Cornell University ~ Cooperative Extension
Eastern NY Commercial Horticulture Program

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Weekly Vegetable Update

ENYCH Program Educators:

Vegetables
Chuck Bornt
Cell: 518-859-6213
Email: cdb13@cornell.edu

Amy Ivy
Phone: 518-561-7450
Email: adi2@cornell.edu

Teresa Rusinek
Phone: 845-691-7117
Email: tr28@cornell.edu

Crystal Stewart
Cell: 518-775-0018
Email: cls263@cornell.edu

Maire Ullrich
Phone: 845-344-1234
Email: mru2@cornell.edu

Kevin Besler
Phone: 845-344-1234
Email: krb98@cornell.edu

Fruit
Laura McDermott
Cell: 518-791-5038
Email: lgm4@cornell.edu
Berries

James O'Connell
Phone: 845-691-7117
Email: jmo98@cornell.edu
Berries & Grapes

Dan Donahue
Phone: 845-691-7117
Email: djd13@cornell.edu
Tree Fruit

Anna Wallis
Phone: 518-410-6283
Email: aew232@cornell.edu
Grapes & Tree Fruit

Business and Marketing
Bob Weybright
Phone: 518-727-6238
Email: rw74@cornell.edu

Jesse Strzok
Phone: 518-429-1464
Email: js3234@cornell.edu

Layout: Sarah Rohwer

Content Editor: Teresa Rusinek

Regional Updates

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

As expected, in spite of all the rain we had in June, conditions are dry out there now. We need a good, soaking rain! Rain is in the forecast this week but we need more than a spotty shower to soak the ground. Water helps fruit size up so keep your irrigation going. Adequate water will help your plants support all the lush growth they're putting on during this spell of warm, sunny weather. We haven't had any incidences of late blight or cucurbit downy mildew in the north end of our region to date but growers are on high alert. **Powdery mildew** is ramping up on pumpkins and squash where resistant varieties were not used. It loves the humid conditions created by morning dew this time of year.

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

Some welcomed rain finally made it early this week brightening up the future of some of our crops, but more wouldn't hurt and don't even think about stopping **drip irrigation** of crops being grown on black plastic mulch, especially with heavy crop loads. Both insects and diseases have been increasing this week including the second finding of **Cucurbit downy Mildew** in Montgomery County and continued high **Western Bean Cutworm** moth counts. We are seeing a lot of **Imported Cabbage Moths** flying around out there so make sure you are paying attention to your late cole crops. Leafhoppers have also found new life and are injuring beans and potatoes. The dry weather has also pushed some aphid populations to high levels as well. I also wouldn't be surprised this week if we start finding a lot more **two spotted spider mites** in crops like eggplant and melons so be on the lookout. I've also seen some fully orange pumpkins this week but we need to continue to protect those crops from **Powdery and Cucurbit Downy mildews.** And finally, field tomatoes have started to ripen making a lot of growers and customers happy!

Mid-Hudson Valley- Columbia, Dutchess, Greene, Orange, Putnam, and Ulster Counties:

Much of the region received some rain over the last week, however it was not enough to quench the thirst of most plantings. Disease incidence is generally still low, although non -irrigated crops are growing slowly and thirsty fruiting vegetables are having some trouble filling out. The recent high temperatures have also slowed down ripening in some tomato plantings. Direct seeded onions are sizing up, but suffered some rain and wind damage from the weather early last week.

Leafminer: Easy to Identify but Hard to Control

Leafminer has been found on many crops this week. Damage was quite severe in some cases making large sections of fields of greens essentially unmarketable in that there were mines in all but the newest leaves.

Leafminer, as an adult, is a small grey/black fly. The female lays eggs within the layers of the leaf and the yellow/orange maggot/larvae then burrow around, in the the leaf, consuming the green tissue. The serpentine mines start as white scribbles, then turning brown or black as they age. When mining is severe, it can cause whole sections of the leaf to die, cut off from nutrients by the mines. These sections will bleach and die and eventually crumble away leaving holes in the leaf.

Mines on basil leaf. - Photo MU

For leafy greens, or anything where the leaves need to be attractive for sale, this quickly makes the crop unmarketable. For crops where the leaf condition is not part of the salable product (onions, peppers) it still reduces energy producing leaf area resulting in decreased production. Worse yet, the holes made to lay the eggs and where the next pupae emerges are entry points for bacterial disease organisms. Even a few mines on plants where leaves are not sold may end up in quantifiable crop damage.

