

Heat Tolerant Broccoli Variety Development and Plant Population Effects on Yield and Quality

Thomas Björkman, Cornell - Geneva

The Eastern Broccoli Project is developing new broccoli varieties that will tolerate eastern summer heat without deforming, and thereby making it a reasonable risk to produce this crop. This public-private partnership is identifying suitable germplasm at seed companies, and having seed companies incorporate superior eastern adaptations that have been developed by public breeding programs at Cornell University, USDA's Vegetable Laboratory, and Oregon State University. The main issue is that eastern growers need varieties that make uniform buds on evenly domed heads even when summer nights remain warm. Such varieties should make it possible to extend the fall harvest season into August, and make spring production a reasonable proposition.

New heat tolerant varieties in the pipeline - In our trials of materials already in the seed companies' pipeline, or not in current production, we identified several that perform as well as, or better than, the most popular lines in the East. Among these are DuraPak 16 and DuraPak 18 from Syngenta, and BC1691 (right) and Lieutenant from Seminis. Finding this incremental advance even in the first year is unexpectedly good progress.



A new variety, BC1691 (left) from Seminis exceeds performance of common broccoli grown in the Eastern United States.

The optimal population for yield, quality, and number of cuts was 40,000 plants with 8 inch in-row spacing and 15 inch row spacing (below).

For 2012, both seed companies and public breeders provided newly made crosses that are intended to fit eastern conditions better. We tested 39 lines at five locations across the East, and found that these first new crosses included many that exceeded the performance of the best eastern varieties. This result gives an indication that the project will result in substantial improvements in variety choice for eastern growers.

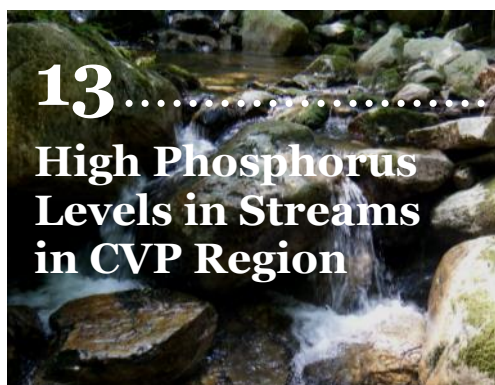
In order to be profitable with this very competitive crop, growers need to take full advantage of the high productivity of our soils. Our results suggest that growers can raise their yield goal and plant population to make the economics more attractive. Current eastern yields are often about 400 to 450 boxes per acre, using single rows with in-row spacing of about 12 inches. We tested the yield potential by using an excellent Honeoye soil, providing abundant water and fertilizer, and raising the plant population. Raising only fertility tends to cause thicker, faster-growing stems that are prone to become hollow. That defect can cause the crop to be rejected. A higher population keeps the stems thinner.



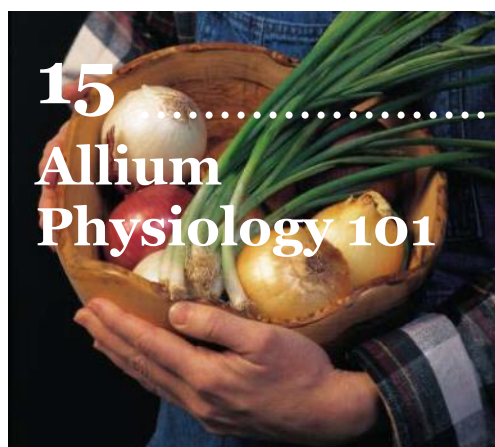
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CCE and its employees assume no liability for the effectiveness or results of any chemicals for pesticide usage. No endorsement of products or companies is made or implied.
READ THE LABEL BEFORE APPLYING ANY PESTICIDE.



Veg Edge is a shared publication of two Cornell Cooperative Extension teams, the **Cornell Vegetable Program**, serving 11 counties in Western NY, and the **Capital District Vegetable & Small Fruit Program**, serving 11 counties in the Capital Region of NY

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40,000 plants per acre yielded 600-800 boxes - We found that the optimal population for yield, quality, and number of cuts was 40,000 plants. In-row spacing of 8 inches worked well. Going down to 6 inches caused too many plants with no marketable head. A between-row spacing of 15 inches worked well in a 3-row bed. At this population yields were 600 to 800 boxes per acre. Generally, that yield difference with essentially the same growing cost would increase profit by several thousand dollars per acre.

22 days after transplanting



52,000 plants/acre
15" row, 6" in-row



39,000 plants/acre
15" row, 8" in-row



26,000 plants/acre
15" row, 12" in-row

Figure 1. When provided good soil and abundant fertility and moisture, the optimal population for yield, quality, and number of cuts was 40,000 plants with 8 inch in-row spacing and 15 inch row spacing, which yielded 600 to 800 boxes per acre. Going down to 6 inches caused too many plants with no marketable head.

This project was presented at the Empire State Producers Expo in Syracuse, January 23, 2013. ■

Farm Service Agency Microloans for Small Farms

USDA Farm Service Agency (FSA)

The Farm Service Agency's (FSA) Direct Farm Operating Loans are a valuable resource to establish, maintain and strengthen a farm or ranch. Microloans are direct farm operating loans with a shortened application process and reduced paperwork designed to meet the needs of smaller, non-traditional, and niche operations. Apprentice and mentorship programs, non-farm business experience, and farm labor experience are acceptable alternative solutions for helping to meet farm experience and managerial requirements. Operating loans may be used to purchase items such as:

- Farm equipment
- Fuel, farm chemicals, insurance, etc.
- Minor improvements or repairs to buildings
- Refinance certain farm-related debts, excluding real estate

There is no minimum loan amount. The maximum loan amount for a Microloan is \$35,000. The maximum loan amount for a Direct Farm Operating Loan is \$300,000. There is no down payment requirement.

Contact your local FSA office or USDA Service Center to learn more about programs offered and the information needed to complete an application. To locate your local FSA office go to: <http://offices.sc.egov.usda.gov/locator/app?state=ny&agency=fsa> or find a listing in the telephone directory under the US Dept. of Agriculture, Farm Service Agency. ■

FDA Proposed Food Safety Rules - Submit Comments by May 16

USDA AMS Fruit and Vegetable Program

(The proposed FDA food safety rules will affect all growers of vegetables and fruits. Currently only those growers whose buyers require third party certification of the farm's compliance with a food safety plan, GAPs, etc., have been affected. C MacNeil, CVP)

On January 16, 2013 the Food and Drug Administration (FDA) published in the Federal Register for public comment the proposed rule: *Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption* (FDA fact sheet at: <http://www.fda.gov/Food/FoodSafety/FSMA/ucm334114.htm?source=govdelivery>) This proposed

rule is a key component of the 2011 FDA Food Safety Modernization Act.

The produce industry, other stakeholders and the general public are asked to review and submit comments to FDA at: <http://www.regulations.gov> by **May 16, 2013**. Your specific comments as to what works for you and what doesn't work (and why) will help guide FDA as they draft final rules on produce safety and preventive controls. *Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption* will become effective only after the final

rules are published in the Federal Register along with established compliance dates.

Should you have questions about FDA's proposed rules contact FDA at FSMA@fda.hhs.gov or Food and Drug Administration, 5100 Paint Branch Pkwy., Wiley Building, HFS-009, College Park, MD 20740, Attn: FSMA Outreach.

(The Produce Safety Alliance has very understandable information on the FDA's proposed food safety rules. Check out their website, and monthly updates, at: <http://producesafetyalliance.cornell.edu/psa.html>) ■

Brian Nault: Go-to-Guy for Vegetable Insect Pests Earns IPM Award

Mary Woodsen, NYS IPM Program

When a virus epidemic hit New York's 30,000 acres of snap beans, entomologist Brian Nault shifted into high gear. The virus wasn't new, but an aphid that transmits it was. That aphid spells major trouble for the snap bean industry throughout NY and the Great Lakes region, not just for growers but for food processors and ultimately consumers as well.

As a go-to guy for nearly any vegetable with insect trouble, Nault, a professor at Cornell University, began looking at how the aphid dispersed and overwintered—not only among snap beans but in hedgerows or neighboring fields.

