Cornell Cooperative Extension

Eastern NY Commercial Horticulture Program

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What I've Seen So Far This Week - And What We Might See with the Heat

by Chuck Bornt, CCE ENYCHP

With the temperatures and humidity this week, none of us should be surprised to see not only our plants start to thrive, but insects also! (CPB) is out in force on potatoes, eggplant and tomatoes too. Look for Crystal's article on CPB in this newsletter. Pay particular attention to those fields this year that had any of these crops last year as they will probably have heavier populations compared to those that may be father away from last year's crop.

With rye and first cutting of hay also in full swing the last couple of weeks, I'm starting to see a few Leafhoppers move into potatoes and eggplant – yes, eggplant! Don't forget your beans too – they love beans and high numbers can really stunt plants and some of those early plantings have been through enough with the rollercoaster weather we've had this spring. See Ethan's leafhopper article for management options. The cutting of small grains and hay also usually brings with it a bunch of thrips and they thrive in this hot, humid weather. Pay particular attention to onions and related crops. Be sure to gently pull back between where the leaves enter the stem area as they like to hide in those nice protected areas. You can also look underneath any places where the leaves might have been bent over as that is a favorite place to live too!

I also scouted a bunch of kale, cabbage and collards earlier this week and was quite amazed that I did not find much, but again, not every farm has the same pest pressure. I found a few flea beetles but could not find a single worm pest (Imported Cabbage Worm, Diamondback Moth and Cabbage Looper). I know in some areas they have been very active so do not get complacent, as I know these critters will be showing up soon across the whole region.

The biggest pest l've seen in sweet corn so far are weeds, weeds and more weeds, especially under floating rowcovers. I would recommend you review the article from a couple issues ago that goes over the best options for post emergent weed control in sweet corn. Right now our best bet is Armezon plus atrazine, methylated seed oil (MSO) and a nitrogen source (either spray grade ammonium sulfate

(AMS) or a 32% liquid nitrogen solution (UAN). I'm constantly getting the question of why didn't my pre-emergents work under those covers and if you recall years ago I did several rowcover herbicide trials and the results were similar every year – there was no silver bullet and former Cornell University Weed Scientist Dr. Robin Bellinder and I determined that because the rowcovers create a warmer, more conducive environment for growth, the herbicides breakdown quicker allowing the weeds to really take off. That coupled with more biological activity and probably nutrient release all create the perfect storm – a weed storm that is. There are a few moths showing up, mostly in our southern region and we can expect those numbers to climb probably in the next couple of weeks.

Now that many pumpkins and winter squash have been seeded and recently emerged, there has been a flush of Striped Cucumber Beetles with more to come. I cannot tell you how important it is to scout for these, especially when the crop is just emerging or has been transplanted. Scouting once a week is not enough and you should be out looking at those crops multiple times a week as they can appear overnight it seems. The reason it is so important to control cucumber beetles early is because our vine crops are most susceptible to Bacterial wilt from emergence to around when the plants have 4 true leaves. I was a bit concerned about the dry weather because many of the conventional insecticide seed treatments we have need moisture to get them activated, but so far I haven't seen any issues. For organic growers, keeping plants covered with a mixture of Surround (kaolin clay) and Pyganic seems to certainly help. Insect netting has also proven quite effective, but it needs to be applied before the beetles are in the crop and needs to be anchored well so beetles can't get under the edges. Remember that thresholds for SCB are pretty low - one beetle for every two plants for the most susceptible crops (cucumber, zucchini, summer squash, and melons). There are also quite a few conventional products labeled for control like Assail, Baythroid, Warrior (or generic versions like Grizzly) and permethrins (Arctic, Pounce, Asana etc.).