Because the maggot lives *within* the leaf, contact insecticides have limited control. Some systemic insecticides are labeled for leafminer so check the labels for your crop. Unfortunately, you pretty much have to apply BEFORE you see damage to get effective control, even with systemics, so that the chemical is already fully within the plant before the feeding starts so their first bites are fatal. Other choices include organic options such as oils and soaps that create oxygen barriers or desiccate to kill larvae. It is ineffective to try and control the adults prior to egg-laying due to their mobility. However, exclusion of adults with row covers can be useful but again must be implemented before their arrival.

It takes 2-3 weeks for the maggot to develop into pupae and stop feeding. The pupae fall out of the plant and to the ground where they complete their life cycle, either becoming another fly or overwintering in the soil. This is why light cultivation and crop rotation is an important part of controlling leafminer. Another factor is weed management. Weeds such as chickweed, pigweed, lambsquarter and nightshades are attractive to leafminers.

Normally, once leafminers do their damage for 1 life cycle we do not see them again for the next as they move on to other hosts. They tend to be sort of a one-hit-wonder in this respect. However, due to the severity of the damage seen in Orange County this past week, I expect a high number of adults to emerge and a repeat in damage. Since what was observed were large larvae and pupae from 8/5 through 8/8, we can expect those adults to emerge in 14 days +. Somewhere around 8/20 we can expect the next generation of adults to emerge and then within a couple of days start laying eggs, Orange County should prepare for the next generation of larvae to start feeding around 8/22. Of course, this is dependent on temperatures and if it gets much hotter or cooler than normal during this period it will be less or more time, respectively. Areas north will follow some days later due to temperature relationship on development. - MU

Eastern NY Commercial Horticulture Website

For event announcements and registrations, previous issues of our newsletters and more, please visit the Eastern NY Commercial Horticulture Team's website at http://enych.cce.cornell.edu/. We hope you bookmark it on your computer and begin using it as your 'go to' website for production and marketing information.
Email or call any of the educators with questions or comments on the website – we want to make it work for YOU!

Yellow Shoulder on Tomato

By Steve Bogash, PSU Extension Commercial Horticulture Agent & Michael Orzolek, PSU Vegetable Specialist

Yellow shoulder and Blossom end rot (BER) are the two primary physiological challenges in tomato culture. Yellow shoulder is a physiological disorder of tomatoes that is characterized by discolored regions under the skin that show through and reduce the quality of the fruit. The disorder can range from very mild with some internal spotting to quite severe with large areas that are hardened and yellow to white. This wide variation in symptoms has spawned a number of names for the same primary disorder: yellow shoulder, yellow eye, green shoulder, yellow tag, gray wall, and internal white tissue. It is very important for growers to understand that yellow shoulder is not a delayed ripening, but an actual disorder of the affected tissue. Often, growers find that by focusing more closely on their nutritional program in seeking to prevent Yellow shoulders, they also reduce or eliminate BER.

Tomato exhibiting yellow shoulder– Photo by ADI

The cells in the affected sectors of the fruit are generally smaller in size and have a more random arrangement than that of normal cells. Green chlorophyll in these regions fail to develop red pigment. This happens very early in fruit development, which makes early plant tissue analysis extremely important in prevention, as uniform color requires more K+ than the amount required to sustain yield.

The cause of the yellow shoulder disorder in tomato fruit has baffled scientists for the last 30 years. Many scientists believe there are several causal factors for yellow shoulder including: environment (specifically, high temperature >90°F), nutrition, genotype (cultivar) and virus. The interaction of these factors under field conditions is very difficult to evaluate. This disorder can be triggered by insufficient exchangeable K+, excess magnesium in relation to calcium, and pH above 6.7.

Management options to reduce yellow shoulder include increasing K+ to above 3% by dry matter before the fruit is larger than 1", adjusting the soil pH to 6.4-6.7 and increasing the Mg/Ca ratio to 1/6 or better (1/4 is ideal). Tissue analysis at the first flower initiation is extremely important in preventing yellow shoulder as once fruit is hanging and damaged it will not improve. Also, certain cultivars are less susceptible and others at higher risk, so cultivar selection is integral to a program to manage this color disorder. Certain processing varieties have been identified as less susceptible, but much research remains to be done on fresh market varieties in order to identify those that are more or less susceptible. Some growers have anecdotal reports of cultivars that are more or less susceptible, but minimal research has been done to conclusively identify those cultivars.

The practice of letting the fruit hang longer in order to "color up" does not work and has the potential to increase the danger from fruit rots. Increasing K+ through the drip lines once there is abundant fruit hanging is also unlikely to lessen symptoms as this disorder shows up very shortly after fruit set.