Nault's goal—to find the least toxic, most effective means of taming this dread disease. Sometimes the results are surprising: as is the case with many viruses, spraying for aphids provides no benefit at all. Varietal testing of susceptibility of dozens of

snap bean varieties to viruses led to growers using more virus-tolerant varieties. Results of Brian's research led to recommendations to use these varieties after late June, when infection is more likely, and to avoid spraying insecticides for aphids.

Farmers like onion grower Matt Mortellaro have benefited not only from Nault's expertise but from how accessible he is. "He's always responsive to grower input," says Mortellaro, who participated in research to find solutions to thrips. Carefully timed sprays on research plots cut applications by up to 50 percent. "I've changed my practices because of Brian's work," says Mortellaro. "His work in thrips management is particularly worthy of recognition."

Jeff Johnson at Seneca Foods Corporation says Nault's research isn't just about farmers. Saving on pesticide use climbs the economic food chain

too. "Brian's research has a major impact on the cost of controlling pests," Johnson says. "His work to help our industry stay competitive is an asset to us all."

For these projects, Nault received the Excellence in Integrated Pest Management (IPM) Award. Nault received his award on January 22 at the Empire State Fruit and Vegetable Expo Potato session in Syracuse, NY. Brian recently took on responsibility for potato insect pests, after the retirement of Professor Ward Tingey. *(edited by C. MacNeil, CVP)* ■



Brian Nault, Cornell Entomologist, received the Excellence in Integrated Pest Management (IPM) Award.

Farm Gate Value of New York Vegetables Exceeds \$500 Million

Stephen Reiners, Cornell - Geneva

For the first time in New York, the farm gate value of a single vegetable, cabbage, exceeded \$100 million (Table 1). The farm gate value of NY vegetables was the highest ever, with an estimate of close to \$530 million. Acreage of fresh market vegetables held steady in 2012 and the increase in value was due to both a relatively large increase in average yield for most crops along with prices that were slightly higher than 2011 (Table 2). 2012 was for the most part hot and dry and growers were forced to irrigate through much of the season. Though adding to costs, growers that could irrigate saw the benefit in terms of yield increases.

On the processing side (Table 3), planted acres and value increased compared to 2011. Although values are still lower than 2010, the trend seems to be heading in the right direction and we expect to see steady increases for 2013. 2012 was the first year that Bonduelle North America grew for processing in New York, joining Seneca Foods as one of the two major processors in the state. Unfortunately, we can only get individual statistics for processing snap beans. One addition to the crops being grown for processing in 2012 was lima beans, and acreage of this crop is expected to increase in 2013.

In addition to the crops listed to the right, there are another dozen "minor crops" grown in NY for which no statistics are kept. These include carrots (both fresh market and processing), lettuce, melons, radishes, broccoli, asparagus, Chinese cabbage, garlic, and herbs. These crops would likely add at least another 6,000 acres and \$30 million to the industry totals. ■

Table 1. Value and planted acreage of NYS fresh market vegetables, 2010-2012. (NYS Ag Statistics).

Crop	2012		2011		2010	
	Value (Million \$)	Planted Acres	Value (Million \$)	Planted Acres	Value (Million \$)	Planted Acres
Cabbage	106.0	10,900	81.9	10,900	88.0	10,600
Sweet Corn	68.4	21,700	53.6	23,300	71.1	23,500
Squash	41.2	4,600	42.9	4,900	36.8	4,700
Tomatoes	47.1	2,900	36.6	3,000	28.5	2,900
Onions	46.0	10,200	26.7	8,100	53.7	10,700
Snap Beans	33.5	5,400	31.0	5,600	39.2	6,900
Pumpkins	33.0	6,400	23.6	6,800	35.1	7,100
Cucumbers	25.8	3,000	18.6	3,000	18.5	3,000
Cauliflower	4.3	500	2.4	480	3.4	490
TOTALS¹	405.4	65,600	317.3	66,080	374.3	69,890
Peppers, Bell	*	*	*	*	9.9	1,200
Eggplant	*	*	*	*	4.0	400
Endive/Escarole	*	*	*	*	2.0	300
Spinach	*	*	*	*	1.0	350
TOTALS²	421.3	67,700	333.3	68,180	391.2	72,140
Potatoes	62.0 ³	16,800 ³	61.6	16,500	69.1	16,200
TOTALS⁴	483.3	84,500	394.9	84,680	460.3	88,340

¹ Totals without peppers, eggplant, endive/escarole, spinach, potatoes

* Unavailable due to budget constraints at Ag and Markets

² Totals with estimates for peppers, eggplant, endive/escarole, spinach (2,100 acres and \$16 million)

³ Estimate, statistics not available until later this year

⁴ Totals with estimates for potatoes (\$62 million and 16,800 acres) and peppers, eggplant, endive/escarole, spinach

Table 2. Average yield and marketing year average price for fresh market vegetables in 2010-2012. (NYS Ag Statistics).

CROP	Average Yield (cwt/Acre)				Average Price (\$/cwt)			
	2010	2011	2012	% Change (11-12)	2010	2011	2012	% Change (11-12)
Cabbage	430	440	420	-4.5	21.20	18.90	25.30	33.9
Potatoes*	320	250	285	14.0	13.50	15.20	*	*
Sweet Corn	120	95	110	15.8	26.00	28.80	30.20	4.9
Squash	195	190	190	0.0	41.00	51.30	48.20	-6.0
Tomatoes	140	160	195	21.9	72.70	84.80	86.40	1.9
Onions	315	305	310	1.6	19.70	16.80	16.90	0.6
Snap Beans	70	61	65	6.6	83.60	96.10	97.00	0.9
Pumpkins	215	110	170	54.5	24.00	34.10	33.50	-1.8
Cucumbers	170	160	210	31.3	38.80	40.00	42.40	6.0
Cauliflower	145	115	140	21.7	51.00	49.00	65.00	32.7

* Statistics not available until later this year

Table 3. Value and acreage of New York processed vegetables, 2010-2012. (NYS Ag Statistics).

Crop	2012		2011		2010	
	Value (Million \$)	Planted Acres	Value (Million \$)	Planted Acres	Value (Million \$)	Planted Acres
Snap Beans	18.8	19,700	15.2	15,100	21.6	25,600
Peas, Corn, Beets, Kraut, Carrots, Lima beans	na	na	na	Na	na	na
TOTAL, Processing	44.9	32,700	27.0	25,200	47.6	58,600
TOTAL, Fresh¹	483.3	84,500	394.9	84,680	460.3	88,340
TOTAL, All	528.2	117,200	421.9	109,880	507.9	146,940

na - Not published to avoid disclosure of individual operations

2012 Vegetable Grafting Update

Judson Reid, Kathryn Klotzbach, and Nelson Hoover, CCE Cornell Vegetable Program

In 2012 the Cornell Vegetable Program conducted trials of grafted cucumbers and tomatoes. We grafted 2 tomato scions (Panzer and Big Dena) onto 3 different rootstocks (Arnold, Colossus and Maxifort) - see Figure 1. For cucumbers we tried 3 different scions (Diva, Tamzlua and Presidio) onto 1 rootstock (Strongtosa). In each case we also grew out ungrafted control plots for comparison. Tomatoes were grafted using the 'tube-graft' method and cucumbers were grafted via the 'single-cotyledon' method. Detailed information on our materials and methods can be found on our website: <http://cvp.cce.cornell.edu/>

Results and Discussion

Survival of grafted tomato plants was an average of 84% with some difference between the rootstocks. Cucumbers continue to be a challenge, with our highest average survival reaching 76%. The benefits of grafting on tomatoes also continues to be greater than with cucumbers. Both tomato scions gained around 5 lbs per plant, comparing the highest combination with ungrafted control plots (Table 1). However for cucumbers, yield was not significantly different from control plots (Table 2).

Don't forget yield is not the only advantage of grafting! We would also like to confer cold hardiness and disease resistance to the crop. The Cornell Vegetable Program was recently awarded a Specialty Crops Research Initiative grant to continue this research for NY vegetable growers.

Would you like to learn more about grafting? Please see the meeting announcement (page 9) for more details on a March 14 workshop in Belmont, NY. Participants in this workshop will graft their own tomato plants! Contact Lynn Bliven at 585-268-7644 ext. 18 for more details. ■

Table 1. Yield measures of two tomato varieties ungrafted, and grafted to three different rootstock.