For those of you growing basil, I have some bad news – we have two reports now of confirmed cases of Basil Downy Mildew coming out of New Jersey so please make sure you are scouting your basil. Here is a great website for more information and excellent pictures of BDM by our plant pathologist Meg McGrath: <u>https://www.vegetables.cornell.edu/pest-management/disease-factsheets</u>/<u>basil-downy-mildew/</u> She goes into detail on resistant varieties that are available (Devotion, Obsession, Passion, and Thunderstruck) marketed by Van Drunen Farms Specialty Seeds and also distributed by several seed companies. Prospera sold by Johnny's Select and Prospera CG1 (Cut Genovese 1), Prospera ILL2 (Italian Large-Leaf 2), Prospera PL4 (Potted Large-Leaf 4), and Prospera PS5 (Potted Small-Leaf 5) were developed by Genesis Seeds Ltd.

On the website Dr. McGrath also gives an excellent list of fungicides: "There are also several organic and conventional fungicides now labeled, but all work best if applied before the disease gets started. For organic growers, products such as Badge X2 (copper oxychloride and copper hydroxide), Cueva (copper octanoate), Procidic (citric acid) and Stargus (Bacillus amyloliquefaciens) are specifically labeled for basil downy mildew. Actinovate AG (Streptomyces lydicus), Double Nickel 55 (Bacillus amyloliquefaciens), MilStop (potassium bicarbonate), OxiDate (hydrogen dioxide), Regalia (extract of Reynoutria sachalinensis), TerraNeem EC (cold pressed neem oil), Trilogy (neem oil), and Zonix (rhamnolipid biosurfactant) are labeled for use on herbs and for suppressing foliar diseases including downy mildew. MilStop, OxiDate, Regalia, and Stargus are labeled for use outdoors and in greenhouses. The Actinovate, Cueva, Double Nickel, Procidic, TerraNeem, Trilogy, and Zonix labels do not have a statement prohibiting use in greenhouses. Double Nickel label has directions for greenhouse use for soil-borne pathogens. OxiDate has limited residual activity and thus if used should be combined with or followed by another product. All of these fungicides are OMRI-listed except for Procidic, which was reviewed and determined to be NOP compliant by Washington State Dept of Ag.

Conventional fungicides include: Orondis Ultra (oxathiapiprolin and mandipropamid; FRAC codes 49 and 40), Revus (mandipropamid; FRAC 40), Ranman (cyazofamid; FRAC 21), Presidio (fluopicolide; FRAC 43), Reason (fenamidone; FRAC 11), Quadris (azoxystrobin; FRAC 11), and phosphorous acid fungicides (FRAC P 07) can be used in conventional production of basil, in addition to the organic fungicides listed above. There are several phosphorous acid (phosphanate) fungicides labeled for this disease with no use restrictions, including ProPhyt, Fosphite, Fungi-Phite, Rampart, pHorsepHite, and K-Phite. These are recommended used in a tank mix with the other fungicides listed above."

If you see or suspect BDM, please be sure to let your local vegetable specialist know so that we can track its progress in the region.

The Story of the Colorado Potato Beetle and the Hot, Hot Spring

By Crystal Stewart Courtens, CCE ENYCHP

Fun fact number one of the day: insects are not able to control their body temperatures like we do. If it's 98 degrees, they are 98 degrees (or more, if they are hanging out in the sun). Fun fact number two: the warmer an insect is, the faster all of its biological processes go. They eat faster, grow faster, and reproduce faster. These two facts help explain why it might feel like we are being overrun with insects in some places, and also why control measures don't seem to be working so well. You may control one generation of an insect just in time for a second generation to show up (or for a different insect to make an appearance.)

Enter the Colorado potato beetle, who emerged into a very warm world and has been devouring plants at lightning speed. The overwintering generation has already laid eggs in the Mid-Hudson Valley, putting larvae not far behind. In order to not be caught off guard by rapidly maturing instars (which of course become harder and harder to control and eat larger and larger quantities of your plants) you may want to flag a handful off egg masses so that you can apply a well-timed control shortly after most of the eggs have hatched. Spraying before this point will only lead to a flush of baby beetles in the very near future, and the need for another spray.