Quite a bit of work has been done by UC Davis and Ohio State on prevention of this disorder in processing varieties. They have developed the Hartz formula for anticipating the risk of yellow shoulder. This formula can be readily accessed online at www.oardc.ohio-state.edu/tomato. You will need recent soil and leaf analysis results in order to use the formula.

For most growers the best practices to prevent yellow shoulder will be to intensively tissue test tomatoes from first flower cluster for Ca, K+ and Mg levels. From this information, a grower could apply Potassium Nitrate, Sulfate of Potash, Potassium Carbonate, Calcium Nitrate, Calcium Chelate, and Magnesium Oxide to reduce the potential for this disorder.

Experience has proven that both fertigated and foliar applied nutrients are necessary to prevent Yellow shoulders. Many growers have been able to increase tomato plants uptake of potassium through adjusting the pH of their drip irrigation water. Keeping the irrigation solution pH at 6.2-6.5 will greatly improve tomato plants ability to move potassium from the soil to plant tissue. Most conventional growers use Sulfuric acid to reduce pH, while many organic growers use powdered Citric acid for this purpose.

MORE DOWNY MILDEW FOUND IN Eastern NY!

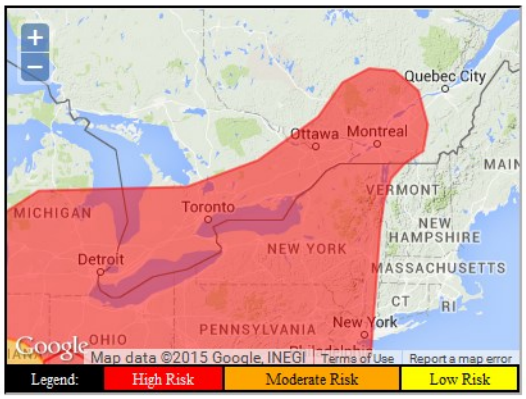
We reported last week the first know case of Cucurbit Downy Mildew (CDM) in Schoharie County and we have now confirmed a second case in Montgomery County on cucumbers. Things don't look to improve this week with a "HIGH" risk for the beginning of this week according to the forecasting program. Be sure you continue to **include a fungicide with some translaminar or systemic activity even if downy has not been found on your farm. All stages of cucumbers in particular should be protected.** Keep in mind too that CDM symptoms look different on the different cucurbit species so it can be hard to diagnose sometimes. Some of the best pictures can be found at VegMD Online and at the CDM Forecasting website

This Week's Outlook: Epidemic spread likely for much of the Ohio Valley, mid-Atlantic, Great Lakes / southern Canada. Transport events ahead of the front track east or northeast (most of Monday's events), while those behind move south or southeast (most of Tuesday's events). Conditions will be favorable for epidemic spread over a wide swath of east-central and eastern North America, mainly northern and central sections, with slightly favorable to mixed conditions farther south.

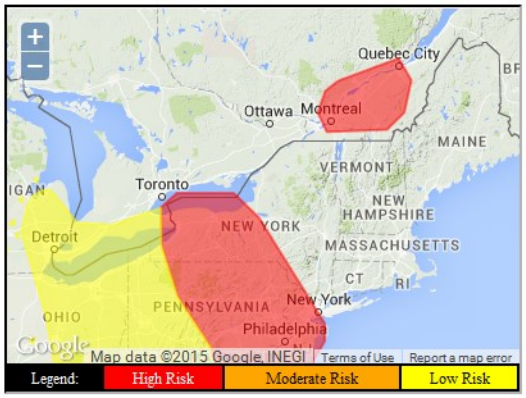
This weeks forecast: Risk prediction map for Day 1: Monday, August 10: HIGH Risk for northern AL and GA, western and far northeast NC, central and eastern TN, KY, WV, VA, DE, MD, NJ, PA, NY except Long Island, OH, northern IN, central and southern MI, southern ON, southern QC, and southern WI. Moderate Risk for cucurbits in IL, southern and central IN, central and eastern NC, western half of SC, central GA, central AL, and far southern FL. Low Risk in southern and eastern SC into southeast NC, southern GA, southern AL, central FL and the FL panhandle, southeast LA, and southwest MS. Minimal Risk to cucurbits otherwise.

Risk prediction map for Day 2: Tuesday, August 11: HIGH Risk for NC, SC, eastern GA, eastern VA, MD, DE, NJ, southern QC, central and eastern PA, and western NY. Moderate Risk to cucurbits in southeast LA, southern MS, AL, GA, the FL panhandle, and eastern TN. Low Risk in southeast MI, southern ON, cen,tral and eastern OH, western PA, WV, central and western VA, southern and eastern KY, central TN, and near the FL sources.