	Mean Fruit Weight (lbs)	Total Fruit per Plant	Mean Plant Yield (lbs)
Big Dena	0.64 bc	38.31 c	24.54 cd
Big Dena x Maxifort	0.70 a	43.69 ab	30.60 a
Big Dena x Colossus	0.68 ab	39.69 bc	26.80 bcd
Big Dena x Arnold	0.72 a	37.56 c	26.85 bc
Panzer	0.55 e	44.58 a	24.42 d
Panzer x Maxifort	0.62 cd	47.19 a	29.16 ab
Panzer x Colossus	0.60 cde	47.00 a	28.11 b
Panzer x Arnold	0.58 de	47.88 a	27.61 b
p-Value	0.0000	0.0001	0.0003

* Means with different letters (grouping) differ significantly according to Fishers's Protected LSD (P<0.05).



Figure 1. Successful grafts of Big Dena onto Maxifort.
Photo: J. Reid, Cornell Vegetable Program



Figure 2. Grafted tomato trial in an unheated high tunnel.
Photo: J. Reid, Cornell Vegetable Program

Table 2. Yields of 3 cucumber scions, ungrafted and grafted to Strongtosa rootstock.

	Average Fruit Weight (lbs)	Total Fruit per Plant	Plant Yield (lbs)
Presidio	0.39 bc	23.89 a	9.45
Presidio Grafted	0.37 c	21.99 ab	8.20
Tamazula	0.41 b	23.17 a	9.69
Tamazula Grafted	0.42 b	23.61 a	9.90
Diva	0.52 a	14.12 c	7.37
Diva Grafted	0.53 a	16.51 bc	8.66
p-Value	0.0000	0.0164	NS

I-9 Audits and Compliance

Sandy Buxton, CCE - Capital Area Agriculture & Horticulture Program

One of the most common places a business has a problem with the federal Department of Labor is in a required piece of paperwork for every employee – the I-9. Employers can be compelled to provide these documents with short notice for review by authorities. This form is used to document the eligibility of a person to work in the U.S. It must be completed when an employee starts work. Employers must hold it for 3 years after date of hire or 1 year after the date employment ends, whichever is later.

The process of filling out an I-9 is two-fold. The employee must complete the first part filling in their personal information and sign the form. If a translator/third party participates in completing the

document, a middle section must be filled out.

Finally, the employer or representative must re-verify documents presented by the employee, describe the document and sign the form. If the employee presents a document which will expire, it is the employer's responsibility to document that a new version of the document has been presented before the expiration date. Also, a name change due to marriage or divorce must also be documented and dated.

Frequently I-9 audits will turn up inconsistencies such as where Column B or C documents are listed in the wrong spot, signatures in the wrong place or forms not being dated. Maintaining a standard

method of completing the form is one of the best procedures. Attendees at a recent Labor Issues meeting shared it was best to have a single person be responsible for processing all I-9 paperwork and new employee hires.

Finally, many employers copy the documents presented. The I-9 does not direct you to copy and hold the documents. If you choose to copy the documents then it must be done for ALL employees. You can just record the documents you have (type of document, number, issuer, expiration, date, etc) and purge the files each year of out-dated material. Note: The Department of Homeland Security does tell employers a file should contain copies of employees' documents. ■


Work Agreements and H2-A Employees

Sandy Buxton, CCE - Capital Area Agriculture & Horticulture Program

Each employee who arrives and works on an H2-A visa has an ETA-790 form which can serve as a work agreement documenting the overall contract of work skills, hours, employer and employee info in the employee's first language, according to the Department of Labor (NYS DOL). However, this form does NOT meet the requirements for the pay notice information which now must be renewed every year documenting pay rate, pay dates, etc.

The solution from NYS DOL is to attach an additional form with this pay info to the ETA-790 in both the employee's language and the employer's. This needs to be signed and copies shared between both parties to meet the regulation. In addition, beyond a form for each individual employee, there must be a general form posted in all applicable languages for review by all employees.

Reminder: Use of NYS DOL templates at <http://labor.ny.gov/formsdocs/wp/ellsformsandpublications.shtm> offer "automatic" compliance. They have posted a variety of forms to facilitate providing information. ■



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Upcoming Meetings

Farmers Market Manager Training Conference: The Science of Farmers Markets

March 5 - 7, 2013

La Tourelle Resort and
August Moon Spa, Ithaca

Topics: food safety, crisis management, working with volunteers, understanding consumers, and working with a board of directors. Includes a discussion with experienced managers.

Registration: <http://www.nyfarmersmarket.com/work-shop-programs/annual-conference-ditto-with-the-annual-conference/registration.html>

Conference agenda, hotels: <http://www.nyfarmersmarket.com/work-shop-programs/annual-conference-ditto-with-the-annual-conference/program.html>

Questions? Contact the Federation office at 315-637-4690;
degger@nyfarmersmarket.com. Hosted by the Ithaca Farmers Market

Funding Sources for Agricultural Producers and Beginning Farmers

Wednesday, March 6, 2013

12:45 - 5:00 pm

CCE Erie County
21 S. Grove Street, East Aurora 14052

Updates on funding through Farm Service Agency, Natural Resource Conservation Service, Erie County Soil & Water, NYS Dept. of Agricultural and Markets, Crop Insurance, Northeast SARE - programs for beginning farmers, local micro loans, etc.

FREE!

Contact Sharon Bachman at 716-652-5400 x150 or sin2@cornell.edu for more information.

Farm Food Safety Training with GAPs

March 6 - 7, 2013

8:30 am Registration & Refreshments;

9:00 am - 3:30 pm Training

CCE Yates County
417 Liberty Street, Penn Yan 14527

This two day training, including the new "Harmonized" GAPs, will teach you about good ag practices to reduce the risk of microbial food-borne illness. You will develop a food safety plan for your farm. **Laptops are required for the second day.** If you need a loaner check the box on your mail-in registration, or contact Angela Parr at aep63@cornell.edu or 585-394-3977 x426. (General info on trainings, Craig Kahlke: cjk37@cornell.edu or 585-735-5448. For the National GAPs Program go to: <http://www.gaps.cornell.edu/eventscalendar.html>)

Cost: \$60 per person, includes lunch; \$10 more for each additional farm member. **Pre-register by March 4** by visiting <http://cvp.cce.cornell.edu/event.php?id=68> or call Angela Parr at 585-394-3977 x426. Payment is due in advance of the event.

Sponsored by Genesee Valley Regional Market Authority, Cornell Cooperative Extension, Cornell University, Produce Safety Alliance and NYS Dept. of Ag & Markets.

Lower Hudson Valley Vegetable School

Friday, March 8, 2013

9:00 am - 4:00 pm

CCE Ulster County
10 Westbrook Lane, Kingston 12401

Cost: \$60 per person after March 1.

For more info: 845-340-3990 x315 or tr28@cornell.edu or visit: http://counties.cce.cornell.edu/orange/Vegetable_School_13.pdf



