Cornell University
Cooperative Extension

Eastern NY Commercial Horticulture Program

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Weekly Vegetable Update

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Regional Updates

North Country—Clinton, Essex, northern Warren and Washington Counties:

Cold temperatures, wet ground and blustery wind made challenging conditions for young transplants and seedlings this week. Even though we missed another late threat of frost, night temperatures in the 40's and 50's are just too chilly for warm-loving crops. They may not die, but they don't grow, either. The soaking rain was welcome at first but now we need some moderation! Soil is too wet to work in many locations and the pounding rains have battered young plants and caused erosion of valuable topsoil. More moderate conditions are in the forecast for later this week, let's hope this rollercoaster of conditions levels out.

Capital District—Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, southern Warren and Washington Counties:

The more regular rain is bringing out an amazing flush of warm-season weeds across the capital district. Carpets of crabgrass, galinsoga, pigweed and lambsquarter are blanketing bare ground. The veggies are also responding nicely to the precipitation, with excellent growth on all crops. Early summer squash have nice sets, onions, look great, and cole crops are putting on lots of growth. Garlic overall looks really healthy, and scapes are just starting to show. Now is a great time for some weed control and field-culling in garlic, followed by the work of de-scaping in the next couple weeks.

Insects across the region are very active. Flea beetles have ravaged unprotected cole crop plantings, and striped cucumber beetles are at threshold in many places. Onion maggots and cabbage root maggots are active now as well, so if you see plants wilting, carefully dig them up to check for little white larva.

Mid-Hudson Valley—Columbia, Dutchess, Greene, Orange, Putnam and Ulster Counties: Harvest of greens and other early season crops continues. Colorado potato beetles are actively feeding and reproducing; females are laying egg masses on the underside of leaves. Larvae will begin to emerge very shortly if they have not already. Spotted and striped cucumber beetles are present in fields and have been observed on summer squash. Onion thrips populations have been increasing rapidly on transplanted onions and the insects are now moving into direct seeded plantings. Armyworms have been found in a few vegetable plantings, one of these fields was in sod for several years prior. Check your fields, armyworms work fast and seem to appear overnight, you don't want to be caught by surprise. In the earliest sweet corn, first instar (very tiny) ECB has been found in the tassel in corn around the field edges. Trap counts for the two we have set up in Ulster and Orange Counties were 1 and 0, over the past week. While overall ECB pressure appears low, the situation in your field can be different. Check fields carefully for presence of ECB and monitor flights with traps placed on your fields.

Basil downy mildew has been confirmed in New Jersey and Connecticut. Scout plantings regularly for disease symptoms and apply fungicides as recommended.

The Big Tomato Holdup

Training indeterminate tomatoes to a single or double leader in high tunnels has proven to be a productive and efficient way to manage this high value crop.

Indeterminate tomatoes are basically a vine, continuing to grow and lengthen until cold weather and short days shut them down.

But because they keep growing, if you use a fixed support line the crop will get higher and higher, eventually requiring a step ladder for harvesting and pruning.

A tall, beautiful crop of tomatoes in September-Photo ADI

For many growers who use this system, it's late, but maybe not too late, to install spools so you can lower the vines as they grow. Those who remain skeptical could try installing just a few this year to see how they perform

There are a variety of models available that range in cost from $.50 to $2.00 each, depending on the type and quantity. If growers pool their orders they can get a significant discount by ordering in bulk.

Tomato vines are quite limber and will bend loosely when lowered every few weeks as they grow. Photo ADI

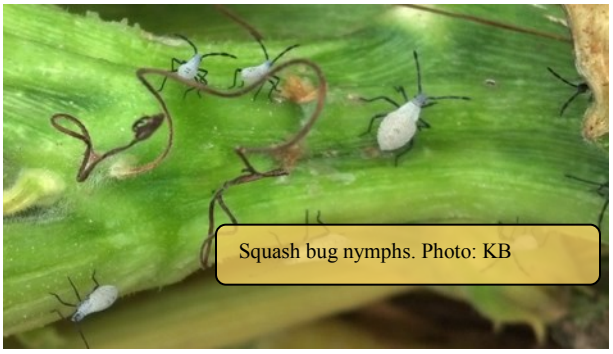
Below are 3 types of spools for lowering tomato vines. If any growers have comments about any of these models, please send them to Amy at adi2@cornell.edu We're interested to know what works best for you.