Risk prediction map for Day 1: Monday, August 10



Risk prediction map for Day 2: Tuesday, August 11



Forecaster: TK at NCSU for the Cucurbit *ipm*PIPE - 2015

Changes to Bloat Nematode Testing Services for 2015

In the wake of Dr. George Abawi's retirement and a reduction in staffing, the Bloat Nematode Testing Lab in Geneva has decided it needs to limit the number of samples that it can accept for 2015. This year, the Geneva lab will accept samples from farmers wishing to replant seed on their own farm, but is asking that growers who want to sell their seed to others send samples to the Michigan State Diagnostic Clinic.

Each sample sent to the Cornell Bloat Nematode Testing Lab will cost $40 to sample this year, reflecting the end of the Specialty Crop Block Grant subsidy which reduced cost to $20 per sample for the last two years. Samples sent to Michigan will cost $75 dollars each. This is three times the in-state rate due to state subsidies for Michigan growers and the need for APHIS approval to accept samples from outside the state.

The sample submission form for Cornell samples can be found here along with a new fact sheet, and the Michigan State sample submission form can be found here. On the Michigan form, the nematode testing information is towards the very bottom. Please remember to triple the rate if sending samples to Michigan.

As in previous years, if trying to detect Bloat Nematode, select suspicious bulbs for testing. Neither of these labs offer certification, they are simply providing results based on the sample received.

Cornell Lab and Extension staff, as well a garlic grower advisory group, will work to determine if the lab at Geneva will be able to return to accepting all of New York's samples next year, and what the cost will be. If you have any questions about this process, please contact Crystal at 518.775.0018. *-CS*

Tips on Harvesting Potatoes

Growers have been harvesting early potatoes now for a while and we have gotten some questions recently on how to handle and store them. If you are digging potatoes now for storage, it will be important that you read and follow some of the tips below:

1. One of the key components to ensuring the highest quality potatoes is proper vine killing. Minimally vine killing should occur 2-3 weeks before harvest to ensure the tubers set their skin, making the tubers more resistant to skinning and bruising. Vine killing can be done many different ways including flail mowing, flaming and chemical desiccants (see Table 1 for a list of approved vine desiccants).
2. Maintain fungicide applications as long as there is green tissue left exposed including those stumps of vines from flail mowing. These tissues are still susceptible to diseases such as Late Blight.
3. If digging with a machine, be sure use the proper tractor and chain speed ratio to keep the conveyors as full of potatoes as possible. Sometimes this means keeping a little more dirt on the chain than we might like to see, but it will help keep the potatoes from sliding down and bouncing around on the chain.
4. Make sure that tubers are not falling from heights greater then 6 inches (this includes digging and handling).
5. Do not put harvested potatoes directly into a cold storage. Potatoes should go in a dark area and allowed to cool down gradually and heal or cure up a bit. The best temperatures for this to happen is 60 -65 degrees F for about 5 – 20 days at a high humidity with good air circulation. Cooling them down rapidly could result in condensation developing and that is not what we want as that can increase rot organisms that might already be there. After this healing period they can be moved into a storage and cooled slowly to 40 F maintaining a high relative humidity of about 90 – 95%. This should help reduce the shrinking that happens in storage.
6. Do not wash potatoes before putting them into storage, but rather wash what you need as you need them. Do not put warm potatoes into wash water that is 10 degrees colder as this will increase bacterial breakdown. For that matter, you should follow this rule for all produce that is washed!
7. Cull hard! Do not put any potatoes that do not look healthy into your storage, and when it doubt, don't put it in!

There are lots of diseases that can affect tubers so if you have something you're not sure about, please don't hesitate to call Chuck Bornt at 518-859-6213