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<p>2013 NYS Dry Bean Meeting</p> <p>Wednesday, March 13, 2013</p> <p>9:00 am - 3:00 pm</p> <p>LeRoy Country Club 7759 E. Main Rd, LeRoy</p>	<p>\$20 for current Cornell Vegetable Program enrollees/subscribers, \$30 for all others. SAVE \$5 over walk-in registration if you: Preregister by March 11th - Contact Angela Parr at 585-394-3977 x426 or aep63@cornell.edu</p> <p>2.0 DEC credits and CCA credits will be available. For general information about the meeting or if you have special needs, contact Carol MacNeil at 585-394-3977 x406 or crm6@cornell.edu. <i>Sponsored by King Cole Bean and New York Bean, LLC.</i></p> <p>Interested in sponsoring? Contact Angela Parr at 585-394-3977 x426 or aep63@cornell.edu.</p>
<p>Winter Wednesday Webinars</p> <p>March 13 1:00 - 2:00 pm</p> <p>March 27 1:00 - 2:30 pm</p>	<p>Penn State's Extension Vegetable & Small Fruit Program Team presents a series of webinars to keep you informed on critical production issues.</p> <p>March 13 - Recognizing & Protecting Pollinators for Vegetables & Small Fruit</p> <p>March 27 - Cucurbit Pest Management: Organic, Biorational & Conventional</p> <p>Register at: http://agsci.psu.edu/vegetable-production-webinars Or call 724-627-3745. When you register you'll get instructions for accessing the webinar(s).</p> <p>Cost: \$10 per webinar, payable by check or credit card.</p>
<p>Vegetable Grafting Workshop and More!</p> <p>Thursday, March 14, 2013</p> <p>9:30 am - 12:00 pm</p> <p>CCE Allegany County 5435A County Rd 48, Belmont 14813</p>	<p>Learn about the latest Cornell Vegetable Program on-farm research projects. The use of winter grains to control weeds in summer vegetables was researched in 2012. Can this work as an alternative to herbicides? What is the effect on tomatoes or onions? The advantages and techniques of grafting will also be presented. Participants will graft their own tomatoes and take them home to make comparison with non-grafted plants. HarvestNY is a new CCE initiative to connect growers with consumers. Cheryl Thayer will give a program update.</p> <p>Cost: \$10/person. For more info and to register, contact Lynn Bliven at 585-268-7644 x18 or visit http://cvp.cce.cornell.edu/event.php?id=80.</p>
<p>Success in Growing for Auction</p> <p>Friday, March 15, 2013</p> <p>10:00 am - 2:30 pm, includes lunch</p> <p>Dutch Village Restaurant 8729 East Main Street, Clymer 14724</p>	<p>This course will educate produce growers on pest management, varieties and marketing issues in vegetables and strawberries. Topics such as inter-row cover crops, pest ID, responsible spray options, and attributes of successful NYS auction will be presented.</p> <p>Cost: \$10/person, payable with pre-registration by March 8, 2013. Contact Ginny Carlberg at 716-664-9502 or vec22@cornell.edu or visit http://cvp.cce.cornell.edu/event.php?id=81.</p>
<p>Marketing NY Farm Products to Bed & Breakfast Innkeepers</p> <p>Dates, times, and locations appear to the right</p>	<p>These workshops are designed to bring B&B innkeepers together with farmers with products for sale. Organized by the Empire State B&B Assoc., the NYS Small Scale Food Processors, and NOFA-NY. Register online at the web links below, or contact Karen Baase at 315-684-3001 or kab21@cornell.edu a week before the workshop. <i>Funded by NYS Dept. of Ag & Markets and the Federal State Marketing Improvement Program at USDA.</i></p> <p>March 18, 9:00 am – Noon, New York Wine & Culinary Ctr., 800 S. Main St., Canandaigua. Register online at: https://reg.cce.cornell.edu/BandBCanandaigua_225</p> <p>March 25, 1:30 - 4:30 pm, Cornell Cooperative Extension - Erie County, 21 S. Grove St, East Aurora. Register online at: https://reg.cce.cornell.edu/BandBEAurora_225</p> <p>April 3, 1:00 - 4:00 pm, The Farmers' Museum, 5775 State Route 80, Cooperstown. Register online at: https://reg.cce.cornell.edu/BandBCooperstown_225</p> <p>April 9, 1:00 - 4:00 pm, CCE - Warren Co, 377 Schroon River Rd, Warrensburg. Register online at: https://reg.cce.cornell.edu/BandBWarrensburg_225</p>

Upcoming Meetings (continued)

<p>Tomato/Potato Late Blight - Using an Advanced Forecast Tool</p> <p>Tuesday, March 19, 2013</p> <p>1:00 - 4:00 pm</p> <p>CCE Monroe County 249 Highland Ave, Rochester 14620</p>	<p>Learn how to use this new late blight forecast tool on your farm. The email/text spray alerts and broad base of fungicide info makes the LB DSS easier to use and more helpful than ever before. It provides scientific information to help make better fungicide spray decisions and, in some cases, safely stretch spray schedule during the hot, dry weather. A laptop is required. Contact Angela if you need a loaner.</p> <p>Participation is FREE but pre-registration is required by Monday, March 11. To register, contact Angela Parr at 585-394-3977 x426 or aep63@cornell.edu. Online registration is available at http://cvp.cce.cornell.edu/event.php?id=78</p> <p>Questions about the workshop or the LB DSS, contact Carol MacNeil at 585-394-3977 x406 or crm6@cornell.edu. DEC and CCA credits will be available.</p>
<p>Capital District Garlic School</p> <p>Tuesday, March 19, 2013</p> <p>10:00 am - 2:00 pm, includes lunch</p> <p>CCE Albany County 24 Martin Rd, Voorheesville 12186</p>	<p>The focus is on soil health and how it affects garlic health - cover crops, rotation, fertility management and soil-borne diseases.</p> <p>Cost: \$20 for CDVSFP enrollees; \$25 for non-enrollees.</p> <p>For more information or to register, contact Marcie Vohnoutka at 518-272-4210 or or mmp74@cornell.edu or visit http://cdvsfp.cce.cornell.edu/event.php?id=76</p>
<p>Identification, Assessment & Management of Soilborne Plant Pathogens in Vegetables</p> <p>Wednesday, March 20, 2013</p> <p>8:30 am - 4:15 pm</p> <p>NYS Ag Experiment Station, Jordan Hall, 630 W. North St., Geneva</p>	<p>Topics: Understanding pathogen biology; How to identify soilborne diseases on vegetable crops in the Northeast; Methods for assessing soil pathogen levels and crop loss; and, Disease management.</p> <p>Cost: \$20, includes lunch</p> <p>4.5 DEC credits and CCA credits will be available</p> <p>Pre-registration required by March 12. Contact Angela Parr, Cornell Vegetable Program: aep63@cornell.edu or (585) 394 – 3977 x426. Make checks payable to: <i>Cornell Vegetable Program</i>, memo: “3/20 Veg Disease Workshop”. Or register and pay online at: http://cvp.cce.cornell.edu/event.php?id=63</p>
<p>Geneva Garlic School</p> <p>Thursday, March 21, 2013</p> <p>10:00 am - 2:00 pm</p> <p>NYS Agricultural Experiment Station, Jordan Hall, 614 W. North St., Geneva</p>	<p>The focus is on soil health and how it affects garlic health - cover crops, rotation, fertility management and soil borne diseases.</p> <p>Cost: \$20 for CVP enrollees; \$25 for non-enrollees</p> <p>For more information or to register, contact Robert Hadad at 585-739-4065 or rgh26@cornell.edu.</p>
<p>TRAC Software Workshop</p> <p>Wednesday, March 27, 2013</p> <p>9:00 am - 12:00 pm</p> <p>CCE Rensselaer County 61 State Street, Troy 12180</p>	<p>Setting up your farm info, fields, pesticide inventory, and how to enter your records. Learn to generate reports, spray material costs, and fertilizer and harvest records. Trac is developed for tree fruit, berries and grapes.</p> <p>Cost: \$15 per person. Contact Marcie Vohnoutka to register at 518-272-4210 or mmp74@cornell.edu.</p>
<p>Greenhouse Transplant Production for Sales and Farm Use</p> <p>Thursday, April 25, 2013</p> <p>4:30 - 7:00 pm</p> <p>Blue Heron Farm, 1641 Shaw Rd, Lodi</p>	<p>Robin Ostfeld of Blue Heron Farm will teach participants how to anticipate one's market and plan accordingly. To register go to: https://netforum.avectra.com/eWeb/DynamicPage.aspx?Site=NOFANY&WebCode=EventDetail&evt_key=6b0d1f8b-94e1-4ebd-9dd0-93d04cac82e0 or call 585-271-1979 x511. This program is supported by the Beginning Farmer and Rancher Development Program of the National Institute for Food and Agriculture, USDA.</p> <p>Cost: \$5 per person; \$10 for two or more people from same farm.</p>

Pesticide Classes

Certified Pesticide Applicator Training and Test

Wednesday, March 13 and
Monday, March 18, 2013

1:00 - 4:00 pm

CCE Wayne Co.
1581 Rt. 88 North, Newark

EXAM: Friday, March 22, 2013
12:30 - 5:00 pm

Participants must have experience working with pesticides to become certified.

Training classes cost: \$50 (additional cost for manuals).

Pre-registration for the training classes is required. Call 315-331-8415. Be sure to order the manuals you'll need. This training is only for those with experience and does not qualify for the 30-hour pre-test training.