Before your tomato crop gets too heavy, consider how best to hold up the weight of the full crop load come August. In the picture below, too much of the weight was being held by the cross braces and they warped. We have also seen end walls nearly collapse inward when they had to carry the weight. Fortify your setup now to direct the weight downward, so the bows of the tunnel carry the weight rather than other parts of the structure. Contact us if you'd like a visit to assess your setup now, before it gets too heavy to modify. - ADI

Be on the lookout for a new disease of cucurbits

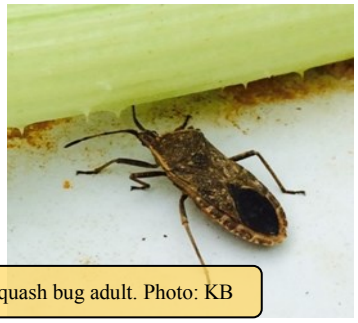
Last year, symptoms resembling those of cucurbit yellow vine disease (CYVD; aka yellow vine decline) were observed in cucurbit plantings in New York. To date, CYVD has been confirmed in the neighboring states of MA, CT, PA, as well as numerous states throughout the South, but not in NY. Keep a heads-up for the symptoms described below and contact your local vegetable educator if you suspect you have affected plants.

Yellowing and wilting. Photo: KB

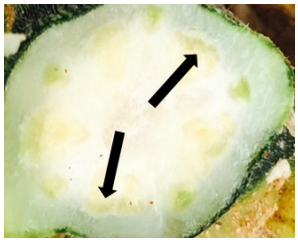


Squash bug nymphs. Photo: KB

Cucurbit yellow vine disease, caused by the bacterium *Serratia marcescens*, is a disease of summer squash, pumpkin, watermelon, and cantaloupe. Disease symptoms include yellowing, wilting, and a honey-brown discoloration of the phloem. Wilting is usually gradual and occurs approximately two weeks before harvest, although a rapid wilt at flowering and fruit set has been observed on occasion. Disease incidence can range anywhere from a few plants to an entire field in affected areas. The bacterium that causes this disease is transmitted by the squash bug, which overwinters with the pathogen and emerges in the spring to feed and subsequently infects early-season cucurbit plantings. Nymphs are also able to acquire and transmit the pathogen. Due to squash bug feeding preference, it is much more common to see CYVD in summer squash and pumpkin than in melons; the disease is not known to occur in cucumbers.



Squash bug adult. Photo: KB



Phloem browning. Photo: KB

Like many insect-transmitted pathogens, management strategies are aimed at controlling the vector. Squash bug adults are very difficult to kill so control efforts should focus on newly hatched nymphs. Scout for egg masses which appear as round, shiny, copper colored masses on the undersides of the leaves. Once you find a couple, mark the spot with a flag and check it daily to see when the eggs hatch. Newly hatched nymphs resemble large grey aphids and they will also be found on the undersides of the leaves. There are several insecticides labeled for squash bug control in cucurbits, including Warrior, Endigo, and Assail. Organic options include Pyganic and neem oil. Organic growers may also use floating row covers to exclude squash bugs, however, covers must be removed at flowering to allow for pollination. - *KB*

Striped Cucumber Beetle Populations are High! Scout and Control

Chuck covered using imidacloprid-based products nicely a couple weeks ago in the newsletter, but the window of effectiveness for those products is coming to an end for many early plantings and organic growers are also facing heavy pressure from cucumber beetles. What are the options for control now?

Remember that it's important to protect plants not just because beetles will feed on the fruit, but also because they transmit bacterial wilt which can kill the plant, especially in young (less than 5 leaves) plants.

