently it worked quite well. Sluggo Plus contains iron phosphate for slug control (same as in the product Sluggo) and spinosad, which affects the sowbugs and other insect pests. One caution is that there is a 3-day PHI for Sluggo Plus, as opposed to Sluggo which can be used up to the day of harvest. So, if you're seeing sowbugs, you'll want to get this product on before harvest begins.

*(Editor's note: Sluggo Plus is also registered in NYS for use on strawberries. A NYS label for this product may be found at: <http://132.236.168.120/ppds/513743.pdf>.)*

*(Reprinted with permission from: The Vegetable & Small Fruit Gazette, May 2009, Volume 13, No. 5. Photo courtesy Catie Rasmussen, PA)*



## News from the NYS Berry Growers Association



### **DON'T UNDERSELL YOURSELF!**

*Dale Ila Riggs, Chair, The Berry Patch, Stephentown NY*

Strawberry harvest season has begun and all of us on the Board of the NYS Berry Growers Association wish you a productive, profitable harvest. The key word here is profitable. I've heard a few growers commenting "Gee, times are tough. I wonder if I should drop my price." My response is "No way!!!!" You've worked hard to produce your crop, quality berries are in demand, and you deserve to make a living as much as the next person. If you want to acknowledge that times are tough, say something like, "Even though our costs are up, we know that a lot of people are going through tough times, so we're holding the line on our prices."

As I write this, the NYS Senate is in an uproar. And for the sake of all of us in agriculture, it may be a good thing - otherwise we would most certainly be looking at suddenly having to pay time and a half to our workers for any hours worked over 40 hours a week. It may still happen this season. So what shape are you going to be in if you lower your price and are suddenly paying 30-50% more in labor costs? And if the bill doesn't pass this year, you can be sure it will rear its ugly head again in the next session. So what will your customers think if you lower your price this year and then have to increase it by a huge percentage next year just to stay even with drastically increased labor costs?

Or what if you get hit by a hail storm? Personal experience from 2008 taught me this grave lesson. In a ten minute hail storm, \$20,000 worth of produce got destroyed. Do you think my customers said "Gee, thanks for keeping your prices so reasonable? Since you just lost \$20,000 in income, I'll make a charitable donation to you to help make up your loss"? Think again. We are in a risky business and we need to price our product to cover some of that risk, cover our costs, both projected and unexpected, and to pay ourselves a decent wage. That adds up to not underselling yourself.

People want our product and are willing to pay for a high quality product. We continue to get new customers who found us on the NYSBGA website. When they call, they aren't asking the price, they are asking when we are open, so they can buy great tasting, nutritious NYS grown berries. So give your customers what they want - great tasting NYS berries, at a price that ensures that you can be in business again next year to provide the same great berries.

### **COUNT THE COST - MAKE THE CALL!**

*Paul Baker, Executive Secretary, Watertown, NY*

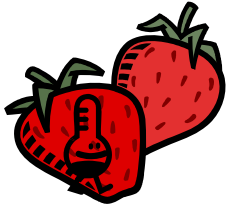
Several bills ("Farmworkers Fair Labor Practices Act") seek to amend the labor law to require overtime pay for farmworkers would put many farm businesses in danger of closing. In the midst of a global fiscal crisis, New York farms are also facing increased input costs, low commodity prices, higher taxes and fees and fewer state resources. This is another expensive mandate that won't actually provide the intended benefit to farmworkers and further hurts family farm businesses. It is important that you write your lawmakers today to strongly oppose these bills!

As of this writing the issue on over time is still on the table. I have put together some talking points as you prepare to make the call and discuss this with your legislators. Make the call again even if you already called earlier this year.

#### **Thoughts to add to your calls to your legislators.**

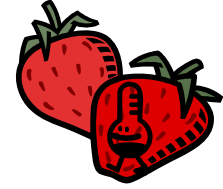
- 1) In the US retail industry hardly any sales associate or clerk ever receives overtime. The average hourly wage is \$8.83 for a sales associate and \$8.71 for a retail sales associate. Few receive any health care benefits or retirement. Certainly none receive free housing or a transportation allowance.
- 2) The announced adverse effect wage rate in NYS for 2009 for H2a is at \$10.20 if you do not sign up before June 29, 2009.
- 3) Links to NASS survey state that farm workers averaged 38.3 hours per week in the most recent study.
- 4) In April 2009 Cornell completed a similar study and came up with 40.1 hours per week.
- 5) Colorado study came up with 43.5 hours per week
- 6) The National Center for Farm Workers Health says average is 42 hours per week. This is a farmworker advocate group so it would be a strong statistic to use with legislators.
- 7) California has time and a half but it does not kick in until after 60 hours.
- 8) Currently there are seven states with some provisions for farm workers to receive overtime pay. California, Colorado, Florida (for days longer than 10 hours per day) Maine, Maryland (farms with over 500 worker days annually) Mississippi and Wisconsin.
- 9) NYS is dependent on importation of farm workers across state lines in order to complete tasks currently on our farms.





# JUNE BERRY BAROMETER

## HELPING TO KEEP YOU UP TO THE MARK!



Cathy Heidenreich, Western NY Berry Extension Support Specialist,  
Department of Horticulture, Cornell CALS, Ithaca, NY 14853

**A**fter three nights this past weeks with temperatures in the upper 20's to low 30's in some regions hopefully our frost danger is over for this season. Now if we only had a little rain...most regions of the state and running 1-3" below normal for rainfall, so be sure to irrigate, especially with a full crop load just before and during harvest.

### **ALL BERRY CROPS:**

1. **Fertilization** – Now would be the time to make those second split applications for established blueberries, currants, gooseberries, and raspberries.
2. **Weed management** – Hand-weeding or spot applications to control weeds. Get out that wick wiper, flame thrower, 2-gallon garden sprayer and walk those plantings- spot treatments now can prevent major problems later!
3. **Pest management** –Scout! If you see problems developing, check out the berry diagnostic key for help in identifying the culprits (<http://www.hort.cornell.edu/diagnostic/> Problems? Check out the berry pest management guidelines for control strategies (<http://ipmguidelines.org/BerryCrops/>).
4. **Irrigation** – Keep water on berry crops, especially during fruit development and harvest. Strawberries and blueberries typically need 1-2 inches of water per week either in the form of rain or irrigation.
5. **Harvest/Post Harvest** –Getting ready now can save headaches later. Are all of the aisles easily accessible to equipment and/or customers? Scheduled delivery for portajohns and handwashing units yet? Sufficient harvest supplies on hand? Directional/informational signs in place? Temporary labor trained and ready to go?

### **STRAWBERRIES:**

#### *Established plantings:*

1. **Diseases** – Gray mold is the main concern preharvest and harvest. Switch, Cabrio, Pristine, and others have a 0 DTH and 12 hr REI. Unless we get a period of warm weather, anthracnose problems are less likely – none-the-less, Cabrio and Pristine also have anthracnose activity.
2. **Insects** – Tarnished plants bugs are in full swing; sap beetles are probably not far behind. Assail, a newly registered product on small fruit, is labeled for both pests. Reports of strawberry root weevil problems are coming in. Scout weak areas of the field for root damage and/or grubs at the base of plants. Watch leaves for notching by weevil adults.
3. **Slugs and Snails** –Options for slug management may be found in the berry pest management guidelines. Sluggo (iron phosphate), one of the products listed, is an OMRI approved product labeled for organic use.
4. **Harvest/Post harvest** – Got your market lined up? Your pickers? Plenty of harvest-related supplies in stock? Cold room fired up and ready to go?

#### *New plantings:*

1. **Plant establishment** – More of the same for this month! Runners need good soil contact to root. Keep the 18" planting strip weed free by hand weeding or using cultivation equipment for good runner establishment. Direct runner plants from aisles back into planting row area. Remove blossoms as they open to encourage good plant establishment and growth.

### **BLUEBERRIES:**

#### *Established plantings:*

1. **Diseases** – If you had mummyberry shoot strikes, blossom and green fruit protection is a must. Anthracnose is the other fruit rot worry for blueberries, especially when there are period of warm temperatures and abundant rainfall. See the berry guidelines for more details and management strategies.
2. **Insects** – Insects of concern for the petal fall/post bloom period include fruitworms, leafrollers, Blueberry tip borer, and Plum curculio. Blueberry maggot is a concern as fruit begins to turn blue.
3. **Harvest** – Birds may be a concern again this year due to early season lack of rainfall. Be sure to get your bird control tactics in place before fruit starts to ripen. Use more than one tactic at a time and change them up frequently to keep birds off guard.

#### *New plantings: – More of the same for this month!*

1. **Plant establishment** – Remove emerging flower buds between the palms of the hands to promote good plant growth and establishment.
2. **Critter Patrol** – Watch for deer browse on new plants. Take immediate steps to deter feeding. For more information check out:

### **RASPBERRIES AND BLACKBERRIES:**

#### *Established plantings:*

1. **Pollination** – Honey bee colonies are usually not needed for brambles as the flowers produced large quantities of nectar, attracting both wild and domesticated bees.
2. **Diseases** – Remember that first gray mold spray should go on at 5-10% bloom. Signs of infection include gray fuzzy masses on blossoms or ripening fruit. Hot humid weather may bring out powdery mildew on brambles. Watch undersides of leaves, flower buds, and developing fruit for white powdery mycelium (fungal growth).

3. **Insects** – Insects of concern during late pre-bloom to bloom include Raspberry fruitworm, Raspberry sawfly, Tarnished Plant Bug and Japanese Beetle. Pyrethrins and Sevin have activity against all 4 pests.
4. **Irrigation** – Did you know a raspberry plant in summer can use up to ¼” of water per day? Available moisture can be depleted in just a few days after a heavy rainfall. Brambles need a continuous (*but not excessive*) supply of water throughout the growing season – about 1-2” per week.