To register for the exam or for questions regarding the Certification Process, contact Chris Wainwright at the Avon DEC office at 607-776-2165 x23.

Exam cost: \$100 payable to DEC on the day of the exam.

Erie County Pesticide Recertification Course

Wednesday, March 20, 2013

8:15 am - 12:15 pm

CCE Erie County
21 S. Grove Street, East Aurora 14052

Includes a review of Ag Environmental Management practices related to pesticides

Free for CCE - Erie County Ag Enrollees; Others - \$20

For info and to register, Sharon Bachman at 716-652-5400 x150 or sin2@cornell.edu.

Capital District Pesticide Applicator's Recertification Day

Friday, March 22, 2013

7:30 am - 4:00 pm

Century House, 997 New Loudon Rd,
Latham 12110

Morning - 3 Core Credits; Afternoon - credits in categories 1a, 3a or 7a

\$75 half day, \$95 full day

To register, call Gale at 518-765-3500.

DEC Special Permit Training Class for Non-Certified Applicators and Handlers of Federally Restricted-Use Pesticides

Wayne County
Tuesday, April 9, 2013

English Session: 9:00 am - 12:00 pm

Spanish Session: 1:00 pm - 4:30 pm

Registration: 8:30 am (English)
and at 12:30 pm (Spanish)

CCE Wayne County
1581 Rt. 88N, Newark

Orleans County
Wednesday, April 10, 2013

English & Spanish sessions
9:00 am - 12:30 pm

Registration: 8:30 am

Orleans County Cooperative Extension
Fairgrounds Trolley Bldg.
Rte. 31, Knowlesville
(between Albion and Medina)

Certified Supervisors are required to attend the first 30 minutes of training!
In Wayne County, supervisors who attend the first 30 minutes of training in the English session do not need to repeat the training in the Spanish session

DEC Special Permit allows non-certified workers to apply and handle federally restricted use pesticides: The Special Permit does not relieve the responsibility of the certified applicator who supervises these employees, but it does relieve the requirement of "on-site, within voice contact" supervision while these pesticides are being applied.

What are federally restricted-use pesticides? There are several reasons why pesticides may be federally restricted including avian, fish or aquatic toxicity, acute human oral/inhalation/dermal toxicity (poison), ground and surface water concerns, reproductive effects or tumor causing. Several of the **pyrethroid, organophosphorous and carbamate insecticides** such as Warrior, Capture, Diazinon, Lorsban and Lannate, and a few herbicides such as Gramoxone and Atrazine, are federally restricted-use materials.

DEC Special Permit training - At Special Permit trainings, we review with non-certified applicators Worker Protection Safety (WPS) handler training and for each federally restricted-use pesticide the potential hazards to non-target species and the environment, and how to prevent the risk of exposure. Trainees also receive a packet with summaries of this information. **A DEC Special Permit is valid for one year and must be renewed every year unless the pesticide applicator becomes certified.**

\$20 per DEC Special Permit. To register, contact Kim Hazel at 585-798-4265 x26 or krh5@cornell.edu. Please register by April 5.

Movento® Receives Emergency Exemption for Thrips Control on Onions

Information from the US Environmental Protection Agency (EPA)

The EPA recently issued a section 18 emergency exemption for the use of spirotetramat, formulated as Movento, to **control thrips on dry bulb onions in NYS from 3/15/13 to 9/15/13**. Movento (22.4% spirotetramat, EPA Reg. No. 264-1050), Bayer CropScience. All directions, restrictions, and Worker Protection Standard requirements, on the Section 18 label as well as on the Section 3 label, must be followed. The official Section 18 label must be in possession of the user at the time of pesticide application.

Movento may be applied at 5.0 fluid ounces/acre on onions for onion thrips control, no more than twice, by air or ground equipment. Local beekeepers should be notified prior to applying this chemical, if possible. Treatment must be made before a damaging population becomes established. Best results will be obtained when two applications are made on a 7-10 day interval, incorporated into a seasonal program where effective products with different modes of action are used in rotation.

(See Brian Nault's article on rotation of insecticides for onion thrips control in the December 2012 Veg Edge.)

MOVENTO must be tank-mixed with a spray adjuvant having spreading and penetrating properties to maximize leaf uptake of the active ingredient. ■

New York Potato Production Up

USDA National Ag Statistics Service, New York Office, January 2013

New York production of fall potatoes for 2012 is estimated at 4.7 million hundredweight (cwt.), up 16% from a year ago. Area harvested, at 16,500 acres, is 300 acres more than last year. The average yield was 285 cwt per acre. U.S. production of fall potatoes for 2012 is estimated at 423 million cwt, up 8% from last year. Area harvested, at 989,600 acres, is 5% higher than last year. The average yield is estimated at 427 cwt per acre, up 11 cwt from last year.

Potato stocks, held for all purposes on December 1, 2012 by New York growers, dealers, and processors totaled 2.70 million hundredweight (cwt.), up from the 2.10 million cwt. held a year ago. Storage accounted for 57% of the 2012 potato crop. The 13 major potato States held 280 million cwt of potatoes in storage December 1, 2012, up 11% from a year ago. Potatoes in storage accounted for 68% of the 2012 fall storage States' production.

Potato disappearance, at 132 million cwt, was 2% above December 1, 2011. Processors in the 9 major States have used 73.2 million cwt of potatoes this season, down 4% from the same period last year.

This report, in addition to many others, is available free of charge at: www.nass.usda.gov/ny/ ■

2013 Cornell Guidelines Available

The 2013 editions of the Cornell Guidelines for Commercial Vegetable Production, Greenhouse Vegetable and Herb Production, and Berry Crops, are now available. These annual publications provide up-to-date crop production information for New York State. They have been designed as practical guides for producers, crop consultants, and ag suppliers. You can order (or may already have ordered) these publications through local Cornell Cooperative Extension county offices. Or you can call 607-255-7282, send an email to pator-der@cornell.edu, or order on-line at: <https://psep.cce.cornell.edu/store/Guidelines/> ■



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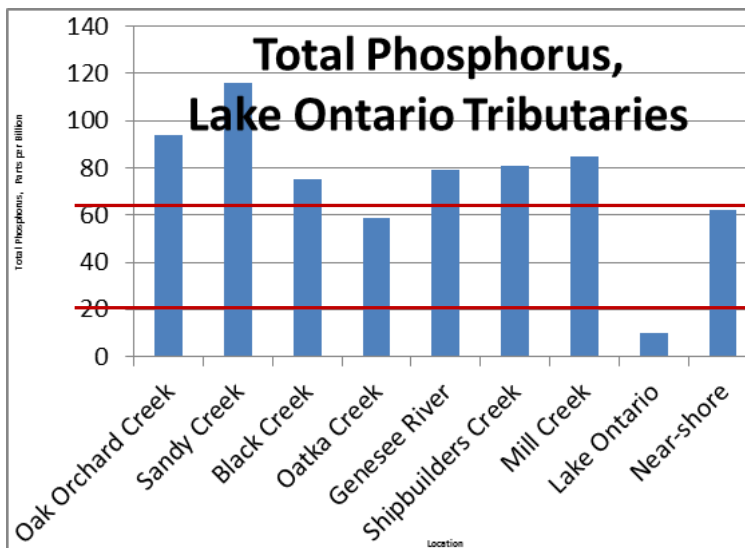
www.StokeSeeds.com

High Phosphorus Levels in Streams in the CVP Region

Carol MacNeil, CCE Cornell Vegetable Program, with info from George Thomas, Center for Environmental Initiatives, Rochester, www.ceinfo.org

In recent years testing of streams flowing into Lake Ontario has revealed, in some cases, high to very high levels of phosphorus (Fig. 1). Phosphorus is a limiting nutrient in the growth of algae in aquatic environments. The phosphorus enters the shoreline waters from streams that discharge into it. The phosphorus in those streams comes from a variety of sources including: septic systems, wastewater treatment plants, cropland fertilization, industrial effluents and farm animal waste. This high phosphorus load is causing excess weed and algae growth downstream, which affects fish and the smaller organisms on which they feed. There is special concern about water quality in the Great Lakes because they provide drinking water to so many people, as well as providing fishing and recreational activity with high economic value. Algae is a major cause of beach closings along the Lake Ontario coast.