Here are some handy references on action thresholds for organic and conventional sprays compiled by Chuck last season:

For Avaunt, Rimon, Trigard and Neem:

- Sample 10 vines at 5 locations within a field
- Treat only when threshold exceeded
- Egg masses: 4 per 50 vines (with at least 25% hatching)
- Small larvae: 75 per 50 vines
- Large larvae: 30 per 50 vines

For all other products:

- Small larvae: 200 per 50 vines
- Large larvae: 75 per 50 vines
- Adults: 25 per 50 vines

There are of course a couple general rules of thumb:

- If you used an in-furrow or seed piece application of a neonicotinoid (Group 4: Admire Pro, Tops-MZ-Gaucho, Cruiser or Cruiser Maxx, Platinum) do not use a Group 4 insecticide for foliar control of CPB. There are other options that can be found in Table 3.
- Most controls should be focused on very small larvae as larger larvae become more difficult to control. Do not focus your efforts on adults this time of year – larvae should be your focus!



CPB eggs. Photo: C. Bornt

Potato Leafhoppers, Onion Rain Damage, and Botrytis Leaf Blight

By Ethan Grundberg, CCE ENYCHP

Potato Leafhoppers

Potato leafhoppers (PLH) have arrived in the mid-Hudson Valley and are feeding on potatoes and early snap bean successions. More information on scouting, action thresholds, and identification can be found at https://nysipm.cornell.edu/agriculture/vegetables/vegetable-ipm-practices/chapter-13/section-13-6-3/. Once at threshold, conventional growers have a number of effective insecticide options including Dimethoate 400, several pyrethroids (Warrior II, Baythroid, Tombstone, Pounce), Lannate, and Besiege. Keep in mind that multiple applications are typically required and pay close attention to the pre-harvest interval (PHI) of selected products (for example, Besiege has a 14 day PHI). Neonicotinoids, like Assail, or pre-mix products containing neo-nics, such as Leverage, can be used if no neo-nics were used at planting or as potato seed piece treatments (Admire Pro, Cruiser, Platinum, etc).

Organic growers typically have the most success applying Pyganic mixed with a 1-1.5% v/vdilution of M-Pede (or other labeled insecticidal soaps). Since pyrethrins, the active ingredient in Pyganic, photodegrades quickly, applications should ideally be made as late in the day as possible; later applications also reduce the risk of non-target injury to pollinators. Growers with neutral or alkaline water should be sure to acidify their spray tank to a final pH of 5.5-6.0 to slow the chemical breakdown of pyrethrins (hydrolysis). Several OMRI-listed citric acid products, such as Loveland's Leaf Life Organic Buffer, are available for water acidification. Azadirachtin products (Aza-Direct, Aza-Guard, AzaMax, etc) have also proven to be effective at reducing PLH populations in university trials. See pages 72-75 of the New York State Integrated Pest Management Program's Organic Production Guide for Potatoes for more information: https://ecommons.cornell.edu /bitstream/handle/1813/42897/2016-orgpotatoes-NYSIPM.pdf?sequence=1&isAllowed=y



'Hopperburn' damage caused by PLH feeding on snap beans. Photo: E. Grundberg

Onion Thrips

Despite rainy weather, onion thrips populations are at the action threshold (0.6 to 1 thrips per leaf) for the first application of spirotetramat (Movento, Senstar) in many fields of early transplanted onions in Orange County. Refer to the podcast episode from two weeks ago (<u>https://soundcloud.com/easternnewyorkvegnews/onion-thrips-and-onion-maggot-management-recommendations-with-dr-brian-nault?in=easternnewyorkvegnews/sets/2021-vegetable-news</u>) and Dr. Brian Nault's management guidelines (<u>https://rvpadmin.cce.cornell.edu/uploads/doc_980.pdf</u>) for more information.



Rain Damage and Botrytis Leaf Blight on Onions

Heavy rains in recent days have caused extensive pelting injury in early transplanted onions in Orange County.