Control options:
Organic growers are somewhat limited in what they can use for protection and control. Let's start with what you cannot use, because the go-to for tough pests is on this list. Entrust, often considered the silver-bullet of pest

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Striped Cucumber Beetle Populations are High! Scout and Control, continued from previous page

control, is not labeled for Striped Cucumber Beetle control. It's labeled on cucurbits, but if it's not also labeled for the pest, it is illegal to use it. This leaves a few options. As a deterrent, reapplying kaolin clay is an option up until the point when fruit are setting. At this point switching to insecticides such as pyrethrin based products (Pyganic) or azadiractin based products (Azaguard), or combinations of the two, either as a tank mix or pre-mixed in products such as Azera. Remember that these products are contact insecticides and have to be reapplied. Also note that they are toxic to bees, and should be used in late evening when they are not active (an added bonus is that this appears to be when the beetles are most active).

Conventional growers have a longer lists of products available, and should focus on resistance management when choosing a spray to follow imidacloprid-based products. Neonicotinoids (FRAC code 4a), including acetamiprid-based products (Assail) and thiamethoxam based products (Platinum 75SG) should be rotated away from in favor of Group 3A, 3, or 1A products. Options include carbaryl (Sevin); permethrin (Pounce, Perm-up), esfenvalerate (Asana XL); lambda-cyhaolothrin (Warrior II w/Zeon tech). Finally, Voliam Xpress, a combination of chlorantraniliprole and lambda-cyhalothrin is also labeled.

Thresholds: In established plantings (more than 5 leaves), on average you should spray if you see one beetle per plant. Check the flowers, susceptible varieties (IE trap crops), and earliest plantings for highest numbers.
If you manage 1-2 well-timed sprays you could be able to really knock down the first generation of beetles and reduce populations for the rest of the season. Preventing mating within the crop also has the added bonus of preventing larval feeding, which can reduce yield and also leads to a secondary infestation.

Trap Cropping: Beyond spraying your target crop, another interesting strategy which I often forget is the use of trap crops. This excerpt from this week's UMass Vegetable Notes details how this would work. The focus on planting at borders of the previous year's crop or the woods is to target where beetles might emerge from their overwintering habitat, so you can intercept them before they get to your primary crop.- CS

Perimeter trap cropping has been shown to reduce or eliminate main crop sprays while providing effective control of beetles. Plant 1 or 2 rows of Blue Hubbard, buttercup squash or another Cucurbita maxima variety in an unbroken perimeter around the field. Always use 2 rows near woods or last year's fields, and space plants no wider than the between-row spacing that is used in the main crop between-row spacing. These perimeter crops will concentrate incoming beetles in the border because they are generally more attractive to beetles than winter squash, summer squash and pumpkin, which are Cucurbita moschata or Cucurbita pepo types. Note that some specialty pumpkin varieties are Cucurbita maxima types and very attractive to beetles. Do not use a crop that is highly susceptible to bacterial wilt (e.g. Turks' Turban) in the border. Beetles should be killed in the border, either by applying foliar insecticide when beetles first arrive or using a systemic insecticide at planting. Scout both borders and main crop to assess beetle numbers. Repeat perimeter-sprays if needed to prevent influx into the main crop, and spray the main field if thresholds are exceeded. Attractive crop types that are planted in rows within the main field also work as trap crops that draw beetles as they move around within the field. These trap crops can be selectively sprayed.—Ruth Hazzard, Vegetable Notes, Vol 27 Issue 7

Pythium, Phytophthora & Peppers

It seems that cooler and wet weather over the past few weeks favored the development of *Pythium* root rot in some fields. Last week, this disease was reported in peppers on Long Island as well as the Hudson Valley. It can be tricky to distinguish between *Pythium* and *Phytopththora* but important for effective management. A word of caution, some growers combine biopesticides with chemical fungicides; be sure they are compatible or you will be wasting your effort. The label on the biopesticde product should tell you if it is compatible with chemical fungicides. For example, Double Nickel is compatible, but Soilgard is not. If in doubt, contact the manufacturer's tech support.