*New plantings:* – More of the same for this month!

1. **Plant establishment** – Avoid cultivation or herbicides until plants are well-established. Apply a dilute liquid fertilizer once new growth appears.
2. **Irrigation** - same as for established plantings.

## **CURRENTS AND GOOSEBERRIES:**

*New and Established plantings*

1. **Diseases** – Watch for leaf diseases such as white pine blister rust (yellow-orange powdery spots), powdery mildew (white powdery spots), or leaf spots (black necrotic spots) on leaves. Be sure to check both upper and lower leaf surfaces.
2. **Insects** – Preharvest insects of concern include Gooseberry Fruitworm, Currant Borer, Imported Currant Worm (already reported in the Hudson Valley region), Japanese Beetles, and Two-Spotted Spider Mites.
3. **Irrigation** - Ribes require less water than many other small fruit crops – about ½ -1” per week. On drought-susceptible soils more irrigation may be needed.

## **STRAWBERRY HARVEST AND STORAGE/SHIPPING CONSIDERATIONS**

*Craig Kahlke, Area Extension Educator - Fruit Quality Management, Lake Ontario Fruit Program – Niagara County Cornell Cooperative Extension, 4487 Lake Ave., Lockport, NY 14094*

**S**trawberry harvest will soon be underway, so now is a good time to discuss handling of the fruit associated with harvest and post-harvest activities. Strawberries are among the most perishable of all fruits, and thus it is critical that marketing channels are open before harvest starts. Strawberries are extremely susceptible to bruising, and rough handling at harvest and during any time thereafter will encourage fungal growth and decay. It is critical that personnel be trained in the careful picking and handling of fruit. In addition, fruit quality declines as the season progresses, so the highest quality fruit will be earliest in the season. With varying degrees of ripeness in single plantings, it is also extremely important that the fruit is harvested as near peak ripeness as possible.

### **Strawberries Destined for Direct Markets**

Since most strawberry markets in the Northeast are consumed very close to the farms in which they are produced, many growers lack and may not need the cooling methods and storage facilities used by long-distance shippers such as those employed by the production areas in California and Florida. Direct market channels are ideal for many growers in the Northeast, as fruit loss is further accentuated from shipping from the farm to wholesalers, and from the wholesalers to retail markets. By bypassing wholesale shipping, fruit loss due to bruising and fungal decay can be reduced by an average of 20%. For optimum quality, it is critical that direct market fruit is harvested at or very near peak ripeness. Top quality strawberries should be fully ripe, with a uniform red color, be firm, flavorful, and show no signs of decay or disease.

### **Temperature is the single most important factor affecting shelf life of strawberries.**

If cooling down to the recommended 32 F is an issue for growers, research shows that strawberries held at 50F storage at high humidity will benefit storage life greatly as compared to room temperature storage. In addition, strawberries at 50F tend to retain their color and glossy appearance better than berries stored at 32F. Many direct-market local growers claim approximately 90% of their strawberries are consumed the day they are harvested, thus in these cases, it is very critical that the berries be at peak ripeness. The berries are most often harvested in morning only when field heat is low, are usually then shipped out to markets on refrigerated trucks the same morning, reach the retail shelves by afternoon, and are bought and consumed within a day or two.

### **Strawberries Destined for Long-Distance Markets**

For strawberries that are being transported beyond local markets, there are two factors that impact on maximum shelf life potential. First, the fruit will hold up better if they are harvested at the white tip stage, rather than fully ripe. Second, cooling is critical. As soon as harvest occurs, it is imperative that field heat is removed from the fruit. It is recommended that cooling is started within an hour of harvest. Ideally, 32F forced-air cooling with high humidity (90-95% RH) is recommended. Refrigeration without forced air can also be used, however, shelf-life will be shortened. Proper forced-air cooling removes field heat from fruit in around 90 minutes, while simple refrigeration without forced air can take about 9 hours. Proper ventilation around, below, and above the fruit is essential for removing field heat quickly. Covering containers with plastic prior to cooling, and not removing plastic until berries are at room temperature for several hours

after reaching market shelves will prevent condensation buildup on the inside of the bag and delay fungal growth. It is estimated that for each hour delayed in cooling the fruit results in reducing shelf life of fruit by one day.

Following field heat removal, shipping on refrigerated trucks to market destinations is essential. If cold storage will be limited at market destination, as stated in the section on direct marketing, research shows 50F storage at high humidity will benefit storage life greatly as compared to room temperature storage. If all precautions are taken from harvest to cooling to storage, shelf life from harvest to market and on the consumer's table is about 10-14 days maximum for strawberries.

For growers interested in exploring the potential of longer distance markets, including more information on how to set up an inexpensive forced-air cooling system for berries and many other types of perishable produce, please contact Craig Kahlke at 585-735-5448, or email at [cjk37@cornell.edu](mailto:cjk37@cornell.edu).

*Acknowledgments – I wish to thank the late Jim Coulter, Marvin Pritts and Chris Watkins for their help in providing information for this article.*

#### **Resources:**

1. Strawberry Production Guide for the Northeast, Midwest, and Eastern /Canada, NRAES-88. 2008 Pest Management Guidelines for Berry Crops, Cornell University, Cooperative Extension.
2. Shin, YJ, Liu, R.H., and Watkins, C.B. Temperature and relative humidity effects on quality, total ascorbic acid, phenolics and flavonoid concentrations, and antioxidant activity of strawberry. *Postharvest Biology and Technology* 45: 349-357, 2007 (Online 5/3/07).
3. USDA, ARS Agriculture Handbook Number 66, The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks.

## **CAUSES OF MISSHAPEN STRAWBERRIES**

[Kathy Demchak](#), Penn State Horticulture

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

- 1) *Some cultivars just do that.* There can be bumps, folds, crinkles, and hollow berries that split open at the tip. This happens more frequently with cultivars that are known for a huge size. Cabot, Camarosa, and Albion tend to do this, and almost always, it's just with the primary berries. Mesabi also may have misshapen berries, but to a lesser extent, and low boron could also play a role (see below). Once you are producing secondary and tertiary berries, this becomes less of a problem, possibly because more pollen is available – source of pollen and timing of pollen release also may play a role.
- 2) *Environmental conditions during bloom that would have affected pollination.* This can be temperatures below freezing, which can damage flower parts. A hot dry spell can cause the stigmas (located on the yellow "cone" in the center of the flower) to dry out, and therefore, the pollen doesn't stick. In the case of cold temperatures, the berry may appear folded, or the tip may be affected. With hot dry temperatures, pollen may stick only where the stigmas touch the anthers. The anthers are located in a circle around the stigmas. In extreme cases, the berry may end up shaped like a doughnut.
- 3) *Damage to the flower from a mixture of spray materials applied during bloom.* I've only suspected this in cases where more than 3 or 4 materials were applied in a tank mixture at one time. There is some indication in the literature that when high calcium concentrations are applied to flowers (much higher than those found when labeled directions for nutritional supplements are followed), pollen viability is affected. So, you might want to measure. More often isn't better.
- 4) *Low boron or zinc.* Both are involved in pollen tube growth, so incomplete pollination takes place. Bad pollination = no seeds, and when seeds don't develop, the fruit doesn't enlarge. The seeds produce the growth regulator that causes the berries to expand. This is one reason why we like to see growers use tissue analysis. Low boron is more likely to be a problem on sandy soils. Boron levels in the soil should be above 1.5 pounds per acre, or 0.75 ppm, and tissue levels should be between 30 and 70 ppm.

5) *Seed destruction (seeds may only be hollowed out) by an insect, mostly likely tarnished plant bugs.* Adult tarnished plant bugs fly away fast, so it's possible to miss the problem until you see the green nymphs crawling around. Usually tarnished plant bugs are a bigger problem where you have weeds, on which they multiply. Long-necked seed bugs are occasionally a problem, and as the name implies, look like they have a long neck. They are dark brown, slender, and have tiny little heads. They move really fast and hide under leaves. Both tarnished plant bugs and long-necked seeds bugs cause a "button-berry" shape most commonly, but other shapes are possible.

6) *Poor pollination from a lack of pollinators, or damp rainy weather during bloom,* which discourages pollinators from flying. More pollination usually results in bigger fruit regardless. Each blossom should receive 16 to 25 bee visits for complete pollination.

*(Reprinted with permission from: The Vegetable & Small Fruit Gazette, May 2009, Volume 13, No. 5)*

## **COOL, WET WEATHER CONDUCTIVE TO ANGULAR LEAF SPOT OF STRAWBERRIES**

*Annemiek Schilder, Plant Pathology, Michigan State University*

**I**n the Midwest, angular leaf spot (also called bacterial blight) is the only reported strawberry disease caused by a bacterium, namely *Xanthomonas fragariae*. This bacterium has been hitchhiking around the United States on strawberry planting material, since it was first reported in Minnesota in 1960. Although the disease has not been a major problem, it can occasionally become serious. Economic damage is mainly due to blackening of berry stem caps, which mars the appearance of berries. However, severe leaf spotting can also result in premature leaf drop which may affect plant vigor and yield. Among strawberry cultivars, Allstar, Redchief, Glooscap, Kent, Lester, and Lateglow are known to be fairly susceptible.