A transplanted onion shows characteristic damage from pelting rain. Photo; E. Grundberg Damage can be easily confused with botrytis leaf blight (*Botrytis squamosa*), which has also begun to show up in the humid conditions. Chlorothalonil products (Bravo, Initiate, Echo) are the most effective fungicides for managing botrytis leaf blight. However, chlorothalonil products should not be tank-mixed and co-applied with translaminar and systemic insecticides used for onion thrips management (Movento, Agri-Mek, Minecto Pro, Radiant). Data from both Christy Hoepting and trials on the black dirt in Orange County suggest that even the Echo 90 DF reduces the efficacy of the insecticides listed when co-applied in tank mix.

Heat Necrosis in Transplants on Black Plastic Mulch

By Gordon Johnson, University of Delaware Cooperative Extension, Kent County

Editor's note: Record breaking temperatures in the Hudson Valley over the past week have pushed growth in some crops like sweet corn while other crops are showing signs of heat stress. Heat necrosis or sunscald has shown up on recently transplanted peppers and brassicas on black plastic mulch. The following is a helpful article on avoiding heat necrosis damage. – Teresa Rusinek

Black plastic can heat up to well over 110 F on hot days in the late spring and summer. Vegetable transplants are exposed to these high soil temperatures at the soil line around the transplant hole. The stem tissue just at or above the level of the plastic will be killed at these high temperatures and the transplants will then collapse and die. Small transplants do not have the ability to dissipate heat around the stem as roots are not yet grown out into the soil and water uptake is limited. Another factor in heat necrosis is that there is little or no shading of the mulch with the leaves of small transplants.

There are a number of practices that can reduce heat necrosis in later planted vegetable transplants:

- Avoid using tender transplants that have not been hardened off.
- Use larger transplants with greater stem diameters and more leaves to shade.
- 'Leggy' transplants that lay across plastic mulch and even those transplanted onto bare ground are prone to sunscald injury.
- When transplanting into the plastic, make sure the stems of transplants do not touch the plastic once set. Make a larger planting hole, cutting or burning out the plastic.
- Water sufficiently in the hole to reduce heat load.
- Plant in the evening once the plastic has cooled down or in the very early morning. Avoid transplanting on very hot days or when extended hot, sunny weather is forecast.
- Switch to white or aluminized plastic mulch for later plantings. This will reduce the heat loading significantly.
- In smaller plantings you may paint the planting zone on the black plastic mulch white with latex paint and then plant through this white strip once dry. You can also mulch around the

planting holes with wet straw to reduce heat loading.

• Use overhead irrigation after planting to keep the plastic cooler.



Heat injury on brassica transplant (left). Photo: T. Rusinek



Sunscald injury on the stems of newly transplanted pepper seedlings, which is caused by stems laying against edges of black plastic mulch on hot, sunny days. Note that secondary pathogens such as Alternaria can infest bleached out areas of stems over time. Photo by Andy Wyenandt, Rutgers Cooperative Extension

When to Turn on the Irrigation

By Steve Reiners, Cornell AgriTech

This spring has gone from dry to wet and back to dry, which can be frustrating for growers. If you have been able to get your fields planted, it can sometimes be confusing in terms of when to water and for how long.

As soon as seeds germinate and plants break through the soil surface, it's time to water more deeply. Same is true after transplanting. Shallow watering encourages shallow rooting and makes the plants more vulnerable to drought.

Deep watering will encourage roots to "follow the water" leading to deeper roots and more productive plants. To sum up your basic watering strategy: Water less often, but longer when you do.

If growing outdoors, it's easy enough to keep a water budget. At this time of the year, apply at least 1/3 of an inch of water at least two to three times per week if it doesn't rain. As plants grow and temperatures warm, increase the watering to 1/3 of an inch three to four times per week. Keep a rain gauge in your field and measure your rainfall.

You can also 'feel' your soil to see when it may be time to water. Pick some up and try rolling it into a ball. If you can, the soil is moist enough. Or put your finger in the soil or dig down with a hand trowel. Is it dry more than two inches deep? Then it's time to water.

Some commercial growers will purchase equipment like tensiometers which estimates soil moisture at various depths. When a certain level of dryness is reached, irrigation starts.