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Phythopthora crown and root rot on peppers. For more pictures see: http://livegpath.cals.cornell.edu/gallery/peppers/phytophthora-blight-on-peppers/

Pythium, Phytophthora & Peppers, continued from previous page

The following is a an article Meg McGrath, plant pathologist at the Long Island Horticulture and Research Center put together for their newsletter last week.

Pythium Crown And Root Rot Seen In Pepper. *Pepper transplants were found dying this week due to the oomycete pathogen Pythium attacking roots and crown tissue. More commonly a related pathogen, Phytophthora capsici, is found affecting pepper. Symptoms were brown tissue at the base of the plant extending up almost 1 inch. Internal tissue was also brown. With Phytophthora blight this tissue is dark brown to almost black, and often extends further up the stem. The outer part of the ends of roots had rotted off leaving the white core; this is characteristic for Pythium. The tops of plants were dead and brown as a result of the damage to crown and root. Photographs of these symptoms will be posted at: http://livegpath.cals.cornell.edu/gallery/.*

Pythium Root Rot- Photo by TR

There are several biopesticides that can be applied to soil before transplanting or in transplant water as well as afterwards, including Actinovate, Bio-tam, Double Nickel, Regalia, Serenade Soil, and Soilgard. The chemical fungicide Previcur Flex can be applied by directed nozzles to the lower portions of the plants and surrounding soil, or via drip irrigation, transplant/ setting water, or as foliar spray or by sprinklers (foliar applications are best with bare-ground plantings and followed by irrigation to move the fungicide to the soil). Previcur Flex is not effective for Phytophthora capsici, thus accurate diagnosis is important. It is important to apply these products such that they get to crown and root tissue, and to use a preventive program.

Avoiding wet soil conditions is important for managing the soil-borne oomycete pathogens. Be careful not to over irrigate especially when plants are small. These pathogens can move in the film of water on the underside of plastic, thus it can be helpful to cut the plastic making a break between diseased and healthy plants, especially where affected plants are occurring in groups. Pulling these plants and discarding outside the field will reduce the amount of pathogen present. (June 4, 2015, Margaret McGrath, LIHREC)

Welcome ENYCHP Technicians

We are all very happy to announce that all of our technicians have been hired for the 2015 season. Many of you may have already met the two individuals pictured below, hard at work in the strawberry root weevil trial. Lindsey Pashow rejoined the team this spring and is working primarily with Dr. Elson Shields on the entomopathogenic nematode study. Lindsey is also helping us with newsletter layout and many other duties when she has the time. She brings several years of experience to the team, not only as a technician but also as seasoned grape grower. Welcome back Lindsey!

She is joined in the north country by David Wilfore. David joined the team as a field technician in March. His primary responsibilities will be to work with Anna Wallis on apple and grape projects but he enthusiastically offers his help anywhere he's needed. He grew up in Clinton County and has a degree from SUNY Plattsburgh in Environmental Science.

Sarah Rohwer , pictured to the right, is our newly hired ENYCHP technician based at the Hudson Valley Lab in Highland, NY. She will be assisting educators with research and extension programs in fruits and vegetables. She grew up in Ulster County and got her Biology degree at Binghamton University where she assisted in research on the effects of deer in local forests.

Zippering and Catfacing on Greenhouse Tomatoes

Both zippering and catfacing have been seen in ripening tomato fruits this week coming out of greenhouses.