Figure 1. Total phosphorus in Lake Ontario tributaries, with the range of the water quality standard (red lines).



Soil test phosphorus levels on many fields on vegetable farms in the Cornell Vegetable Program region are high to very high. The amount of phosphorus in some fields is like “money in the bank!” Generally this is due to repeated, high application rates of

fertilizer, compost and/or manure. Vegetable growers have an opportunity to both save money and reduce phosphorus levels in nearby streams by limiting phosphorus fertilizer rates to recommended rates based on a recent soil test. Soils should be tested at least once every three years. By crediting the phosphorus in added compost and manure, phosphorus fertilizer rates may be able to be reduced further. For vegetable crops on many fields this means that rates of phosphorus fertilizer could safely be reduced to 20 – 50 lbs/acre. In most cases this means that fertilizer analyses will need to change.

If you don't have recent soil test results and recommendations for all your fields, now is the time to plan to collect those soil samples and send them in for testing. It's likely you'll find an occasional field with low soil phosphorus levels that you've been under-fertilizing! Apply the recommended rate this year and your crop yield could improve.

Agro-One Agronomy Lab Services, through Dairy One, uses Cornell approved extraction techniques and provides Cornell recommendations based on NYS conditions and research, when the Commercial Vegetable (NY) Input Sheet V is used. Cost is \$12/sample at the time of submission. Many Cooperative Extension offices have soil sample boxes and input sheets, or you can order boxes and print off input sheets at: http://www.dairyone.com/AgroOne/soil_testing/Form%20V.pdf If you have questions call 800-496-3344 or 607-257-1272. ■

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Cover Crops and Strip Tillage Show Big Benefits

Beth Stuever, *GREEN News*, Michigan State University

If you're interested in reduced tillage and/or cover cropping in vegetable systems contact Carol MacNeil in the Cornell Vegetable Program area at crm6@cornell.edu or 585-394-3977 x406, or Chuck Bornt in the Eastern NY Horticulture Program area at cdb13@cornell.edu or 518-272-4210 x125.

Using a strip tillage system in combination with cover crops benefits vegetable farmers as well as the land, according to research by Dan Brainard, Michigan State University (MSU). Brainard's research shows that strip tillage in combination with cover crops has big benefits over traditional tillage, including improved soil quality, and reduced wind and water erosion. It also conserves soil moisture, protects beneficial insects and reduces costs for the grower.

With funding from Project GREEN

(Generating Research and Extension to meet Economic and Environmental Needs), Brainard was able to look at the costs and benefits of adopting a strip tillage and cover cropping system. Specifically, his team of scientists examined the effects of this type of system on land planted with sweet corn and cabbage crops. "We're experimenting with various cover crops to see which ones have the highest benefits for sweet corn and cabbage," he says. "So far, winter rye and hairy vetch seem to be working best." Brainard says that weed management is the biggest challenge in strip tillage and cover cropping systems but that researchers are seeing improvements. *(With reduced tillage, the weed control program needs to deal with the perennial weeds that build up, and to come up with alternatives to incorporated herbicides, in addition to learning the best materials, rates and timing for burning*

down cover crops and weeds. ed. C. MacNeil, CVP)

"The benefits most definitely outweigh the costs," he said. "It's all about reducing costs to the farmer, and in the long run, this system really does the job." Using this type of system over time, Brainard's team has seen a significant improvement in soil quality, which, in turn, improves yields and crop quality. Cover cropping and strip tilling also reduce irrigation and fertilization costs by buffering erosion, improving water-holding capacity, and helping to keep soil-applied fertilizers and pesticides in place. Less tillage also means fewer tractor trips across the fields and reduced fuel costs. "We're only looking to help growers save money by encouraging soil conservation, and that has proven benefits that can't be ignored." ■

Vegetable Research Technician Position Available in WNY

The Cornell Vegetable Program seeks an individual to assist in research trial implementation, data collection and harvest. Work in field and greenhouses throughout Western, NY. Full-time with benefits. Minimum 6 months training beyond HS diploma or Associate's degree. For more information and application instructions, see our website <http://cvp.cce.cornell.edu>. ■

Approved 2013 Dry Bean Research & Promotion Funding

The following proposals for 2013 dry bean research and promotion were approved by the NYS Dry Bean Industry Advisory Committee at their meeting December 14, 2012, in LeRoy.

Researchers	Department	Title	2013-2014 Funding
Hamlin	NY Coalition for Healthy School Food	Promoting Plant Based Foods in New York Schools	\$2,000
Bellinder	Horticulture (I)	Evaluating Weed Management Programs in Zone-Till Dry Beans and New Herbicide Evaluations	\$3,984
Griffiths, Halseth, Sandsted	Horticulture (G)	Breeding, evaluation and development of dry bean varieties that are highly adapted to NYS growing environments and markets	\$18,947
MacNeil, Waldron	CCE / IPM	Determining the magnitude and distribution of Western Bean Cutworm, and the Risk to Dry Beans, in the Major Production Area in NY	\$2,997
Don Halseth	Horticulture (I)	NYS Industry Trials	\$1,620
Total Funded			\$29,548

H. Chris Wien, Cornell, from the Allium School at the Empire State Producers Expo, 1/24/13

Vegetable growers often wish for crops to grow that are undemanding in their requirements, and that provide reliable yields no matter when and how they are grown. Onions and their allies, known as the Alliums, are the fussiest of crops, demanding exact conditions of daylength and temperature for best performance. Here follows a short primer on what makes them tick. The two major important processes in these crops are the formation of bulbs, or bulbing, and the formation of flowers, known as bolting. Both these processes stop the vegetative growth of the plant, so once bulbing or bolting starts, the plant's bulb or number of flower stalks will be proportional to the size of the plant at that time. We will cover these processes separately, and then explain how the plants react to a "typical" growing season.

Bulbing

Bulbing is the formation of an enlarged storage structure at the base of the leaves, composed of leaf bases and bulb scales. Bulbs are resting structures that provide food for the plant when it resumes growth after long periods of drought or cold. Since they are the harvested product for which the crop is grown, the factors influencing bulb formation are important to know. In Table 1, those factors are listed, and their influence explained for the main Allium crops.

In all the crops that form bulbs, the major stimulating factor is daylength. Under the long daylengths of late spring and summer, bulb formation is initiated. For bulb formation to be concluded, daylength needs to continue to be long enough, otherwise the process stops and goes in reverse, showing up as a thick-necked bulb that does not mature properly. Bulbing is fostered by temperatures that are optimum for growth of the crop in onions and shallots. In garlic, the long days of spring and summer stimulate bulbing, but cold temperatures of winter are essential for bulbs to be formed. That is why garlic is planted in

fall; if planting is delayed until spring, no bulbs will form if the cloves that are planted were stored in warm conditions.

In all bulb-forming crops, the choice of variety makes a big difference when bulb formation starts, and what size of bulb is formed. In each major onion-producing area of the country, varieties have been selected to maximize productivity under their specific growing periods. Here in New York, our adapted onion varieties start bulbing at close to the longest day of the year (June 21).

Table 1. Influence of daylength, temperature and variety on bulb formation in 5 major Allium crops.

Crop	Daylength	Temperature	Variety
Onion	Major	Moderate	Major
Shallot	Major	Moderate	Major
Garlic	Moderate	Major	Major
Leek		No bulbs formed	
Bunching onion		No bulbs formed	

Table 2. The influence of daylength, temperature and variety on bolting and formation of seedstalks in the Alliums.

Crop	Daylength	Temperature	Variety
Onion	Slight	Major	Major
Shallot	Slight	Major	Major
Garlic	Slight	Major	Major
Leek	Slight	Major	Moderate
Bunching onion	Slight	Major	Major

In Texas, on the other hand, varieties have been selected to start bulbing under the shorter daylengths of spring, because they have had all winter to make vegetative growth, and growers want to market an early crop. If such Texas varieties are grown in New York, they would not make much growth before the bulbing process would start, and thus only small bulbs would be formed.