If water access is limited, look at the chart below to determine the critical time to water a particular crop. Focus your irrigation efforts on crops in these stages.

Table 1. Critical irrigation periods for vegetable crops

https://app.constantcontact.com/pages/campaigns/email-details/details/act...

Сгор	Critical Stage for moisture stress		
Asparagus	Fern growth		
Beans	Flowering, Pod fill		
Broccoli, Cabbage, Cauliflower	Establishment and head filling		
Carrot	Establishment and root development		
Cucumber, melon, pumpkin, squash	Flowering and fruit enlargement		
Eggplant	Flowering and fruit development		
Lettuce	Head development		
Onion	Bulb enlargement		
Pea	Flowering, Pod fill		
Pepper	Transplanting, fruit set and		
	development		
Sweet Corn	Tassel, silk, ear fill		
Tomato	Flowering, fruit set, enlargement		

An inch of water on an acre is a lot of gallons – 27,000 to be exact. So, if watering only with a third of an inch you need 9,000 gallons. On a smaller scale, a 100 square foot garden requires 70 gallons for one inch of water.

Overhead irrigation is easy to use and can water large areas at one time. Unfortunately, it also wets the leaves. And as any plant pathologist will tell you, wet leaves equal disease. Pathogens spread easily when plants are wet. So, if you can, water in the morning so that leaves can dry through the day. Watering in the evening assures a long period of leaf wetness, practically guaranteeing disease.

Trickle or drip irrigation is an effective alternative to overhead irrigation. These systems apply water slowly through perforated tubes laid directly on the soil, which decreases the amount of water needed by 50 percent or more. Little water is lost to evaporation as it is uniformly applied slowly right at the roots. Leaves remain dry, diseases are reduced, and you can water at any time, day or night, whatever fits your schedule. You can even water while working in the garden.

Understanding Production Water Microbial Quality Through Water Testing

By Elisabeth Hodgdon, CCE ENYCHP

It's been a dry spring for some parts of the Eastern NY region. With the hot weather we've had, I've seen irrigation pumps hard at work this week. When temperatures rise and water levels in ponds and rivers drop, we tend to see E. coli levels increase. Production water, including water used for irrigation and spray application, can pose a food safety risk for produce if it carries E. coli and other pathogens that can cause foodborne illness. Understanding the microbial quality of your water is important in understanding its safety for its intended use. If you haven't started already, now is the time to familiarize yourself with water testing protocols. Water testing is required for both the <u>FSMA Produce Safety Rule</u> and <u>GAPs</u>, and is a recommended practice for all farms.

Understanding risk

As a general rule, surface water sources (ponds, rivers, streams, etc.) are the most risky because they are open to the environment. Wildlife, runoff, flood events, and recreational use cause E. coli levels to fluctuate during the year. Ground water (wells) are less risky, particularly if well casings and caps are intact. Municipal water is usually the safest because it is being tested frequently for drinking water standards. Surface water should be tested more frequently than ground water.

Which test to use

There are a number of water tests available at various labs. Which one is best to use? For production water, select a quantitative E. coli test that will present you with the number of generic E. coli (colony forming units or most probable number) per 100 mL of water. This type of test is specified by FSMA's

Produce Safety Rule, and can be used for GAPs certification as well. Generic E. coli is an indicator organism for contamination by feces—the source of many of our foodborne pathogens.

Choosing a lab

The Northeast Center to Advance Food Safety has created a handy <u>interactive Google Map</u> that shows the locations of water testing labs around the country. The map features listings with lab contact information and which tests they offer, specifically highlighting labs that offer tests specified for FSMA.

Collecting samples

Before taking the samples, be sure to understand the protocol required for your particular test. Tests can require holding the sample on ice and returning it to the lab within a certain number of hours. Obtain a sterile sampling bottle from the lab. Don't rinse, wash, or touch the inside of the bottle when taking the sample. If you have any questions about handling the sample, don't hesitate to reach out to the lab for instructions. At the farm, collect the sample from the source during the times of the year when it is in use. For surface water, it's a good idea to collect samples once a month during the main growing season while you are irrigating.