Table 1: Labeled Potato Vine Killing Compounds for NYS

Product	Rate Per Acre	PHI (Days)	REI (Hours)	Notes
Aim EC	3.2—5.8 ounces if used alone 2 –5.8 if combined with another desiccant	7	12	Used for pre-harvest desiccation of potatoes. Apply in later stages of senescence. Will also desiccate late season susceptible broadleaf weeds. Adequate desiccation is achieved within 14 days after initial treatment. Two applications may be required if crop is in active vegetative growth when desiccation is initiated. Apply in a minimum of 20 gallons per acre and use a non-ionic surfactant (NIS), methylated seed oil (MSO) or crop oil concentrate (COC). Don not use more than 11.6 fluid ounces per acre per crop season
Reglone 2L	1 –2 pints per acre	7	24	Used for pre-harvest desiccation of potatoes. May make a second application, 5 days after the first if vine growth is particularly dense. Do not exceed a total of 4 pt/A. Drought at the time of application will decrease desiccation effectiveness. Apply in a minimum of 20 gallons of water per acre and use a non-ionic surfactant at 0.06-0.5% v/v (1/2-4 pt per 100 gal) of the finished spray volume.
Rely 280	21 ounces per acre	9	12	Not for use in Nassau and Suffolk Counties. Do not split application nor apply more than one application. Do not apply to potatoes grown for seed. Canola, corn, cotton, rice, soybean, and sugar beets may be planted at any time after the application. Do not plant treated areas to wheat, barley, buckwheat, millet, oats, rye, sorghum, and triticale until 30 or more days after an application as a potato vine desiccant. Do not plant treated areas to crops other than those listed in this use precautions section until 120 or more days after application.
VidaEC	5.5 fl oz if used alone 2.75-5.5 fl. oz. if combined with another desiccant	7	12	Make 1 to 2 applications with a minimum interval of 7 days. Do not exceed 2 applications or 11 fl. oz/A per crop season. Apply with either a non-ionic surfactant or crop oil concentrate in 20-50 gallons of water/acre. Use an approved buffering agent to obtain a pH of 5.0 or less if the water source has a pH greater than 7.5. See label for additional information.

Onions: Harvest and Curing Tips for Best Quality

As onions mature, their dry matter content and pungency increase, with a resulting increase in storage potential. Onions are ready for harvest when at least half the leaves are dead. Tops are beginning to fall in early, direct-seeded onions and many transplanted fields. Pull the bulbs by hand, or use equipment such as a potato digger or under-cutter to cut the roots and lift the bulbs. If you wait until all the leaves are dead and dry, it's likely that the outer skins will be loose rather than firm. This may not hurt the keeping quality, but the onions will not look as nice. However, pulling when the foliage is too green will make it difficult to cure them well. Harvest when the weather is dry; harvesting after a rainfall or when the humidity is high increases susceptibility to post-harvest disease. There may be instances when leaves are declining in quality due to insect, disease or environmental conditions and the crop is not growing but necks are still green. Or leaves may show symptoms of bacterial infections, in which case it may be advisable to pull onions a little early – before tops have fallen over –to prevent bacteria from traveling down the foliage into bulbs. In these cases, pay special attention to curing under optimum conditions to promote rapid drying down and closing of necks.

For optimum storage quality, onions must be cured soon after harvest. Curing decreases the incidence of neck rot, reduces water loss during storage, prevents microbial infection, and is desirable for development of good scale color. Optimum conditions are 68-86°F and 70% relative humidity for at least 12 to 24 hours. A greenhouse or hoophouse provides a good environment for curing, where temperature, airflow and moisture can be controlled. Be sure to keep the temperature in the house below 85°F, which will probably require turning on fans and/or leaving sides and doors wide open—consider using a black shade curtain over the house to help moderate temperature.

Curing can be done in the field, but it is harder to achieve good conditions for curing in an uncontrolled field setting. Avoid field curing onions if rain is forecast and, if it does rain, let the onions dry fully before handling—don't handle the bulbs when they are wet. If the field is weedy, it may be excessively moist and air circulation may be limited, conditions not suitable for curing. Temperature and sun are also factors to consider—sunshine and temperatures in the 80's will enhance the bronze color in the skins but extremely hot sun, with temperatures in the 90's, can cause sunscald. Onions curing on a sandy soil will get hot more quickly than those curing on a heavier soil. Curing is complete when the neck is completely dry and tight. If the neck remains open, it allows entry of pathogens such as Botrytis neck rot.

The next step is topping. Mechanical onion toppers are essential for larger plantings. These machines can be expensive; for the needs of a small diversified farm, they are probably best obtained second-hand. Onions can also be topped by hand using clippers. Handle gently to avoid bruising. Avoid cutting tops too close to the bulb (leave 2-3 in. of stem), especially if there is any chance of disease entering bulbs from the leaves. Defective onions (i.e. sprouted, insect-damaged, sunscalded, green, bruised, or soft) should be discarded. Grade for size according to your markets.

To ensure maximum storage life, onions must be promptly stored after curing. Get them out of the sun as exposure to light after curing will induce greening of the outer scales. The optimum temperature for long-term storage of onions is 32°F with 65-70% relative humidity, but it is important to bring them down to this temperature slowly. In fact, holding onions in a barn or garage so that they cool along with the average outdoor temperature in late-summer and fall works quite well.

Avoid cooling bulbs to well-below the average daily temperature because they will draw moisture from the warmer air, which can lead to disease. If you are selling the onions within a couple of months, keeping them in an un-insulated barn is fine. An insulated storage room is needed for longer-term storage.