Typical symptoms of angular leaf spot are small, angular water-soaked spots on the lower leaf surface. Spots may coalesce resulting in larger lesions and necrotic areas. On the upper leaf surface, the lesions look like irregular reddish-brown spots and could easily be mistaken for scorch. It is important, therefore, to inspect both the upper and lower leaf surface. Angular leaf spot lesions are distinctly angular and translucent when the leaf is held up against the light, whereas scorch lesions are more rounded and not translucent. Under humid conditions, a shiny or slimy bacterial exudate can be seen on the lesions on the lower leaf surface. The exudate eventually dries out into a scaly, whitish film. Heavily infected leaves may die, especially if major veins are infected, and the infection may even become systemic. The pathogen can infect all plant parts, except berries and roots. However, berry stem cap infections can be serious, resulting in blackened caps and unattractive fruit. *Angular leaf spots caused by bacteria on strawberry leaf. Photo credit: A Schilder, MSU.*



The bacteria overwinter in old infected leaves and crowns. Primary infection of new growth in the spring occurs by rain or irrigation water splash. The bacteria enter plants through wounds or by actively swimming into natural plant openings (such as stomata, the plant's breathing pores) aided by dew, rain or irrigation water. Development of the disease is favored by moderate to low daytime temperatures (around 68°F), low nighttime temperatures (near or below freezing), and high relative humidity. Long periods of leaf wetness due to heavy dew, irrigation, or prolonged rains also favor disease. Young, vigorous leaf tissues are more susceptible to the disease than older leaves.

Angular leaf spot can be managed by using clean planting material, adequate plant and row spacing, and removal of infected plant debris after harvest. If leaf spots are common during fruit development and the weather is conducive, there is a risk of berry stem cap infection. It is therefore important to protect the berry stem caps from infection by applying protective sprays. *Black cap (calyx) of strawberry due to bacterial infection. Photo credit: A Schilder, MSU.*



Copper products, such as Kocide and Cuprofix, applied on a regular basis are the most effective products for control, but care has to be taken to avoid phytotoxicity, which manifests itself by purplish discoloration on leaves. Adding lime as a safener is recommended, particularly since the cool, slow-drying conditions that promote the disease also promote copper uptake by the plant.

*(Reprinted with permission from: [MSU Fruit Crop Advisory Alert newsletter \(CAT\)](#), June 02, 2009.*

## **STRAWBERRY RUNNER MANAGEMENT UPDATE 2007-2008**

*David T. Handley, and Renae Moran, University of Maine Cooperative Extension, P.O. Box 179, Monmouth, ME 04259, USA*

### **Runner Growth and Yield Response of 'Albion' and 'Seascape' Day Neutral Strawberries to Pre-Plant Prohexadione-calcium Root Dips.**

The commercial production of day neutral strawberries in the northeastern United States can be challenging, due in part to the short growing season, which is characterized by warm temperature and long day lengths. These conditions appear to encourage runner plant (stolon) growth in some cultivars, which interfere with harvesting and can encourage disease problems, resulting in reduced fruit quality and yield. The labor and cost of runner removal is prohibitive for most growers and has inhibited the adoption of day neutral strawberry production in the region.

Prohexadione-calcium (Apogee®) is a gibberellic acid synthesis inhibitor that can reduce shoot growth in plants, and has been shown to reduce runner production in June-bearing strawberries grown in an annual plasticulture system when applied as a foliar spray during the summer (non-fruiting) period. Foliar sprays appear not be practical on day-neutral plants however, because they bear flowers and fruit concurrently with runner production.

Spring planted day-neutral strawberry plants, cv. 'Albion' and 'Seascape', were treated with prohexadione-calcium as a root dip at concentrations of 100 or 200 ppm, prior to planting into a plasticulture system in Maine (May, 2007). All of the prohexadione-calcium treatments significantly reduced runner production, ranging from 40 to 90% (Figure 1). 'Seascape' appeared more sensitive to the treatments, showing the greatest inhibition of runners and other vegetative growth. Marketable yield (kg) significantly increased in treated plots for 'Albion' (Figure 2), with the lower rate showing the greatest gain. Yield was not significantly affected for 'Seascape' at the low concentration, but was reduced at the higher concentration. Fruit number was significantly increased in treated plots for 'Albion', and was not significantly affected for 'Seascape'. Fruit size (g/fruit) was significantly reduced by all prohexadione-calcium treatments, ranging from 10 to 27%, with the higher concentration causing greater reduction and 'Albion' having a greater proportional reduction than 'Seascape'. Pre-plant prohexadione-calcium root dips may provide an effective means of reducing runner growth for day-neutral strawberries grown in a plasticulture system. However, determining appropriate rates to balance runner inhibition with potential loss of fruit size will be critical, and will very likely differ among cultivars.

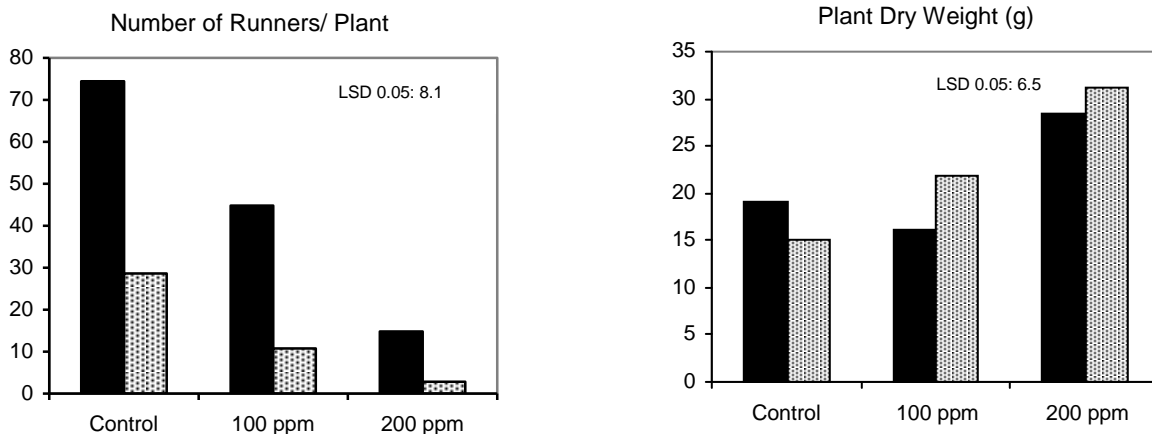
### **Vegetative Growth of 'Chandler' Strawberry Plants Treated with Prohexadione-calcium Root Dips and Foliar Sprays.**

'Chandler' is the most popular strawberry variety for use in plasticulture systems in the northeast, due to its good performance under the conditions of this system. In the southeast and mid-Atlantic climates it is planted in the fall for harvest the following spring. However, under northeastern conditions planting usually occurs in the mid to late summer in order to provide adequate plant development for winter survival and good production the following spring. Summer planting results in increased numbers of runners produced by the plants, which must be controlled to prevent reduced yields and fruit quality that result from over crowding and competition.

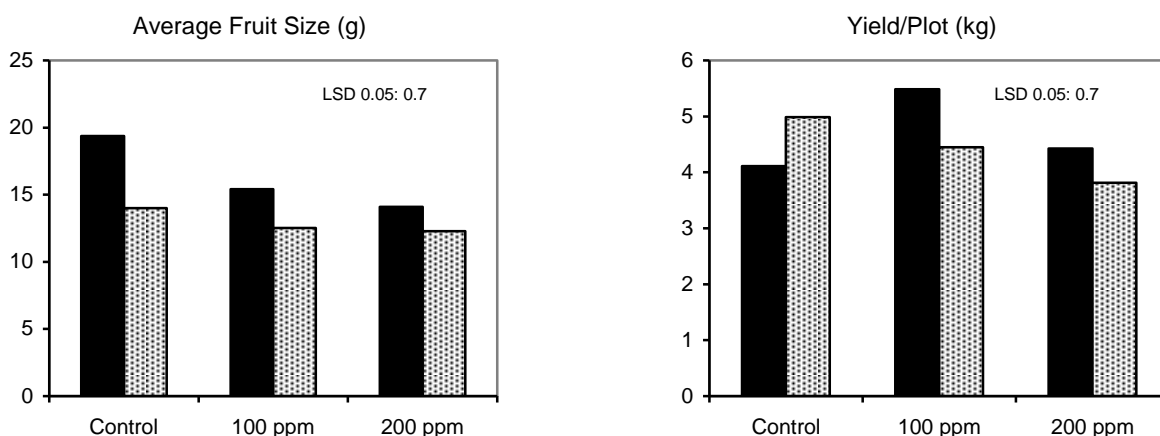
Foliar applications of prohexadione-calcium have been shown to inhibit runner production in strawberry plants, and could therefore reduce the amount of labor required for plasticulture systems. Pre-plant root dips of prohexadione-calcium may offer another, less expensive and more efficient method of inhibiting runner growth.

Chandler plants were treated with prohexadione-calcium as a root dip at concentrations of 100 or 200 ppm, prior to planting 10 July, 2008 into a plasticulture system in Maine. One half of the plots also received a supplemental foliar spray of 100 ppm prohexadione-calcium on 13 August, when runner plants were first observed emerging in untreated plots. During the planting (non-fruiting) season, prohexadione-calcium root dips significantly reduced runner production (Figure 3). The lower rate reduced runner by 51% and the higher rate by 62%. A single foliar spray of 100 ppm with no root dip reduced runner growth by 24%. The addition of a foliar spray to plots receiving root dips further reduced runner growth, although the effect was not significant. Other vegetative parameters measured were generally also reduced by prohexadione-calcium treatments, including leaf number, petiole length, runner internode length, root length and plant dry weights, although the effects were often not significant. Crown numbers were not significantly affected by any of the treatments. Fruit will be collected in 2009 to determine the effects of the treatments on plant yield and fruit quality.