Zippering is described as a fruit having thin, hair-like scars. Scars look like railroad tracks with one long line and many short perpendicular lines intersecting. Almost always, it begins at the blossom-end of the fruit and extends up the side at least partially if not entirely to the stem end. Sometimes, where the"tracks" end, there may be a hole or locule formed. Sometimes this hole is entirely encased in skin and is only cosmetic while other times the locule leaves undeveloped seeds and internal parts somewhat exposed or as a weak spot. Exact causes are not entirely known but something happened in the development phase between flower and fruit to have this occur. Most commonly, it is thought that cool/cold temperatures cause this lack of perfect fusion of cells. Susceptibility to this physiological disorder is very variety dependent. Best control is managed with varieties that have low incidence of zippering. (photo: Cornell Plant Pathology http://livegpath.cals.cornell.edu/gallery/tomato/zippering-fruit-disorder-on-tomatoes/)

Similarly, catfacing is the result of a problem during early fruit set. In all cases the blossom end "scar" is not a dot but a large somewhat mottled area of scar tissue and normal flesh. Often, the fruit will be unmarketable if the scarred area is large. Wholesale markets have a much lower tolerance than a retail shopper for these blemishes. Rarely do they impact the storability of the fruit because usually the skin and scars are complete and impermeable. Likely, there are many causes to catfacing, some of which may occur simultaneously during the growing season. Like zippering, cool temperatures before fruit set are suspected in the incidence rate. Data shows that heavy pruning of indeterminate varieties can increase cat-facing as well. Herbicide drift and heavy insect feeding have also been implicated. Again, varieties that have shown little history of catfacing should be the first management option. (Photo: Cornell Vegetable MD Online http://vegetablemdonline.ppath.cornell.edu/DiagnosticKeys/TomFrt/Cat_Tom.htm)- MU

Wholesale in the Hudson Valley - How to increase your wholesale produce business

*** June 29th, 2015 * 6-8 pm * CCE Ulster, 232 Plaza road, Kingston NY ***

This workshop will help producers who are already established in wholesale to better understand the needs of produce buyers in the area. It will provide producers who want to begin to access wholesale markets by giving them the information and insight into both the written and unspoken requirements of these markets.

Agenda

6:00 pm	Coffee & Refreshments/Introductions
6:20 pm	**Saeed Ahktar, New York State Department of Agriculture and Markets**
	State labeling requirements for packing apples and potatoes
	GAP certification assistance program
	Q&A session regarding US grades for fruit and vegetables
6:50 pm	**Bob Weybright, CCE, Eastern New York Commercial Horticulture Program**
	Overview of attributes considered by wholesale market channels
	Where to learn more about grading and packing standards
7:30 pm	**Panel Q&A discussion (NY wholesale buyers & retailers)**
	Buyer requirements, shortages & needs

Attendance fee is $10 per person. To register, please contact Erik Schellenberg at Jk2642@cornell.edu or call 845-344-1234, please include email, farm name, address, phone number, and number of attendees.

2015 Weather Table—The weather information contained in this chart is compiled using the data collected by Network for Environment and Weather Applications (NEWA) weather stations and is available for free for all to use. For more information about NEWA and a list of sites, please visit http://newa.cornell.edu/ This site has information not only on weather, but insect and disease forecasting tools that are free to use.