Harvest Tips for Best Quality:

1.) Be sure onions are well-dried and necks are tight (i.e. the tissue does not slide when you roll the neck between your fingers) before topping. Bacterial diseases and Botrytis Neck rot can move through green tissue into the bulbs. These diseases do not move in dry tissue.

2.) Leave 2-3 inches of neck on the bulb. This increases the distance from the cut surface to the bulb for these pathogens to travel.

3.) Minimize mechanical injury during harvest & topping. Reduce drops to 6" and pad sharp surfaces. Bruises provide

direct entry points for diseases to get started.

4.) Grade out damaged onions before putting them into storage. Damaged bulbs give off moisture, which is favorable for development of diseases in storage.

(Source: John Howell, Andrew Cavanagh, & Ruth Hazzard. Resources: CSU Extension and the University of Saskatchewan Vegetable Program, UMASS Vegetable Notes, Volume 27, No. 16)

Identifying Cabbage Worms and Determining the Best Control

As we head into late summer and start to pay more attention (or not sometimes) to our fall and storage cole crops, Lepidopteran or worm pests of Cole crops generally start to ramp up. I have been noticing a lot of Imported Cabbage Moths flying around. It is important to know which pest(s) you are dealing with, because they have different sensitivities to the available insecticides. Not only that, but you want to try and control these pest early before they make their way into the heads of cabbage or heads of broccoli. Once they get into a protected environment they become very hard to control with products like Bt and pyrethroids. Below are detailed descriptions, followed by a table which lists the organic and conventional pesticides available along with their effectiveness for each pest. *Source for life cycles and descriptions comes from "Pests in the Northeastern United States" edited by W.T. Wilsey, C.R. Weeden, and A.M. Shelton, Cornell University.*

Larvae and pupae chrysalis of the Imported Cabbage Worm.

Imported Cabbage Worm: Eggs of the ICW are laid singularly on the underside of the leaves and are bullet shaped and off-white when first laid, turning light to dark yellow in color. The larvae start out as small velvety green caterpillars and after feeding for 2 to 3 weeks turn dark velvety green with a light yellow stripe down their back and a broken stripe along each side of the body. When mature, they are approximately 1 1/4 inches long.

Diamondback Moth: Eggs of the DBM are small round, yellowish-white and laid singly or in groups of two or three on the underside of lower leaves or on the lower stalks. Larvae upon hatching, begin mining within the leaf tissue and later instars feed on heart leaves of young plants and underside of the leaf surfaces of more mature plants. Mature larvae are 1/3 inch long, pale greenish-yellow, and pointed at both ends. Diamondback larvae can be distinguished from other young pest species by their habit of actively wriggling or dropping from the leaf on a silken thread when disturbed. The pupa develops within a delicate, loosely spun, open lacework cocoon that is attached to the leaves and stems of the plant.

Cabbage looper feeding on the underside of a cabbage leaf and a mature pupae wrapped in its cocoon. *Photo on left courtesy of Utah State; right courtesy of Cornell Univ.*

Cabbage Looper: Eggs are normally laid on the underside of the lowest leaves and are round, ridged, white, and approximately the size of a pinhead. Looper larvae feed for 2 to 4 weeks and pass through five instars. Older larvae are light green with a white stripe along each side of the body and two white stripes along the back. First instar larvae have a black head capsule, but by the second instar, this is lost and the head capsule remains green. Mature larvae are approximately 1-1/2 inches. When disturbed the larvae will raise its back causing a "looping" movement. Young pupae are a light greenish color and gradually turn dark brown when mature. They are 3/4 inch long and wrapped in a delicate cocoon of white tangled threads. Pupae are usually found on the underside of lower leaves. -CDB

Diamondback moth pupa (left) and larva (right). Note the forked tail on the larvae. *Photo courtesy of Manitoba Agriculture, Food and Rural Initiatives*

Relative Efficacy of Insecticides for Control of Worm Pests in Cole Crops

Following is a list of insecticides labeled for use on various cole crops with tentative efficacy ratings for control of imported cabbage worm (ICW), small and large cabbage looper (CL) and diamondback moth (DBM), which was put together by Cornell researchers in Long Island. Growers and other researchers may have somewhat different opinions and results vary according to rates, application method and frequency, location, etc. so selection of controls should not be made solely based on this chart. Not all materials are labeled for all crops or areas - check labels. For most cole crops, addition of a spreader-sticker is advised.
Source: Veg Edge Weekly July 30, 2014

Table Key and Footnotes:
xxx = most effective (usually good control expected)
x = least effective (fair or poor control)
- = not labeled or not effective.
Not all formulations listed.
Rates in amount of formulated product unless otherwise indicated.