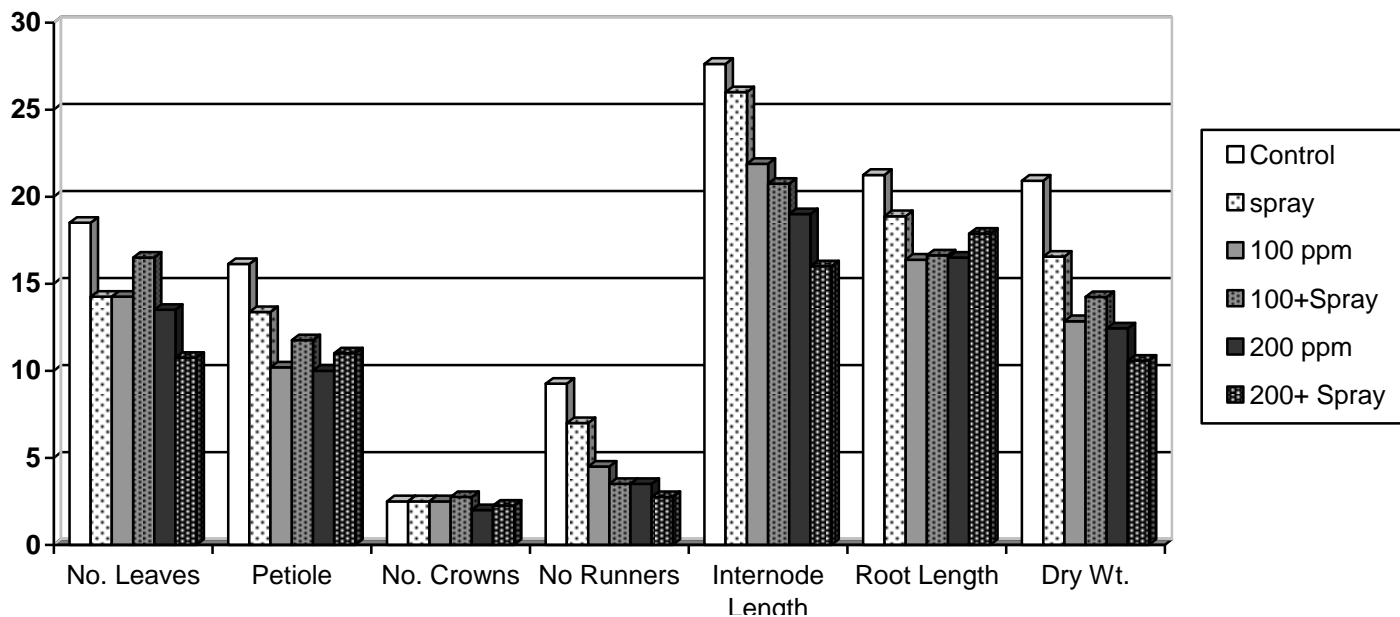
*(Editor's note: Apogee (Prohexadione-calcium) is not yet registered for use on strawberries in New York State).*



**Figure 1.** Effects of 100 ppm and 200 ppm prohexadione-calcium pre-plant root dip treatments on runner plant (stolon) development and end-of-season plant dry weights of ‘Albion’ and ‘Seascape’ day neutral strawberries plants



**Figure 2.** Effects of 100 ppm and 200 ppm prohexadione-calcium pre-plant root dip treatments on average fruit size and yield of ‘Albion’ and ‘Seascape’ day neutral strawberries plants



**Figure 3.** Effects of 100 ppm and 200 ppm prohexadione-calcium pre-plant root dip treatments with and without supplemental foliar sprays on planting year vegetative growth and end-of-season plant dry weights of ‘Chandler’ strawberry plants

## OVERVIEW OF THE BIOLOGY AND MANAGEMENT OF ROOT WEEVILS

Greg Loeb, Professor of Entomology, Cornell University's, New York State Agricultural Experiment Station, Geneva, NY

I have three general goals or objectives I want to accomplish with this article. First, you should come away with a pretty good understanding of how to recognize root weevils that affect berry crops and their damage symptoms. Second, you should have a good sense of the life-cycle of root weevils that impact berry crops and their phenology (when different stages appear in your fields). And third, I hope you will have a general understanding of the different management alternatives.

### Biology

Root weevils are beetles in the weevil family (snout beetles). Hence, the adults have elongated snouts and hard or leathery forewings. There are primarily three species of root weevils, all in the genus *Otiorhynchus*, which attack strawberries in the Northeast (Fig 1). They all look fairly similar, being brown or black in color with small indentations along the leathery outer wings, called elytra, but differ in size. Strawberry root weevil is the smallest at about 0.2 inches in length. Rough strawberry root weevil is a bit larger (0.3 inches) and black vine weevil is the largest (0.4 inches). The larvae all look about the same (Fig 2). They are white or cream colored and legless. The larvae feed on roots while the adults feed above ground on leaves.

Figure 1. Photo of adult strawberry root weevil. (Source: NYSAES, Cornell University).

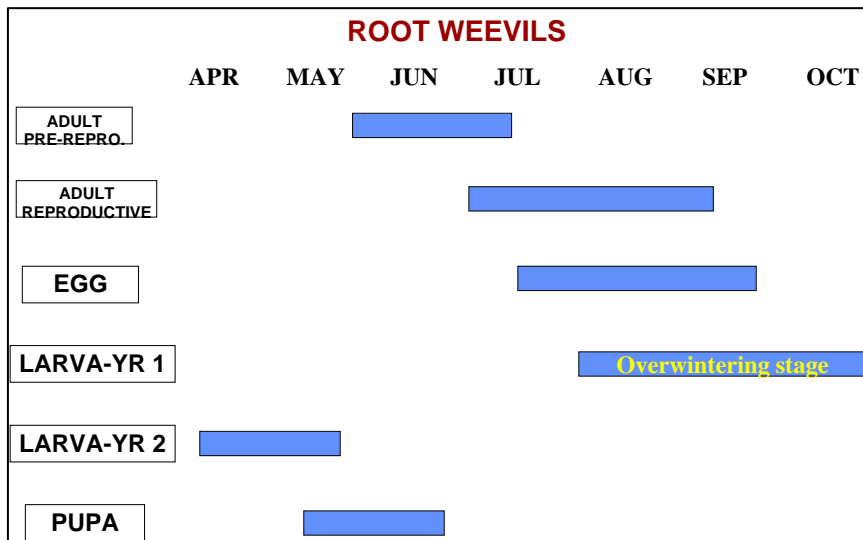


Figure 2. Photo of larval strawberry root weevil. (Source: NYSAES, Cornell University).



The elytra (forewings) of *Otiorhynchus* root weevils are fused and hence, adults cannot fly. This becomes important for understanding some of the management options discussed below. The adults of the three species pupate in the spring and emerge during late May through June depending on species. Initially the adults feed on leaves, creating characteristic notches along leaf edges. This damage is not of economic importance. This pre-ovipositional stage, where they do not lay eggs, lasts from two weeks (strawberry root weevil) to maybe a month (black vine weevil). If control actions are going to be taken against the adult stage, this is the time to do it, before they start laying eggs. The egg laying period can last much of the summer. Eggs are laid at the base of the plant, hatch, and larvae enter the soil. They initially start feeding on smaller roots but move to larger roots or the base of the crown as they mature. Larvae overwinter in the soil and resume feeding in the spring before pupating (see figure 3 for life-cycle).

Figure 3. Diagram showing general life-cycle of *Otiorhynchus* root weevils.



### **Impact**

Feeding damage to the roots causes economic injury resulting in reduced vigor and death, depending on the number of larvae feeding on the root system and the overall health of the plant. Older strawberry fields tend to have larger root weevil populations since it takes time for the fields to be colonized by the flightless adults and for populations to build. The exception would be when an infested field is immediately replanted without insecticide treatment. A heavily infested strawberry field shows weak vegetative growth and patches devoid of strawberry plants (gaps). Sandy sites tend to be more prone to weevil damage but this is probably because these sites also are more prone to drought stress, which is aggravated by the root feeding (Figure 4). There are not good data on how many larvae per plant results in economic damage and it probably depends on the overall health and water status of the planting.

Figure 4. Strawberry planting with serious root weevil damage.



### **Monitoring**

There are several methods for monitoring for adult root weevils in strawberry plantings. The most direct method is to go after dark with a flashlight and inspect for adults on foliage (adults active at night, not day). Perhaps a more practical method is to inspect, on a regular basis from late May through June, for the characteristic notching in leaves caused by adult feeding. You can also put out pit fall traps (plastic cups sunk into the ground with the cup lip even with the ground and partially filled with water plus detergent). A roofing shingle or other structure should be propped up over the trap to shelter it from rain. To monitor for larvae, excavate several strawberry crowns plus 3-4 inches of roots and soil with a trowel. In the spring the larvae are fairly large and easy to see. In summer the larvae are still quite small, but visible.

### **Management: Host Plant Resistance**

There has not been a lot of research on this issue but there appears to be some evidence that different strawberry cultivars vary in their susceptibility to adult feeding. Richard Cowles, Connecticut Agricultural Experiment Station, gave adult black vine weevils a choice between leaves of the cultivar Honeoye and 20+ other cultivars in pair wise choice tests. Five cultivars were less preferred: Delmarvel, Idea, Lester, Primetime, and Seneca. Latestar, Tristar, and Marmolada were more preferred than Honeoye. The mechanisms for these preference differences are not well studied but the presence and amount of leaf hairs plays some role, as does nitrogen content. Although leaf feeding by adults is not economically



important, variation in resistance could still be important for management since adult feeding is directly related to reproduction and larval densities. Cowles also tested for variation among these strawberry cultivars for resistance to larvae but did not find any significant differences. My suspicion is that some cultivars may at least be more tolerant to root feeding than others, although this has not been rigorously investigated.

### **Management: Cultural Practices**

If sufficient land is available, rotating an infested field out of strawberry for a year or two is an effective cultural control method. New plantings should be placed 500 meters away from infested sites to minimize colonization by dispersing adult root weevils. If new plantings need to be located closer to infested sites, there is some evidence, based on research done in Ontario, Canada that a plastic barrier fence can be erected between the new and old planting to reduce rates of colonization of the new planting (see the article by Tolman et al. at [<http://www.omafra.gov.on.ca/english/crops/hort/news/allontario/ao0306a2.htm>]). A final idea for mitigating root weevil feeding damage on roots is to make sure the planting is well watered and maintained in good health. Of course, over watering can cause other problems related to root diseases.