Bolting

The formation of a flowering stalk and flowers in onions and their relatives is defined as bolting. A bolting plant will not form bulbs, so it is important to prevent flower induction if the purpose of the planting is to produce bulbs. The major trigger for this process is cold temperature (Table 2). The temperature range most effective for flower stalk formation is between 40° and 50°F, but longer periods near freezing can also be effective. Again, the choice of variety makes a big difference in the ease by which an onion can be induced to bolt.

The size of the plant that is subjected to cold conditions is also a factor in bolting. Most onion varieties have a minimum size that must be reached before they can be induced to bolt. Smaller plants are called 'juvenile', while those that are large enough to be stimulated to bolt are 'adult'. That is why, in regions where the onion crop is overwintered, the crop should not be planted too early in fall, to prevent it from reaching the adult state as the cold period arrives. In general, onion varieties that were developed for areas where they will be routinely grown in winter such as Texas, will be more bolting resistant than those grown in the Northeast.

The formation of a seedstalk in garlic is primarily controlled by the variety in this crop. Generally the garlic varieties grown in the Northeast form stalks of varying heights, while those grown in California do not, even if they survive the winter here after fall planting. According to work in England, prolonged cold conditions stimulate bolting and seedstalk formation. ■

Managing Late Blight with Resistant Tomato Varieties

Meg McGrath, Cornell - Riverhead, and Sandra Menasha, CCE Suffolk County

(See also the results of Chris Smart's, Cornell – Geneva, tomato trial to determine late blight resistance in the November, 2012, Veg Edge: 2012 Trial of Late Blight Resistance in Tomato Varieties. ed. C. MacNeil, CVP)

Late blight has been occurring routinely during the past few years. Change in occurrence of late blight is at least partly due to the fact there are new genotypes (strains) of the pathogen. Many are more aggressive on tomato and more tolerant of warm temperatures than genotypes like US-8 that previously were dominant. Left unmanaged, late blight is much more likely than other diseases to completely destroy a crop and also to have devastating impact on other tomato fields in a region due to the quantity of pathogen spores that can be produced and easily dispersed by wind.

A replicated experiment was conducted at the Long Island Horticultural Research and Extension Center in 2012 to evaluate new tomato varieties and experimental hybrids that have resistance to late blight. Mt Fresh Plus was included as the industry standard. All named varieties tested are commercially available. Experimentals from the Cornell Breeding Program also have resistance to early blight and Septoria leaf spot.

The trial was conducted in a field dedi-

cated to research on organically-produced crops since 2001. Plants were staked and trellised. Fungicides approved for organic production were applied to all plots to suppress late blight after finding symptoms in the plots. The copper fungicide Badge X2 was applied with Actinovate AG on 14 and 22 August, and with Regalia on 17 August, 31 August and 7 September. Sonata ASO was also applied on 7 September. All applications were made using a tractor-mounted boom sprayer. Leaves were examined for disease symptoms from 31 July to 12 October. Ripe fruit were harvested on 11, 18, and 27 September and 3 October. Fruit quality was evaluated by project staff and by 10 public groups, which included growers and gardeners.

Results and Discussion: Very good resistance to foliar symptoms of late blight was exhibited through mid-season by all tomato varieties and experimental hybrids evaluated that have the *Ph2* and/or *Ph3* genes for resistance. These were Plum Regal, JTO-545, Legend OP, Matt's Wild Cherry, Jasper, and Defiant PHR, Mountain Magic, Mountain Merit, and three experimentals from Cornell Plant Breeding (NC123S x CU-TR5, NC123S x CU-TR3, and Brandywine x CU-TR3) (Table 1). The named resistant varieties are available from Johnny's Selected Seeds and Seedway.

Late blight became severe in New Yorker OP (*Ph1* gene only). Severity of symptoms was similar to the varieties without major resistance genes, which were Mountain Fresh Plus, Juliet and Brandywine. The late blight genotype present in this experiment, US-23, was the dominant genotype present in 2012 in the US and thus most likely will dominate in 2013. The *Ph1* gene is also not effective for other genotypes that have occurred in recent years. Legend, with just the *Ph2* gene, was significantly infected, with extensive defoliation, at the end of the season. Plum Regal and JTO-545, with just the *Ph3* gene, was similarly affected. The last assessment was 35 days after the last fungicide application for late blight.

In conclusion, best suppression of the US-23 late blight genotype was achieved with tomato possessing both the *Ph2* and *Ph3* resistance genes, including Matt's Wild cherry, Jasper, Defiant PHR, Mountain Magic, Mountain Merit and the three Cornell experimentals. Only a few fruit with symptoms of late blight were observed on these entries.

Mountain Magic, Jasper, and Matt's Wild Cherry were the three resistant varieties receiving the highest overall taste and appearance rating in the 10 evaluations conducted by public groups.

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Table 1. Fruit descriptions and assessments for, 2012

Fruit	Description	Assessment (Rated 1 - 5) with 5 Best
Mountain Fresh Plus	Orange to red, small, round fruit. Some radial cracking. Flesh was bright red, juicy but acidic and not as sweet.	Taste rating of 3 and overall satisfaction 4.
Mountain Merit	Medium to large, round red fruit. Flesh was sweet but mealy and soft.	Both taste and overall satisfaction rated 3.9.
Defiant PHR	Round, small to medium red fruit. Yellow shoulder on most fruit and some zippering. Flesh was light red to red, soft, sweet, juicy, with good flavor. Lots of seeds.	Taste rated 3.5 and overall appearance 3.8.
NC123S x CU-TR5	Medium to large, round fruit has orange to red skin. Some zippering. Flesh was bright red, sweet, and had a good flavor.	Taste rating of 4.3 and overall satisfaction 4.6.
NC123S x CU-TR3	Large, orange to red round fruit. Fruit had a white core and red flesh. Slightly chewy skin. Flesh had good flavor and taste but was somewhat mealy.	Taste rating of 3.4 and overall satisfaction 3.9.
Brandywine x CU-TR3	Fruit were round, red and medium in size. Slight yellow shoulder on fruit. Fruit lacked flavor, not sweet. Skin was thick.	Taste rating of 2.5 and overall appearance 2.8.
Plum Regal	Plum type with orange to red skin. Fruit were medium to big. Flesh was mealy and lacking flavor.	Taste 2.5 and overall satisfaction 3.3.
JTO- 545	Plum tomato, medium in size and red in color. Deep red flash was meaty, slight acidic with a slightly mealy texture. Semi-sweet.	Taste rating of 3 and overall appearance of 3.5.
Mountain Magic	Small, round red fruit. Campari size. Some skin cracking. Flesh was light red, sweet and juicy.	Taste rating of 4.6 and overall satisfaction 4.8.
Jasper	Very small, round, red cherry. Lots of seeds. Sweet fruit with good flavor.	Taste rated 4.6 and overall appearance 4.8.
Matt's Wild Cherry	Small red cherry. Slightly chewy skin but delicious and super sweet.	Taste rating of 4.7 5 and overall appearance 4.8.

A longer report with additional data and photographs is available upon request to mtm3@cornell.edu. Funded by the Ag and Food Research Initiative Program, USDA National Institute of Food and Agriculture. ■

Crop Insurance Deadlines: March 15

USDA Risk Management Agency



USDA's Risk Management Agency (RMA) reminds New York farmers that

the final date to apply for crop insurance on most insurable spring-planted crops for this crop year is March 15, 2013. Current policyholders also have until March 15 to make any changes to their existing contracts. Crop insurance provides protection against losses due to natural perils, such as drought, hail, wind, and excessive moisture.