[1] 4.5 – 6 oz for CL
[2] higher rates needed
[3] Where insecticide resistance is not a problem better control of DBM with some materials may be expected
[4] *Bt aizawai* may provide better control of DBM where populations are resistant to *Bt kurstaki*
[5] Avaunt is not labeled for use on Long Island.
[6] Has not been trialed in University studies.
[7] a premix of Warrior + Actara/ Cruiser.
[8] A premix of Coragen + Warrior.
[9] Belt is replacing Synapse for all vegetable uses.

Material, Formulation and Rate	ICW	Sm CL	Lg CL	DBM[3]
Diamides (Group 28):				
Coragen (3.5 – 5 fl oz)	xxx	xxx	xxx	xxx
Voliam Xpress[8] (5-9 fl oz)	xxx	xxx	xxx	xxx
Synapse WG (3-5 fl oz) & Belt & Belt SC (2-2.4 fl oz)[9]	xxx	xxx	xxx	xx
Spinosyns (Group 5):				
Radiant SC (5-10 fl oz)	xxx	xxx	xxx	xx
Entrust SC (1.5 – 4 fl oz)	xxx	xxx	xx	xx
Indoxacarb (Group 22):				
Avaunt 30WG[5] (0.15 – 0.22 lb)	xxx	xxx	xxx	xxx
Avermectin (Group 6):				
Proclaim 5G (2.4 – 4.8 oz)	xxx	xxx	xx[2]	xxx
Pyrethroids (Group 3A):				
Warrior II with Zeon Technology (1.28 – 1.92 fl oz)	xxx	xxx	xx	x
Endigo ZC (4 – 4.5 fl oz)[7]	xxx	xxx	xx	x
Danitol 2.4 EC (10.6 – 16 fl oz)	xxx	xxx	xx	x
Brigade/Capture 2EC (2.1 – 6.4 fl oz)	xxx	xx	xx	x[2]
Pounce/Ambush (0.05 – 0.2 lb ai)	xxx	xx	x	x
Baythroid 2 (1.6 – 2.4 fl oz)	xxx	xx	x[2]	x
Perm-Up 3.2 EC (2-4 fl oz)	xxx	xx[2]	x[2]	-
Mustang Maxx (2.24 - 4 fl oz)	xxx	xx[2]	x[2]	-
Asana XL 0.66EC (5.8 – 9.6 fl oz)	xxx	x[2]	x[2]	-
Hero (4-10.3 oz)	?[6]	?	?	?
Bts (Group 11):				
Bt kurstaki (see labels) (Biobit, Javelin, DiPel, Condor, Crymax)	xxx	xx[2]	x[2]	x[2]
Bt aizawai (see labels) (Xentari, Agree, Ketch)	xxx	x	x	xx[4]
OPs (Group 1B):				
Orthene 97 (1.0 lb)	xxx	xx	xx	x
Carbamates (Group 1A):				
Lannate LV 2.4L (1.5 – 3 pt)	xxx	x[2]	x[2]	x[2]
Larvin 3.2F (16 – 40 fl oz)	xxx	x[2]	x[2]	x[2]
Sevin 80 Solupak (1.25-2.5 fl oz)	x	-	-	x

Calendar of Events

Tuesday, August 18, 2015 from 12-2:30 PM-RAPP - A Move to Recycle Ag Plastics: Roundtable Discussion and Meeting, CCE Ulster County, 232 Plaza Road, Kingston, NY 12401. Please let us know if you are planning to attend so we can be sure the space and food are adequate. RSVP by Friday, August 14 to Rachel at 845-344-1234 or email ram72@cornell.edu.

Wednesday, August 19th— Limiting Bird Damage in Fruit: State-of-the-Art Pest Management Tactics (A Vertebrate Damage Management Workshop), 4H Training Center, 556 Middleline Rd, Ballston Spa, NY 12020. This comprehensive class will feature results and speakers from a multi-year, multi-state project that looked at several different fruit crops. Registration details to follow.