### **Management: Biological Control**

Although insect predators such as carabid beetles are known to feed on root weevil larvae, the best-developed method of biological control is the use of insect parasitic nematodes. Several studies have been conducted showing that the inundative release of large numbers (2.5 to 3 billion) of infective juvenile insect parasitic nematodes can reduce the density of root weevil larvae and damage. Two species in the genus *Heterorhabditis* have shown promise in our area: *H. bacteriophora* and *H. marelatus*. There are two times during the season that are good for releasing nematodes: spring as soil temperatures raise above 50 F and in the later summer or early fall. It's important for either release times that there is sufficient water via rain or irrigation to ensure the nematodes get moved into the root zone. There are a number of commercial sources for insect parasitic nematodes. See the web site on nematodes maintained by Ohio State University [[http://www2.oardc.ohio-state.edu/nematodes/nematode\\_suppliers.htm](http://www2.oardc.ohio-state.edu/nematodes/nematode_suppliers.htm)]. Integrated Biocontrol Systems (Greendale, IN, [[www.goodbug-shop.com](http://www.goodbug-shop.com)]) is one supplier I am aware of that carries both of these *Heterorhabditis* species. IPM laboratories in Locke, NY (315-497-2063) also supplies *Heterorhabditis bacteriophora* as well as other nematode species.

### **Management: Chemical Control**

In the past growers targeted the larval stage for chemical control using the insecticide carbofuran. This was an effective means of control but this insecticide turns out to be quite toxic to waterfowl and has subsequently been banned for most uses. Our current approach, therefore, is to target the adult stage using one of two insecticides: bifenthrin (Brigade WSB) or malathion (e.g. Malathion 57 EC). The idea is to kill the adults during the pre-oviposition period before the females have a chance to lay eggs. The best way to time the application is to scout for adult feeding damage in June. About ten days after the first sign of adult feeding would be appropriate, although the pre-oviposition period varies depending on species from a couple weeks for strawberry root weevil to maybe a month for black vine weevil. Since the adults are nocturnal, an evening application may be more effective than a daytime application. You may need to make more than one application since adult weevils can emerge over an extended time period.

## **BLUEBERRY WEED MANAGEMENT: EARLY SUMMER OPTIONS**

*Eric Hanson and Bernie Zandstra, Department of Horticulture, Michigan State University*

*Editor's note: While we have not had the rains SW Michigan has received, this article provides excellent information on leaching potential of pre-emergent herbicides as well as early summer blueberry weed management. All of the products listed in the article are labeled for use in NYS. [Rely 200](#) is a new product for us just labeled in January 2009; it may not be used in Nassau or Suffolk counties. [Karmex DF](#) is also labeled for use in NY on blueberries (2007) but was inadvertently omitted from the 2009 Berry Crop Guidelines.*

**M**any blueberry fields in Southwest Michigan received heavy rains in late April that affected weed control. If fields were treated with pre-emergent sprays prior to the rains, efficacy may be reduced by runoff and leaching. Growers who did not get their pre-emergent treatments on before the rains could not get back into the fields until after many weeds had emerged, so control was reduced.

### **Leaching potential of pre-emergent herbicides**

Heavy rains can reduce efficacy by leaching herbicides down in the soil, or by carrying the chemical away from the treated area by runoff. Leaching losses are most likely in blueberry fields because soils are often sandy. Runoff losses usually are associated with the movement of soil particles, and are less likely in blueberry fields with little slope. Estimating the leaching potential is not straight forward because it depends on both the solubility as well as how tightly it is adsorption to soil particles. Based on solubility levels and general field observations we would consider Velpar and Sinbar as highly

prone to leaching (Table 1). Callisto is also very soluble, but we have limited field observations to draw from for this newer product. Princep, Solicam, Chateau and Casoron are expected to be the least prone to leaching.

Table 1. Solubility and leaching potential of some blueberry herbicides.

Product	Chemical	Solubility (ppm)	Leaching potential
Princep	simazine	2	low
Karmex	diuron	47	medium
Sinbar	terbacil	710	high
Solicam	norflurazon	28	low
Velpar	hexazinone	30,000	high
Chateau	flumioxazin	2	low
Casoron	dichlobenil	21	low
Callisto	mesotrione	15,000	high

Although these herbicides are unlikely to move out of blueberries fields with surface runoff, they may move within fields and concentrate in lower areas as water recedes. This could result in herbicide injury to bushes in low areas of fields treated with soluble herbicides such as Velpar or Sinbar. Bushes in low areas may also be stressed by prolonged periods of saturated soils as well.

### Early summer herbicide options

Most fields of early season varieties are within a month of harvest so pre-harvest intervals (PHI) limit which herbicides can be used. The PHI's for some blueberry herbicides are well defined on the labels, whereas others are vague (Table 2). We are now too close to harvest to apply pre-emergent herbicides. However, in fields where pre-emergent treatments were not applied, or where efficacy is poor due to rain, post-emergent products Aim, Rely, and Roundup can still be applied, if used with caution. These chemicals will damage any green bark, new shoots, or leaves of blueberries, so minimize contact with bushes. Orient nozzles so they do not contact the base of bushes, or spot-spray by hand taking care to avoid the crown of plants. New canes are now emerging from buds on the crowns of bushes and these can be killed by Aim, Rely, or Roundup.

Table 2. Preharvest intervals or restrictions for some herbicides on blueberries.

Product	chemical	Pre-harvest restrictions
Pre-emergent herbicides		
Princep	simazine	Do not apply when fruit are present.
Karmex	diuron	Apply before germination of annual weeds.
Sinbar	terbacil	Apply before weeds emerge or in early seedling stage.
Solicam	norflurazon	Do not apply within 60 days of harvest.
Velpar	hexazinone	Apply before bud break.
Chateau	flumioxazin	Apply before bud break.
Casoron	dichlobenil	No clear restrictions stated.
Callisto	mesotrione	Apply before first bloom.
Post-emergent herbicides		
Aim	carfentrazone	Apply up to harvest
Gramoxone	paraquat	Apply before new canes or shoots emerge
Rely	glufosinate	Apply up to 14 days pre-harvest
Roundup	glyphosate	Apply up to 14 days pre-harvest

(Reprinted with permission from: [MSU Fruit Crop Advisory Alert newsletter \(CAT\)](#), June 02, 2009.

## SHOULD PRODUCTION IN HIGH TUNNELS BE PART OF YOUR SPECIALTY CROP ENTERPRISE?

H. Chris Wien, Professor, Department of Horticulture, Miguel I. Gómez, and Bradley Rickard, Assistant Professors, Department of Applied Economics and Management, Cornell University

Everyone seems to be thinking about producing horticultural crops in high tunnels these days. High tunnels are inexpensive, unheated greenhouses in which the crops are planted in the ground. The structures are commonly covered by a single layer of polyethylene plastic and have rudimentary ventilation arrangements that regulate internal temperatures. High tunnels can significantly increase the length of the market season by allowing earlier planting and by protecting plants from frost in the fall. With tomatoes, for



instance, one can expect to plant a month earlier and market for a month longer than for a field-grown crop. During summer, tunnels protect sensitive crops like raspberries and cut flowers from wind and rain. So high tunnels are attractive, but are they affordable?

A recent economic study conducted by Wen-fei Uva and Mei-Luan Cheng, Cornell University, and involving several New York producers using high tunnels indicates that these structures can be profitable, but it depends on the crop grown and how it is marketed. The study, sponsored by the New York Farm Viability Institute, surveyed growers of tomatoes, English cucumbers, cut flowers and raspberries, keeping track of expenses and income from crops sold for the 2006 and 2007 growing season. In addition, the growers shared information about the initial cost of the high tunnels they had erected on their farms.

The cost of building a high tunnel is often a major deciding factor in use of this technology. Among the growers surveyed, costs varied by a factor of 8, depending on the complexity of the structure and how and by whom it was constructed (Table 1). Tunnels ranged in floor area from 2,400 to 4,800 ft<sup>2</sup>; the less expensive structures were either constructed by the grower or purchased from commercial sources. Farmer B's tunnel was purchased, included an in-ground heating system, and included a more costly system for ridge ventilation, while the other tunnels were ventilated by roll-up sides.

*Table 1. Initial fixed costs of materials and construction for five high tunnels in New York State, compiled in 2006.*

<b>Location and crop</b>	<b>Tunnel size (ft<sup>2</sup>) and type</b>	<b>Fixed cost, \$/ft<sup>2</sup></b>
Farm A, cucumbers	2400, welded frame	1.53
Farm A, tomatoes	4800, welded frame	1.67
Farm B, tomatoes	2880, pipe frame, gothic	11.93
Farm C, cut flowers	2880, pipe frame, gothic	3.56
Farm D, raspberries	2880, pipe frame, gothic	3.72

The costs of the structure would normally be amortized over its probable useful life. The study assumed a life span of 10 years on the tunnel skeleton and 3 years on its plastic covering.

To determine income, the farmers kept track of the yields and the selling price of their commodities in each year of the study. Labor costs for crop management and harvest were also compiled. In addition to the fixed costs of the structure (Table 1), production costs, including plants, fertilizer, pest control and labor were compiled (Table 2). Income from sale of the crops could then be compared to the costs, resulting in a net income per unit high tunnel area for each of the crops (Table 2).