2015 Weekly and Seasonal Weather Information

	Growing Degree Information Base 50^{O} F			Rainfall Accumulations		
Site	**2015 Weekly Total** 6/01 - 6/07	**2015 Season Total** 3/1 - 6/07	**2014 Season Total** 3/1 - 6/07	**2015 Weekly Rainfall** 6/01 - 6/07 (inches)	**2015 Season Rainfall** 3/1 –6/07 (inches)	**2014 Total Rainfall** 3/1 - 6/07 (inches)
Albany	**61.9**	**615.9**	**497.0**	**1.29**	**4.65**	**8.17**
Castleton	**58.1**	**580.9**	**475.8**	**0.93**	**4.47**	**7.62**
Clifton Park	**59.5**	**591.0**	**450.9**	**2.08**	**6.08**	**8.71**
Fishkill	**49.4**	**578.4**	**Na[1]**	**0.03**	**4.03**	**Na[1]**
Glens Falls	**48.4**	**490.9**	**471.0**	**1.27**	**5.16**	**11.36**
Griffiss	**65**	**455.5**	**409.0**	**0.73**	**10.17**	**13.81**
Guilderland	**44**	**521.0**	**464.5**	**1.27**	**5.03**	**Na[2]**
Highland	**62.9**	**637.1**	**538.8**	**2.40**	**9.54**	**11.61**
Hudson	**66.3**	**636.7**	**529.6**	**1.07**	**5.93**	**11.7**
Marlboro	**58.9**	**583.2**	**486.5**	**1.27**	**7.43**	**11.7**
Montgomery	**63**	**601.0**	**499.5**	**1.33**	**7.54**	**11.27**
Monticello	**46.9**	**434.4**	**345.0**	**0.28**	**7.37**	**6.65**
Peru	**40.7**	**452.9**	**409.2**	**1.28**	**4.94**	**9.09**
Red Hook	**59.9**	**589.2**	**530.4**	**1.48**	**7.87**	**3.91[3]**
Shoreham, VT	**48.8**	**507.8**	**423.1**	**1.54**	**6.46**	**8.03**
Wilsboro	**38.1**	**428.8**	**381.3**	**1.78**	**7.58**	**4.44**
South Hero, VT	**50.5**	**453.9**	**394.0**	**1.37**	**7.66**	**9.66**
N. Adams, MA	**41.5**	**423.0**	**363.5**	**0.73**	**5.11**	**9.36**
Danbury, CT	**45**	**498.5**	**425.5**	**3.98**	**9.87**	**12.81**

Na[1]: The Fishkill site is new for 2015 so there is no historical data to report.
Na[2]: The Guilderland weather station was not properly reporting precipitation data in 2014 so no data will be shown for this site.
[3]: Precipitation data for this site did not began until May of 2014.

Intensive Hop Production Workshops
With Michael Roy of Roy Farms, Moxee, WA

Tuesday, June 30 at Jordan Hall at the NYS Ag Experiment Station in Geneva
Thursday, July 2 at the Fenimore Art Museum in Cooperstown

You are invited to a very special one day workshop for commercial hop growers. This day is designed to provide our growers with an opportunity to learn from an accomplished hop grower from out west. These workshops are generously sponsored by Brewery Ommegang of Cooperstown, NY. The workshops are being offered to commercial hop growers who have some production experience. Because we need to keep the size of the group more intimate, sign -ups will be initially limited to two people per hop farm. Should there be space for additional people we will let you know.

Raised in the family business, Michael Roy is a fourth generation farmer in the small town of Moxee, WA—part of the dry, but fertile land of the Yakima Valley—once arid desert, now longtime agricultural hub. Growing up, Michael watched the Roy family farm evolve and grow, before settling in to manage one of the largest hop farms in the nation. An avid rock climber and outdoorsman, his love for nature—and the challenges she brings—has always pushed him to find the balance between science and art in farming. Consequently, his strategies focus primarily on two key components: one being the integration of modern technology, while not disturbing the natural process; and the other being the drive to cultivate sustainable culture and practices in the hop industry.

This is a chance in a lifetime event for New York Hop Growers

The program is free, but RSVPs must be received by June 19, first come first serve.

Agenda:

8:30-9:00 Check in
9:00 Welcome and Introduction—*Steve Miller, Cornell Cooperative Extension*
9:15 Sustainable Hop Fertility and Irrigation Practices at Roy Farms—*Michael Roy, Roy Farms*
10:30 Presentations by Cornell Staff and Brewery Ommegang (speakers will vary by location)
12:15-1:00 Lunch
1:00 Determining Harvest Maturity, Maintaining Quality During & Post Harvest —*Michael Roy, Roy Farms*
3:00 Follow up Questions
3:30 Adjourn

Registration Form - Please complete this registration form and send it to Cornell Cooperative Extension of Madison County PO Box 1209, Morrisville, NY 13408. *If you have any questions contact Sarah Ficken at (315)684-3001 ext. 108 or Steve Miller at ext. 127.*

Business Name: _____

Name(s) of person(s) attending: _____

Address: _____ City/State _____ Zip: _____

Telephone: _____ Email: _____

☐ Check here if you would like an additional person to attend if there is room.

☐ **Geneva, NY** **OR** ☐ **Cooperstown, NY**

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