Responding to high E. coli test results

A high E. coli test result indicates contamination or a change in the environment. This is common during the summer months. If you have a high test result, consider maximizing die off periods, applying the water to lower risk crops (crops that are not eaten raw), or switching to another water source. Maximizing the time between water application and harvest allows for any pathogens that could be on the plants to die off through exposure to sunlight, wind, and other factors. Try to identify and address the reason for the high test result, if possible (although this can be challenging). Are migratory birds using the pond as habitat? Are people swimming in the river? Long term risk management strategies to avoid contamination of crops from water include investing in drip irrigation versus overhead for crops with aboveground edible plant parts. Avoid surface water irrigation for leafy greens and other risky crops. Adopt a farm policy of no swimming in irrigation ponds. Each farm is unique, and you will need to identify which practices make sense for your operation to reduce risk.

Questions? Contact Elisabeth Hodgdon (<u>eh528@cornell.edu</u> or 518-650-5323) for assistance planning your water testing program.

Eastern NY Next-Gen Vegetable Grower's Group Starting This Summer!

Are you a next-gen vegetable farmer in Eastern NY who is moving into a leadership or ownership position on your family's farm or a different vegetable farm? Would you like the opportunity to gain production and business skills while networking with your peers in the region?

If the answer is yes, contact Natasha Field at <u>nf257@cornell.edu</u> to sign up to receive information about the new Eastern NY Next-Gen Veg Grower Group.

- We will be holding informational meetings at field days this summer where you can learn more and meet other Next-Gen farmers.
- There will be monthly training and networking programs from November March on management topics ranging from production skills to applying for loans.
- We will have a Slack group where you can interact directly with your peers and receive direct assistance from ENYCH veg production and business specialists.
- And finally, there will be the opportunity for YOU to guide future training programs and networking opportunities to better support you as you advance in your profession.

This group is supported by USDA/NIFA under award number 2018-70027-28588

NEW! NYS Pandemic Small Business Recovery Grant Program Applications will be Accepted Starting June 10

The new **NYS COVID-19 Pandemic Small Business Recovery Grant Program** will provide grant funding to small and micro businesses impacted by the pandemic. The grants will be flexible and can be used for a number of different business operating expenses, including payroll, rent or mortgage payments, taxes, utilities, PPE or other business expenses incurred between March 1, 2020 and April 1, 2021. You can learn more about this grant program at <u>Pandemic Small Business Recovery Grant Program</u> <u>Empire State Development (ny.gov</u>). The application portal is expected to open for applicants on June 10, 2021 at 9am ET. \$800 million is available. Grants range from \$5,000 to \$50,000 depending on the annual gross receipts of the business.

County	ECB-E	ECB-Z	FAW	WBC	CEW
Albany	0	0	0	0	N/A
Clinton 1	0	0	0	0	0
Clinton 2	0	0	0	0	0
Columbia	0	0	0	0	N/A
Dutchess	0	0	N/A	N/A	1
Essex	0	0	0	0	0
Orange	2	1	N/A	N/A	4
Ulster 1	0	0	N/A	N/A	9
Ulster 2	0	5	0	0	4
Washington	0	0	0	0	0

Corn Trap Counts

Vegetable Specialists

Chuck Bornt Phone: 518-859-6213 Email: <u>cdb13@cornell.edu</u>

Ethan Grundberg Phone: 617-455-1893 Email: <u>eg572@cornell.edu</u>

Elisabeth Hodgdon Phone: 518-650-5323 Email: <u>eh528@cornell.edu</u> Teresa Rusinek Phone: 845-340-3990 x315 Email: tr28@cornell.edu

Crystal Stewart-Courtens Phone: 518-775-0018 Email: <u>cls263@cornell.edu</u>

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

Business Specialist

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Liz Higgins Phone: 518-949-3722 Email: <u>emh56@cornell.edu</u>

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