*Table 2. Annual production cost, revenue and net income per unit area for six high tunnel grown crops, averaged over the 2006 and 2007 growing seasons for the annuals, and over 10 years for raspberries.*

<b>Location and crop</b>	<b>Annual production cost, \$/ft<sup>2</sup></b>	<b>Annual revenue, \$/ft<sup>2</sup></b>	<b>Net income, \$/ft<sup>2</sup></b>
Farm A, cucumbers	1.71	1.49	-0.53
Farm A, tomatoes	1.70	2.60	0.57
Farm B, tomatoes	2.34	4.66	1.44
Farm C, lisanthus	0.57	3.02	2.08
Farm C, sunflower	0.38	0.86	0.14
Farm D, raspberries <sup>z</sup>	1.15	3.47	1.51

<sup>z</sup>Income averaged over a 10-year production period

Table 2 highlights the finding that net income was very dependent on the crop grown. The cut flower crop lisanthus, which was marketed at a farmers market and to florists, was most profitable, due to a low production cost and high selling price. Cucumbers, on the other hand, lost money because production costs exceeded the selling price. It and the sunflowers only occupied the high tunnel for part of the season, but the calculations did not consider additional income in that season from successive crops. The calculations emphasize the importance of growing income-producing crops in the structure for the entire growing season. The nearly three-fold difference in net income from tomatoes is largely due to differences in marketing: tomatoes from Farm A went to a wholesale auction market; those from Farm B were sold retail at a farmers market.

When high tunnels are intended for perennial crops such as raspberries, an additional factor must be kept in mind. Raspberries will take a couple of years to produce berries, so expenses will exceed income until the third year. In spite of the lag in income production, net income from raspberries average out at \$1.51/square foot over 10 years (Table 2). For a

detailed analysis of costs and income on raspberry high tunnels, see the high tunnel raspberry and blackberry manual at: <http://www.fruit.cornell.edu/Berries/bramblepdf/hightunnelsrasp.pdf>.

So are high tunnels for you? As long as you have a good market for your product, and can meet the expectation of buyers with regard to product availability, product quality, price and level of value-added features, the answer could well be “yes”.

*We gratefully acknowledge that this report is based on information contained in an Economic and Marketing Study final report by Mei-Luan Cheng and Wen-fei for a NY Farm Viability Institute-sponsored grant on high tunnels.*

*(Reprinted with permission from [Smart Marketing](#), January 2009)*

## DOES YOUR MARKETING PROGRAM HAVE A GPS?

*Debra Perosio, Ph.D., Lecturer, Applied Economics and Management, Cornell University*



**N**ow a-days, most people don't travel far from home without a GPS precariously stuck to the front windshield with that rather annoying monotone voice guiding them from turn to turn and, at times, “recalculating the route” to get you back on track!

Like a GPS that guides you into foreign territory and coaxes you back on track, a marketing plan can do the same for your business. Too small to go to all of the fuss?? Think you can do it by the seat of your pants?? Well think again, no matter how small or large a business is marketing plan is a necessary tool for every business that can be an interesting and informative document to prepare.

Every business at one time or another does some type of marketing. Marketing can be as informal as a hastily placed road sign advertising sweet corn or a more complicated marketing campaign developed to create brand awareness for a new variety of apples or onions. Whether you are a seasonal business, part time business or a large business every business needs to develop a roadmap to guide them through the marketing process. That road map is a marketing plan.

A marketing plan is a fluid document. It provides a guide that you follow, at times wandering off course due to changing conditions in the market (that's then the GPS tell you it is “recalculating the route!”). However, despite changes in your product, your customers or the economy, you keep plugging along changing and modifying the document as you go but keeping your eye on the goal of the plan all of the time. I always tell people to put their plan in a three ring binder...take pages out replace others as circumstances dictate, all of the time trying to keep the document up to date and relevant.

This article will cover the first third of a marketing plan. Subsequent articles will focus on the remanding portions of the plan.

The first part of your marketing plan really focuses on the business as it stands today. What type of business is it? What is its mission, vision? What are the businesses strengths and weaknesses? Who is your competition? What is the industry like your business is part of...growing, declining?? By answering the following questions you will have the start of your business plan.

### Company Description

#### 1. Introduction

- What is the business? What is its history?
- Product definition – Include a general description of the various products. What benefit is it providing?
- Problem definition – what, specifically, does the business need help doing?

#### 2. Market Summary

- Target market/s – Which is they and what are their specific wants and needs?
- Does your business currently have multiple target markets - each with distinctive needs and wants? Please describe them.
- Why have these been chosen as the appropriate target markets?
- Is there evidence of target market growth/decline? If so, what are the projections for growth/decline within each target market?
- Target market profiles: What characteristics best describe each of your business's current target markets?

3. Market Needs

- What is the specific market need your business hopes to fulfill for each of its current target markets? What value/benefit are they providing to each?

**Strategic Focus and Plan**

1. What is the mission/vision for the business?
2. What are the goals of the business?
3. What are the core competencies of the business?
4. What is the sustainable advantage of the business?

**Situation Analysis**

**1. SWOT Analysis**

**Internal** strengths and weaknesses

- Strengths – positive attributes of your business
- Weaknesses – what are the weaknesses of your business?

**External** opportunities and threats

- Opportunities – the potential that can be realized by a well-executed and well-timed strategy, what opportunities exist for your business?
- Threats – Are there any unfavorable trends or developments that will negatively impact your business’s revenue/ability to provide the intended benefit.

You can use the grid below to guide you through your SWOT Analysis:

<b>INTERNAL FACTORS</b>	<b>STRENGTHS</b>	<b>WEAKNESSES</b>
Management		
Product mix		
Marketing Strategy		
Quality		
Distribution		
Facilities		
Location		
<b>EXTERNAL FACTORS</b>	<b>OPPORTUNITIES</b>	<b>THREATS</b>
Current Customers		
Prospective Customers		
<i>Economic Environment</i>		

**2. Industry Analysis** *Note: this section should be well researched and very comprehensive*

- What are the current trends in the industry? (This helps you uncover possible areas that you may want to pursue for your business)
- Is the industry in a growth or decline phase?

**3. Competitors**

- Who are your business’s competitors? Please identify them.
- What are their strengths and weaknesses – size, market share, etc.?
- How is your business perceived by its target markets relative to these competitors in terms of comparative quality, image, reputation, price, awareness, etc.?

Feel free to use the grid below to guide you through the competitor analysis. You can indicate whether or not the competitor is on par, better, worse than your business or put more specific information into each box to help explain each parameter.

<b>FACTOR</b>	<b>COMPETITOR 1 (please identify)</b>	<b>COMPETITOR 2 (please identify)</b>	<b>COMPETITOR 3 (please identify)</b>
Price			
Quality			
Product Line			
Service			
Location			
Advertising			
Reputation			
Business Strategy			

Next time I will discuss the second part of the marketing plan. This component focuses on drawing out the opportunities and needs for the business and articulating them into an objective that will guide your marketing plan and future marketing efforts.

## **WEATHER NOTES**

### **NEW YORK CROP WEATHER SERVICE NOTES**

**Week ending May 10th:** Much of the week was dominated by a frontal boundary located from the southeast states to the Mid-Atlantic coast, with high pressure located off the Canadian Maritimes. Waves of low pressure traveled northeast along this frontal boundary, producing significant rainfall across southeast portions of the state. Further north and west little rainfall fell until a strong cold front swept east across the region Saturday accompanied by numerous showers and thunderstorms. Some of the thunderstorms on Saturday afternoon and Saturday evening were severe, producing damaging winds and large hail. Precipitation amounts were above normal across southeast portions of the state with near to below normal amounts across northern and central portions of the state. Temperatures were generally near or below normal with the greatest departures below normal located across southeast portions of the state where persistent clouds kept temperatures cooler.

Strawberries in Chenango County need warmer nights for growth. In the Lake Ontario fruit region, strawberry flower buds were beginning to open in some plantings

**Week ending May 17th:** A chilly air mass was positioned across the state on Sunday in wake of a cold front passage with breezy conditions and showers across the Adirondacks. High temperatures were only in the 50's in most areas with 40's across the higher elevations. High pressure built into the region on Monday with sunshine returning. Dry conditions persisted into Tuesday with temperatures moderating back to near normal Tuesday and especially Wednesday. Rain returned to the state on Thursday ahead of a frontal boundary. Windy conditions also occurred on Thursday. Rainfall amounts were generally around one quarter to one inch Thursday night with the greatest amounts across eastern New York. Dry conditions with warm temperatures returned for Friday. Showers and thunderstorms moved across the state Saturday afternoon and night ahead of a strong cold front. Some of the storms were severe while heavy rain fell across portions of eastern New York especially across the Adirondacks where 2 to 3 inches fell.

In Albany County, strawberries were in full bloom. Broome County experienced frost early in the week and high winds with heavy rains later in the week.

**Week ending May 24th:** The week began with a drying trend and rather cool temperatures for the middle of May as a cold front pushed through the region. Then the remainder of the week was dominated by high pressure and a return to seasonable temperatures. Those temperatures reached summer-like levels by the later half of the week with many locations climbing well into the 80's. By the weekend, another cold front provided the region with scattered showers and thunderstorms and a return to seasonable temperatures.

The Lake Erie grape region experienced the third latest hard freeze in the past 100 years on May 17-19. The Capital region experienced spotty frost. In the Hudson Valley, frost on May 19 was spotty. Broome County strawberries were in bloom and green berry stages. On Long Island, strawberry fields were spared from a possible frost, and the fruit load appeared to be one of the largest observed in several years.