Thursday, August 20th - Tomato Variety and Disease Twilight Meeting at the Hudson Valley Farm Hub, 1875 Hurley Mountain Road, Hurley, NY 12443. 5:30– 7:00 pm. Join Eastern NY Commercial Horticulture Vegetable specialists and Margaret McGrath from the Cornell LI Research Extension Center to tour the tomato disease resistance trial at the Farm Hub. Help us evaluate 10 new tomato varieties being developed by Cornell University plant breeder Dr. Martha Mutschler. We will tour the variety trial, taste tomatoes, and discuss tomato diseases and management. Registration is not required. There is no fee for this program. This meeting will be held rain or shine. 1.5 DEC pesticide applicator credits are available to those attending the full 1.5 hours of the program. For more information contact Teresa Rusinek at 845-389-3562 or tr28@cornell.edu

Tuesday, September 29—Root Crops Twilight Meeting at the Hudson Valley Farm Hub, 1875 Hurley Mountain Road, Hurley, NY 12443. 5:00– 7:00 pm. This program includes: demonstrations of growing methods in raised beds and ridged cultivation; variety selection for beets, carrots, and parsnips, with 25 varieties of carrots and 15 varieties of beets. Registration is not required and there is no fee for this program. This meeting will be held rain or shine. 1.5 DEC pesticide applicator credits are available to those attending the full 2 hours. For more information, contact Crystal Stewart at 518 775-0018 or cls263@cornell.edu

Sweet Corn Pest Trap Catches

(Last Week ending 8/3/15, This Week ending 8/10/15)

Location	ECB-E Last Week	ECB-E This Week	ECB-Z Last Week	ECB-Z This Week	CEW Last Week	CEW This Week	FAW Last Week	FAW This Week	WBC Last Week	WBC This Week
Central Clinton	3	0	0	0	0	0	0	0	36	27
South Clinton	0	0	0	0	0	0	0	0	17	126
Orange County	0	0	0	0	0	0	7	3	5	0
Central Ulster	1	1	2	1	0	0	10	18	3	9
N. Ulster	0	0	90*/30	NA*/10	0	1	N/A	N/A	N/A	N/A
N. Washington	2	4	0	0	0	2	1	1	0	5
S. Washington	0	0	1	1	0	2	N/A	N/A	N/A	N/A
Albany County	4	2	0	0	0	0	5	8	0	16
Fulton County	0	0	0	0	0	0	N/A	N/A	N/A	N/A
Schoharie County	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
N. Columbia	0	0	0	2	0	0	4	3	58	38

*trap at this location was lost over the past week, this week reporting ECB –Z trap catch from adjacent farm in N. Ulster

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** 8/4 - 8/10	**2015 Season Total** 3/1 - 8/10	**2014 Season Total** 3/1 - 8/10	**2015 Weekly Rainfall** (inches) 8/3 - 8/10	**2015 Total Rainfall** (inches) 3/1 - 8/10	**2014 Total Rainfall** (inches) 3/1-8/10
Albany	**149.7**	**2005.6**	**1866.0**	**0.29**	**13.73**	**18.63**
Castleton	**546.3**	**2342.4**	**1760.2**	**0.49**	**16.16**	**18.55**
Clifton Park	**142.4**	**1921.2**	**1696.2**	**0.14**	**12.95**	**18.45**
Fishkill	**138.8**	**1917.3**	**Na[1]**	**0.00**	**5.18**	**Na[1]**
Glens Falls	**130.3**	**1713.6**	**1673.0**	**0.09**	**13.19**	**21.23**
Griffiss	**116.1**	**1594.2**	**1560.0**	**0.03**	**19.79**	**22.63**
Guilderland	**133.0**	**1800.0**	**1710.0**	**0.06**	**14.55**	**Na[2]**
Highland	**151.8**	**2026.7**	**1866.7**	**0.02**	**14.51**	**22.08**
Hudson	**143.3**	**2009.6**	**1530.3**	**0.05**	**13.33**	**25.12**
Marlboro	**145.0**	**1941.2**	**1798.9**	**0.04**	**12.61**	**20.46**
Montgomery	**81.7[3]**	**1919.1[3]**	**1830.5**	**0.04[3]**	**0.7[3]**	**17.68**
Monticello	**107.7**	**1549.3**	**1446.5**	**0.00**	**12.92**	**7.63**
Peru	**114.7**	**1615.3**	**1594.7**	**0.12**	**16.06**	**18.45**
Red Hook	**142.6**	**1913.1**	**1839.7**	**0.05**	**15.24**	**11.63[4]**
Wilsboro	**113.3**	**1572.3**	**1533.1**	**0.12**	**20.66**	**11.04**
South Hero, VT	**126.4**	**1680.6**	**1648.0**	**0.03**	**18.11**	**19.57**
N. Adams, MA	**113.3**	**1544.6**	**1496.5**	**0.18**	**15.32**	**19.01**
Danbury, CT	**135.9**	**1828.5**	**1688.0**	**0.51**	**16.82**	**19.67**

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.
Na[3]: Data for this week is only up to 8/7/2015
Na[4]: Precipitation data for this site did not start until May of 2014.