March 15 is the Sales Closing Date for spring barley, cabbage, corn, dry beans, forage seeding, fresh market beans, fresh market sweet corn, green peas, spring oats, potatoes, processing beans, processing sweet corn, processing tomatoes, and soybeans. Producers are strongly urged to contact a local crop insurance agent as soon as possible for premium quotes and more details. For a list of crop insurance agents in your area, contact the local USDA Farm Service Agency office or go to: <http://www3.rma.usda.gov/tools/agents/>

■



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For more information contact:

Gale Drake, Western & Central NY
Gale.E.Drake@usa.dupont.com
585.447.7305

Megan Patterson, Eastern NY & New England
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Chris Daum: 585-738-3889
daumc@helenachemical.com

John Ivison: 585-509-2262
ivisonj@helenachemical.com

Cris Wunder: 315-727-1300
wunderc@helenachemical.com

Kevin Witkop: 585-738-9882
witkopk@helenachemical.com

165 S. Platt St. • Suite 100 • Albion, NY 14411
585-589-4195 (Office)
3704 Yaegel Rd. • Geneva, NY 14456
315-789-4450 (Office)

Contact the Cornell Vegetable Program

Cornell Vegetable Program (CVP) Specialists



Robert Hadad
Extension Specialist
Food safety; Western region fresh market vegetables; marketing; organic

Phone: (716) 433-8839 x228
Cell: (585) 739-4065
Email: rgh26@cornell.edu



Julie Kikkert*
Extension Specialist
Processing crops: sweet corn, snap beans, peas, beets and carrots

Phone: (585) 394-3977 x404
Cell: (585) 313-8160
Email: jrk2@cornell.edu



Judson Reid
Extension Specialist
Greenhouse production; small farming operations; Eastern region fresh market vegetables

Phone: (315) 536-5123
Cell: (585) 313-8912
Email: jer11@cornell.edu



Christy Hoepting
Extension Specialist
Onions, cabbage, field research and pesticide training

Phone: (585) 798-4265 x38
Cell: (585) 721-6953
Email: cah59@cornell.edu



Carol MacNeil
Extension Specialist
Potatoes, dry beans and soil health; Editor of Veg Edge

Phone: (585) 394-3977 x406
Cell: (585) 313-8796
Email: crm6@cornell.edu



Megan Fenton
Regional Ag Economic Development Specialist, Harvest New York

Cell: (315) 694-1306
Email: mef46@cornell.edu

Elizabeth Buck, Field Technician
Phone: (607) 425-3494
Email: emb273@cornell.edu

John Gibbons, Field Technician
Phone: (585) 394-3977 x405
Email: jpg10@cornell.edu

CVP Administration

Mark Giles*, Regional Ag Team Leader
Cornell University
Phone: (607) 255-6619
Email: fmg4@cornell.edu

Angela Parr, Administrative Assistant
Veg Edge, Enrollment, & Sponsorships
Phone: (585) 394-3977 x426
Email: aep63@cornell.edu

Steve Reiners*, Co-Team Leader
Cornell University
Phone: (315) 787-2311
Email: sr43@cornell.edu

** Member of the Cornell Vegetable Program Administrative Management Team*

Cornell Cooperative Extension Offices of the CVP

Allegany County CCE
Phone: (585) 268-7644

Monroe County CCE
Phone: (585) 461-1000

Seneca County CCE
Phone: (315) 539-9251

Cattaraugus County CCE
Phone: (716) 699-2377

Niagara County CCE
Phone: (716) 433-8839

Wayne County CCE
Phone: (315) 331-8415

Erie County CCE
Phone: (716) 652-5400

Ontario County CCE
Phone: (585) 394-3977

Yates County CCE
Phone: (315) 536-5123

Genesee County CCE
Phone: (585) 343-3040

Orleans County CCE
Phone: (585) 798-4265

Visit our website at <http://cvp.cce.cornell.edu>

CVP Region Berry Program

Deborah Breth, Lake Ontario Fruit Program Team Leader
Monroe, Niagara, Onondaga, Orleans, Oswego & Wayne Co.
Phone: (585) 798-4265 x36
Email: dib1@cornell.edu
Website: <http://lof.cce.cornell.edu>

Cathy Heidenreich, Berry Extension Support Specialist
Allegany/Cattaraugus, Erie, Genesee, Ontario, Seneca & Yates Co.
Phone: (315) 787-2367
Email: mcm4@cornell.edu
Website: www.fruit.cornell.edu/berry.html

Contact the Capital District Vegetable & Small Fruit Program

Capital District Vegetable and Small Fruit Program (CDVSFP) Specialists



Chuck Bornt, Team Leader
Extension Specialist

*Vine crops, sweet corn,
potatoes, tomatoes and
reduced tillage*

Office: (518) 272-4210 ext 125
Cell: (518) 859-6213
Email: cdb13@cornell.edu
Address: 61 State Street
Troy, NY 12180



Laura McDermott,
Extension Specialist

*Small fruits, leafy greens,
labor, high tunnels, and
food safety*

Office: (518) 746-2562
Cell: (518) 791-5038
Email: lmg4@cornell.edu
Address: 415 Lower Main Street
Hudson Falls, NY 12839



Crystal Stewart,
Extension Specialist

*Small and beginning farms,
organic, root crops,
brassicas, and garlic*

Cell: (518) 775-0018
Email: cls263@cornell.edu
Address: 141 Fonclair Terrace
Johnstown, NY 12095

Abigail Foster, Field Technician
Email: aef225@cornell.edu

CDVSFP Administration

Mark Giles, Regional Ag Team Leader
Cornell University
Phone: (607) 255-6619
Email: fmg4@cornell.edu

Steve Reiners, Co-Team Leader
Cornell University
Phone: (315) 787-2311
Email: sr43@cornell.edu

Cornell Cooperative Extension Offices of the CDVSFP

Albany County CCE

William Rice Jr. Extension Center
24 Martin Road
Voohreesville, NY
Phone: (518) 765-3500

Columbia County CCE

Education Center, 479 Rte. 66
Hudson, NY 12534
Phone: (518) 828-3346

Fulton & Montgomery Counties CCE

50 E. Main Street
Canajoharie, NY 13317
Phone: (518) 673-5525

Greene County CCE

Agroforestry Resource Center
6055 Route 23
Acra, NY 12405
Phone: (518) 622-9820

Rensselaer County CCE

61 State Street
Troy, NY 12180
Phone: (518) 272-4210

Saratoga County CCE

50 West High Street
Ballston Spa, NY 12020
Phone: (518) 885-8995

Schenectady County CCE

Schaffer Heights
107 Nott Terrace, Suite 301
Schenectady, NY 12308
Phone: (518) 372-1622

Schoharie County CCE

Extension Center
173 S. Grand Street
Cobleskill, NY 12043
Phone: (518) 234-4303

Warren County CCE

377 Schroon River Road
Warrensburg, NY 12885
Phone: (518) 623-3291

Washington County CCE

415 Lower Main Street
Hudson Falls, NY 12839
Phone: (518) 746-2560

Advisory Members

Albany: Tim Albright and Tim Stanton
Columbia: John Altobelli, Bryan Samascott,
Jody Bolluyt (organic)
Fulton: Eric and Stephanie Grey
Greene: Pete Kavakos, Jr. and Jim Story
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If you have questions or comments about this publication or the Capital District Program in general, please contact your county's grower advisory member or the Agricultural Program leader of your local Cornell Cooperative Extension office.

SUCCESS FACTORS IN FARMING

giving you the long-term edge with wisdom from your fellow farmers

Bob Sakata of Sakata Farms in Brighton, CO (3,000+ acres of wholesale vegetables) learned that in farming, high standards are just a start. As a farm manager, he sets his own personal achievement bar a little higher than everyone else's and that has earned him many distinctions as an outstanding producer in a competitive wholesale produce market.

Our farms are our personal enterprises, and we should remember that they will reflect who we are as individuals. Bob Sakata has distilled the lessons he has learning in farming into 10 simple phrases.

// Don't just look, *observe*.
Don't just hear, *listen*.
Don't just talk, *say something*.
Don't just work, *be productive*.
Don't just set goals, *achieve them*.
Don't just tell the truth, *live it*.
Don't just live on a title, *continue to prove you are worthy of it*.
Don't just love, *have respect and honor with it*.
Don't just make a promise, *follow through with it*.
And don't just pray, *have faith*. //



With a communication-oriented approach, Sakata Farms ranks in the top 100 vegetable producers in the country. Sweet corn, onions, broccoli, and cabbage from Sakata Farms reaches consumers across the United States through grocery stores like Safeway, Albertsons and Wal-Mart.

Even though you might not farm on this scale, you can always raise your standards up another notch or two and live the success you have long sought through farming.

Success Factors in Farming provides tips and advice from the vast collective knowledge found among farmers in our area. These thought-provoking commentaries have been collected by Extension agent Jim Ochterski, and are presented exclusively in the Cornell Vegetable Programs award-winning newsletter, *Veg Edge* to offer real-life insights about sustainability and long-term success in agriculture.