**Week ending May 31st:** It was a cool and wet week across the state. Precipitation was well above normal for the last week of May except across Long Island. Temperatures were also below normal. A slow moving cold front produced showers and thunderstorms south of the Capital Region with around 2 inches of rain falling at Poughkeepsie in a few hours. High pressure moved in over the region with fair and dry weather Memorial Day into Tuesday. There was some widespread frost over the Adirondacks and the Lake George region Tuesday morning. A warm front approached from the Ohio Valley and the upper Mid Atlantic region Tuesday night with some heavy rainfall and embedded thunderstorms. Rainfall totals ranged from one to two and a half inches across portions of central and eastern New York with the heaviest totals over the west central Mohawk Valley Tuesday night through Wednesday. The wet and unsettled weather continued Thursday and Friday as the warm front was fairly stationary over western Pennsylvania and western New York. Some slow moving or training thunderstorms produced some heavy rainfall downwind of Lake Erie's and the St. Lawrence Valley ushered an occluded front across the region Thursday night into Friday with another round of showers. The heaviest rain fell just north of the Capital District with one to three inches occurring. Another cold front Saturday morning produced widely scattered, mainly light rain showers.

In the Lake Ontario fruit region, frost occurred on May 18<sup>th</sup>. Saratoga County had a slight frost on May 26<sup>th</sup>, but it did not damage the fruit crops.

**Week ending June 7th:** A series of cold fronts moved across New York State but moisture was limited to southeast portions of the state where precipitation was above normal with weekly rainfall amounts of one quarter of an inch or less. Temperatures were below normal during the week as cool high pressure followed in the wake of passing cold fronts. Unseasonably chilly temperatures led to some frost across upstate New York on the morning of June 1<sup>st</sup> with freezing temperatures across portions of the Adirondacks and Lake George region.

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Questions or Comments about the New York Berry News?

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**Editor's Note:** We are happy to have you reprint from the NYBN. Please cite the source when reprinting. In addition, we request you send a courtesy [E-mail](#) indicating NYBN volume, issue, and title, and reference citation for the reprint. Thank you.

Check out the NYSAES Tree Fruit and Berry Pathology web site at: [www.nysaes.cornell.edu/pp/extension/tfabp](http://www.nysaes.cornell.edu/pp/extension/tfabp)

*\*Cornell University provides equal program and employment opportunity.*

**WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT  
NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, May 10<sup>th</sup>, 2009**

	Temperature				Growing Degree Days (Base 50)			Precipitation (inches)				
	High	Low	Avg	DFN <sup>1</sup>	Week	YTD <sup>2</sup>	DFN	Week	DFN	YTD	DFN	
<b>Hudson Valley</b>												
Albany	75	45	59	5	64	204	120	1.10	0.36	2.62	-1.41	
Glens Falls	76	37	57	5	51	150	90	0.93	0.16	2.70	-1.38	
Poughkeepsie	77	45	59	4	64	220	113	1.91	0.93	4.04	-0.84	
<b>Mohawk Valley</b>												
Utica	72	39	53	4	22	79	38	1.24	0.26	5.37	-0.68	
<b>Champlain Valley</b>												
Plattsburgh	73	37	55	3	37	123	62	1.43	0.80	3.59	-0.11	
<b>St. Lawrence Valley</b>												
Canton	71	35	55	5	40	99	48	1.37	0.71	5.21	1.40	
Massena	74	39	56	5	44	126	67	1.24	0.68	4.10	0.65	
<b>Great Lakes</b>												
Buffalo	70	43	58	5	56	157	79	0.53	-0.15	3.84	0.00	
Colden	72	35	55	5	41	125	73	1.19	0.40	4.03	-0.89	
Niagara Falls	73	41	58	5	56	163	76	0.43	-0.23	4.79	0.68	
Rochester	75	37	57	4	55	163	72	0.66	0.08	2.91	-0.55	
Watertown	71	37	56	6	44	117	63	0.90	0.34	5.70	2.37	
<b>Central Lakes</b>												
Dansville	73	37	57	4	52	175	94	0.63	0.00	1.79	-1.92	
Geneva	75	38	57	4	49	147	73	0.87	0.24	2.64	-1.20	
Honeoye	78	34	58	6	58	165	89	0.65	0.02	3.19	-0.66	
Ithaca	75	37	56	4	42	145	84	0.49	-0.21	3.01	-0.90	
Penn Yan	75	36	57	5	53	194	120	0.56	-0.07	2.02	-1.82	
Syracuse	78	41	59	5	62	200	111	1.18	0.45	3.80	-0.59	
Warsaw	71	39	55	6	37	109	66	1.00	0.23	4.00	-0.47	
<b>Western Plateau</b>												
Alfred	73	34	55	5	37	112	70	0.52	-0.07	2.55	-1.08	
Elmira	75	37	57	4	49	174	105	0.40	-0.30	2.48	-1.18	
Franklinville	72	34	54	6	32	106	74	0.46	-0.31	3.17	-1.21	
Sinclairville	72	41	57	7	50	142	96	0.50	-0.34	3.47	-1.57	
<b>Eastern Plateau</b>												
Binghamton	74	46	56	4	45	181	117	0.82	0.10	3.18	-1.00	
Cobleskill	76	43	56	4	41	127	72	0.78	0.01	2.12	-2.27	
Morrisville	73	42	54	3	31	111	61	0.86	0.08	4.52	0.32	
Norwich	76	37	55	4	38	131	73	1.44	0.60	5.15	0.61	
Oneonta	75	41	56	6	42	134	85	0.97	0.01	3.50	-1.33	
<b>Coastal</b>												
Bridgehampton	71	47	55	3	39	134	73	2.30	1.40	7.82	2.56	
New York	78	49	60	1	69	278	109	2.69	1.78	7.96	2.87	

1. Departure from Normal

2. Year to Date: Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning

The information contained in this weekly release is obtained in cooperation with Cornell Cooperative Extension, USDA Farm Service Agency, the National Weather Service, Agricultural Weather Information Service and other knowledgeable persons associated with New York agriculture. Their cooperation is greatly appreciated. Visit our website at [www.nass.usda.gov/ny](http://www.nass.usda.gov/ny) and click on "subscribe to ny reports" for instructions on subscribing electronically. you may also visit our website to access all our reports which are available for free online.



**WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT  
NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, May 17<sup>th</sup>, 2009**

	Temperature				Growing Degree Days (Base 50)			Precipitation (inches)			
	High	Low	Avg	DFN <sup>1</sup>	Week	YTD <sup>2</sup>	DFN	Week	DFN	YTD	DFN
<b>Hudson Valley</b>											
Albany	76	37	57	-1	49	253	118	0.92	0.15	3.54	-1.26
Glens Falls	74	33	56	1	43	193	92	0.71	-0.13	3.41	-1.51
Poughkeepsie	78	37	57	-2	51	271	106	1.73	0.75	5.77	-0.09
<b>Mohawk Valley</b>											
Utica	67	30	48	-5	9	88	19	2.87	1.89	8.24	1.21
<b>Champlain Valley</b>											
Plattsburgh	69	32	52	-4	29	152	50	1.04	0.41	4.63	0.30
<b>St. Lawrence Valley</b>											
Canton	69	31	50	-4	20	123	37	1.26	0.63	6.79	2.35
Massena	72	32	52	-4	29	155	57	0.92	0.36	5.02	1.01
<b>Great Lakes</b>											
Buffalo	74	33	55	-1	49	206	81	0.11	-0.59	3.95	-0.59
Colden	76	30	53	-1	32	157	69	0.28	-0.49	4.31	-1.38
Niagara Falls	74	32	55	-3	46	209	72	0.20	-0.43	4.99	0.25
Rochester	79	33	55	-3	43	206	63	0.29	-0.31	3.20	-0.86
Watertown	72	32	52	-2	32	149	59	0.43	-0.18	6.13	2.19
<b>Central Lakes</b>											
Dansville	76	34	52	-5	27	202	73	0.93	0.30	2.72	-1.62
Geneva	72	36	53	-3	31	178	59	1.49	0.86	4.13	-0.34
Honeoye	80	31	54	-3	42	207	85	1.12	0.51	4.31	-0.15
Ithaca	77	29	51	-4	23	168	67	1.11	0.38	4.12	-0.52
Penn Yan	80	37	54	-2	36	230	111	0.55	-0.08	2.57	-1.90
Syracuse	78	35	55	-3	40	240	99	0.84	0.14	4.64	-0.45
Warsaw	75	29	50	-3	21	130	55	0.46	-0.31	4.46	-0.78
<b>Western Plateau</b>											
Alfred	76	30	50	-4	17	129	55	0.53	-0.10	3.08	-1.18
Elmira	78	29	54	-2	38	212	100	0.55	-0.15	3.03	-1.33
Franklinville	75	29	49	-3	15	121	64	0.86	0.09	4.03	-1.12
Sinclairville	76	32	52	-2	25	167	90	0.40	-0.45	3.87	-2.02
<b>Eastern Plateau</b>											
Binghamton	74	36	53	-3	32	213	106	1.40	0.63	4.58	-0.37
Cobleskill	73	31	52	-3	27	154	61	1.32	0.51	3.44	-1.76
Morrisville	73	32	51	-4	23	134	47	1.15	0.31	5.67	0.63
Norwich	74	30	51	-4	20	150	53	2.18	1.34	7.28	1.90
Oneonta	73	33	53	0	29	163	81	2.17	1.19	5.67	-0.14
<b>Coastal</b>											
Bridgehampton	72	40	57	2	49	183	80	1.16	0.32	8.98	2.88
New York	74	51	62	2	85	363	115	0.12	-0.72	8.08	2.15

1. Departure from Normal

2. Year to Date: Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning.

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**WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT  
NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, May 24<sup>th</sup>, 2009**

	Temperature				Growing Degree Days (Base 50)			Precipitation (inches)			
	High	Low	Avg	DFN <sup>1</sup>	Week	YTD <sup>2</sup>	DFN	Week	DFN	YTD	DFN
	<b>Hudson Valley</b>										
Albany	88	32	60	2	82	335	134	0.06	-0.71	3.60	-1.97
Glens Falls	87	29	59	2	71	264	109	0.00	-0.84	3.41	-2.35
Poughkeepsie	88	31	60	-1	77	348	111	0.01	-0.97	5.78	-1.06
<b>Mohawk Valley</b>											
Utica	88	33	56	2	60	148	41	0.16	-0.82	8.40	0.39
<b>Champlain Valley</b>											
Plattsburgh	91	32	59	2	70	222	66	0.00	-0.64	4.63	-0.34
<b>St. Lawrence Valley</b>											
Canton	83	40	56	0	52	174	42	0.05	-0.64	6.65	1.52
Massena	83	37	58	2	66	221	71	0.03	-0.53	5.05	0.48
<b>Great Lakes</b>											
Buffalo	78	34	59	1	74	280	94	0.00	-0.70	3.95	-1.29
Colden	80	28	56	0	59	216	82	0.00	-0.82	4.31	-2.20
Niagara Falls	81	33	59	0	70	279	78	0.00	-0.66	4.99	-0.41
Rochester	85	36	59	1	76	282	75	0.00	-0.63	3.20	-1.49
Watertown	81	38	57	2	59	208	72	0.18	-0.45	6.31	1.74
<b>Central Lakes</b>											
Dansville	85	30	57	-1	67	269	80	0.06	-0.59	2.78	-2.21
Geneva	87	33	60	3	78	256	78	0.00	-0.69	4.13	-1.03
Honeoye	88	32	59	2	76	283	101	0.00	-0.63	4.31	-0.78
Ithaca	87	28	58	2	71	239	86	0.22	-0.55	4.34	-1.07
Penn Yan	88	35	61	4	86	316	138	0.01	-0.68	2.58	-2.58
Syracuse	87	32	60	2	84	324	117	0.00	-0.75	4.64	-1.20
Warsaw	81	30	58	4	72	202	84	0.01	-0.78	4.47	-1.56
<b>Western Plateau</b>											
Alfred	84	25	54	-2	51	180	63	0.00	-0.69	3.08	-1.87
Elmira	89	24	57	-2	64	276	107	0.01	-0.73	3.04	-2.06
Franklinville	84	26	55	2	54	175	83	0.00	-0.80	4.03	-1.92
Sinclairville	83	28	57	3	68	232	113	0.00	-0.91	3.87	-2.93
<b>Eastern Plateau</b>											
Binghamton	83	31	60	3	85	298	137	0.08	-0.69	4.66	-1.06
Cobleskill	85	29	59	2	77	231	89	0.08	-0.76	3.52	-2.52
Morrisville	82	30	57	0	66	198	65	0.03	-0.82	5.50	-0.39
Norwich	86	28	57	0	62	212	65	0.06	-0.78	7.34	1.12
Oneonta	85	30	57	3	66	229	102	0.00	-0.98	5.67	-1.12
<b>Coastal</b>											
Bridgehampton	74	40	59	2	68	251	93	0.02	-0.82	9.00	2.06
New York	86	50	65	2	104	467	124	0.00	-0.84	8.08	1.31

1. Departure from Normal

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**WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT  
NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, May 31<sup>st</sup>, 2009**

	Temperature				Growing Degree Days (Base 50)			Precipitation (inches)			
	High	Low	Avg	DFN <sup>1</sup>	Week	YTD <sup>2</sup>	DFN	Week	DFN	YTD	DFN
	<b>Hudson Valley</b>										
Albany	79	41	59	-4	61	396	114	1.94	1.11	5.54	-0.86
Glens Falls	77	31	56	-5	41	305	82	1.42	0.60	4.83	-1.75
Poughkeepsie	82	44	62	-1	84	432	109	0.64	-0.34	6.42	-1.40
<b>Mohawk Valley</b>											
Utica	73	32	53	-5	26	174	18	1.22	0.19	9.62	0.58
<b>Champlain Valley</b>											
Plattsburgh	78	36	55	-6	36	258	33	1.11	0.41	5.74	0.07
<b>St. Lawrence Valley</b>											
Canton	74	32	54	-5	36	217	26	1.36	0.66	8.06	2.23
Massena	73	37	56	-3	49	270	56	1.15	0.54	6.20	1.02
<b>Great Lakes</b>											
Buffalo	79	45	62	2	85	365	104	1.09	0.32	5.04	-0.97
Colden	77	41	59	1	63	279	86	1.93	1.06	6.24	-1.14
Niagara Falls	78	44	61	-1	79	358	80	1.70	0.99	6.69	0.58
Rochester	80	44	61	-1	75	357	76	2.26	1.62	5.46	0.13
Watertown	73	32	57	-2	50	258	63	2.34	1.71	8.65	3.45
<b>Central Lakes</b>											
Dansville	79	38	62	2	86	389	126	1.52	0.79	3.76	-1.96
Geneva	76	38	60	0	71	327	77	0.94	0.19	5.07	-0.84
Honeoye	79	37	60	-1	69	352	95	1.77	1.05	6.08	0.27
Ithaca	74	32	58	-2	58	297	79	1.52	0.71	5.86	-0.36
Penn Yan	76	33	61	2	80	396	146	0.73	-0.02	3.31	-2.60
Syracuse	76	38	61	0	80	404	120	1.20	0.43	5.84	-0.77
Warsaw	75	40	57	0	50	252	80	1.54	0.67	6.01	-0.89
<b>Western Plateau</b>											
Alfred	75	37	58	1	59	239	69	1.95	1.13	5.03	-0.74
Elmira	78	32	61	2	77	353	115	1.74	0.95	4.78	-1.11
Franklinville	77	41	59	4	66	241	103	2.26	1.39	6.29	-0.53
Sinclairville	78	46	61	4	77	309	136	2.34	1.38	6.21	-1.55
<b>Eastern Plateau</b>											
Binghamton	76	41	59	0	68	366	138	1.34	0.57	6.00	-0.49
Cobleskill	77	33	57	-3	48	279	75	1.72	0.82	5.24	-1.70
Morrisville	71	37	55	-3	39	237	45	2.36	1.45	7.86	1.06
Norwich	77	34	57	-3	52	264	56	1.52	0.62	8.86	1.74
Oneonta	77	38	57	0	53	282	99	1.72	0.72	7.39	-0.40
<b>Coastal</b>											
Bridgehampton	77	48	60	-1	68	319	91	0.75	-0.10	9.75	1.96
New York	84	52	65	-1	106	573	120	0.58	-0.26	8.66	1.05

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**WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT  
NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, June 7<sup>th</sup>, 2009**

	Temperature				Growing Degree Days (Base 50)			Precipitation (inches)			
	High	Low	Avg	DFN <sup>1</sup>	Week	YTD <sup>2</sup>	DFN	Week	DFN	YTD	DFN
	<b>Hudson Valley</b>										
Albany	78	36	61	-4	78	474	96	0.01	-0.83	5.55	-1.69
Glens Falls	79	32	58	-5	56	361	56	0.00	-0.78	4.83	-2.53
Poughkeepsie	80	37	61	-4	82	514	90	0.17	-0.75	6.59	-2.15
<b>Mohawk Valley</b>											
Utica	72	31	52	-7	28	202	-14	0.00	-1.06	9.62	-0.48
<b>Champlain Valley</b>											
Plattsburgh	78	33	56	-7	41	299	-10	0.01	-0.69	5.75	-0.62
<b>St. Lawrence Valley</b>											
Canton	73	36	53	-8	29	255	-9	0.18	-0.57	8.03	1.45
Massena	76	37	55	-7	39	309	18	0.09	-0.59	6.29	0.43
<b>Great Lakes</b>											
Buffalo	75	44	59	-4	64	429	78	0.00	-0.84	5.04	-1.81
Colden	72	38	55	-6	36	315	51	0.00	-0.95	6.24	-2.09
Niagara Falls	75	41	58	-6	56	414	45	0.00	-0.77	6.69	-0.19
Rochester	75	40	57	-7	51	408	40	0.00	-0.70	5.46	-0.57
Watertown	72	37	54	-7	31	289	23	0.06	-0.61	8.71	2.84
<b>Central Lakes</b>											
Dansville	76	37	56	-8	41	430	79	0.04	-0.82	3.80	-2.78
Geneva	82	38	57	-6	54	381	45	0.00	-0.82	5.07	-1.66
Honeoye	78	37	57	-7	49	401	55	0.00	-0.82	6.08	-0.55
Ithaca	78	34	55	-7	38	335	39	0.08	-0.76	5.94	-1.12
Penn Yan	79	40	59	-4	61	457	121	0.00	-0.82	3.31	-3.42
Syracuse	78	38	59	-5	65	469	97	0.00	-0.83	5.84	-1.60
Warsaw	72	37	54	-6	35	287	49	0.00	-0.96	6.01	-1.85
<b>Western Plateau</b>											
Alfred	75	33	53	-7	29	268	34	0.02	-0.98	5.05	-1.72
Elmira	79	34	57	-6	51	404	83	0.13	-0.71	4.91	-1.82
Franklinville	76	35	54	-5	34	275	78	0.02	-0.94	6.31	-1.47
Sinclairville	78	37	56	-4	45	354	114	0.28	-0.75	6.49	-2.30
<b>Eastern Plateau</b>											
Binghamton	75	37	58	-5	55	421	113	0.09	-0.75	6.09	-1.24
Cobleskill	77	37	56	-5	45	324	46	0.00	-0.98	5.24	-2.68
Morrisville	76	32	54	-6	37	274	13	0.00	-0.93	7.86	0.13
Norwich	79	33	56	-5	45	309	27	0.10	-0.84	8.96	0.90
Oneonta	77	34	56	-4	46	328	78	0.03	-0.95	7.42	-1.35
<b>Coastal</b>											
Bridgehampton	75	42	61	-2	82	401	87	2.09	1.21	11.84	3.17
New York	82	53	66	-3	116	689	110	1.57	0.73	10.23	1.78

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