

Cornell Cooperative Extension

Eastern NY Commercial Horticulture Program

Vegetable News E-Alert ~ August 4, 2021

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Crop Notes

Alliums: Onion harvest is well under way on many farms. We are seeing more slippery and sour skin than usual, which makes sense with the warm, wet weather. Maintain good air circulation and minimize humidity in drying area to quickly dry onions.

Brassica: Swede midge damage seen on farms in north. See article below for midge management in fall brassicas. Scout for cabbage aphids (seen in north), which can be especially challenging to control in Brussels sprouts later in the season if not caught early.

Sweet Corn: Western bean cutworm moth counts have been high throughout ENY over the past few weeks. High trap catches do not necessarily mean high damage, but they are a good indicator that WBC are around and that you should scout fields. It is likely that in most cases you will control WBC with the same sprays you are putting out at tassel for ECB. However, if you have very low ECB pressure (which is the case in some areas) and are not putting out tassel sprays, there is a chance you can get caught with WBC *if* they are in your fields. Scout late whorl/early tassel fields for egg masses on the upper leaf surface near the tassel and spray when ready to hatch.

True armyworm, a sporadic pest, was observed in sweet corn in the north causing damage to tassels.

Cucurbit: Increased incidence of cucumber mosaic virus seen in the north due to unseasonably hot and dry conditions earlier this season.

Solanaceae: Tomatoes are slow to ripen around the region due to high temperatures (see last week's e-alert article). Bacterial diseases, leaf mold, and botrytis seen in tunnel tomatoes (north). Watch for tomato horn worm damage!

Other:

Celery- Celery leaf curl, or Celery Anthracnose, is becoming severe in the Hudson Valley. FRAC 11 QoI fungicides like Cabrio, or premix products like Merivon and Pristine, are effective fungicides. More information on management and resistant varieties is available [here](#).

Virus in Vine Crops

Chuck Bornt, CCE ENYCHP

Since late May we started seeing what appeared to be virus symptoms in early planted green and yellow squash; yellow/green mottled leaves that never really seemed to fully open or what we refer to as strapped or leathery in appearance, fruit with similar yellow green blotches, sometimes raised, sometimes sunken and just off colored fruit. I think the initial infection was driven by the warm dry conditions we experienced back then (yes, it was dry at one time this season!) that favored aphids – yes aphids. Aphids are the primary vector or spreader of several different viruses we see annually, but to varying degrees. Green Peach, Melon and Potato aphids are generally the most common aphids we find in our region and all vector the three most common viruses we tend to see here - Watermelon mosaic virus = WMV, Papaya ringspot virus = PRSV and Cucumber mosaic virus = CMV. Now the virus is showing up in the rest of our cucurbits including pumpkins and many other various fall ornamental vine crops. If your plants were able to size up and set fruit before the infection hit, the impact should be minimal. However, if the infection came early, plants will most likely remain stunted and if fruit does set, will probably be smaller than it should and will be off color.

First and foremost, insecticides will not help control viruses – they will help control aphid populations, but because many of these viruses only take seconds (yes, seconds) to infect a plant, it is nearly impossible for insecticides to work fast enough to stop the aphids before the probe and feed. What we want to do is reduce the populations and try to minimize colonization of our plants by aphids. Again, this will not prevent the virus from spreading, as you will not be able to control every aphid in a field. Add to that the fact that aphids have many wild hosts including a bunch of weeds that are a reservoir for these viruses to survive in. The most common sources for either or both CMV and WMV are the following: Shepherds purse, Virginia pepper weed, field bindweed, dandelion, purple deadnettle, Canadian goldenrod. (see <http://vegetablemdonline.ppath.cornell.edu/Tables/WeedHostTable.html> for a more complete list).

Control: The first thing you need to do is scout and at the first sign of aphids when populations are low, we have had very good success with two applications of Fulfil, seven days apart. If populations are already high, materials such as Assail, Beleaf, and Endigo will work better – but multiple applications will be needed and you should also rotate through the different classes to reduce building tolerance/resistance. Just like in sweet corn, the overuse of pyrethroids can build up the populations of aphids by reducing natural predator populations so keep that in mind as you move forward through the rest of the season.

Organically, M-Pede at 2% v/v (rates are provided as a % volume/volume (v/v) solution). For example, a 2% solution is prepared by adding 2 gallons of M-Pede to 98 gallons of spray water. Pay close attention to your water source as “hard water” or water with a high mineral content (>300 ppm) will reduce the efficacy of M-Pede and do not lower the pH of the final spray mixture below 8.0. M-Pede is compatible with many Bt insecticides, but if you are not sure, a jar test using relative proportions of the tank mix ingredients should be conducted before combining products in the spray tank. Do not tank mix this product with adjuvants such as penetrators, spreader stickers or activators, gibberellic acid, calcium nitrate, or diatomaceous earth, foliar nutrients, alkaline based chelating agents (such as EDTA), chlorothalonil and pesticides containing sulfur or metallic ions (such as manganese, magnesium, iron, zinc, etc.) as they may be physically incompatible and/or phytotoxic. Do not mix M-Pede with sulfur or use within 3 days of a sulfur application.

Protecting Fall Brassicas from Swede Midge Damage

Elisabeth Hodgdon, CCE ENYCHP

In the last few weeks, I've seen more widespread swede midge damage on summer brassicas, and have been hearing concerns from growers regarding their fall brassicas. Swede midge, a small fly, is an invasive pest of brassica crops that was first found in New York nearly 20 years ago. Swede midge has 3-5 generations during the growing season, from May until November. By late summer, populations can build to damaging levels on farms if left unchecked. Midge larvae feed on the growing points of plants, resulting in blind plants and scarring within the growing point, as well as

curled and distorted leaves (Fig. 1). There are no curative measures for swede midge damage in heading brassicas. Once you see damaged growing points, the larvae have left the plant to pupate in the soil before emerging as adults (Fig. 2).

It's not too late to manage swede midge in those last plantings of fall brassicas that you're likely planting now, or have recently transplanted:

- Don't let your summer broccoli bolt and set multiple shoots after harvest. Till under crops so that midges cannot continue to feed and completely their life cycle.
- Avoid exposing new transplants to midge feeding by growing them away from infested fields or covering them with netting until ready to plant. Exercise caution purchasing transplants from producers located in areas of high swede midge pressure.
- Move fall brassica plantings as far away from known infested fields as possible.
- Treat young plants with a systemic insecticide to provide protection while plants are most vulnerable. Continue to treat until heads have formed. Broccoli and cauliflower are most sensitive until heads are approximately 2-3" in diameter. Assail, Admire Pro, Movento, and Warrior II with Zeon Technology are labeled in NY. No OMRI-listed pesticides are effective for this pest.
- For organic growers, covering plantings with netting (25g ProtekNet or similar) immediately after transplanting (onto uninfested ground) is most effective.

For more information on organic management of swede midge, see [this fact sheet](#).



Fig. 1. Broccoli growing points damaged by swede midge larval feeding (top), swollen kale petioles and growing point (bottom left), scarring and lack of sprout formation in Brussels sprouts (bottom right). Photos: E. Hodgdon

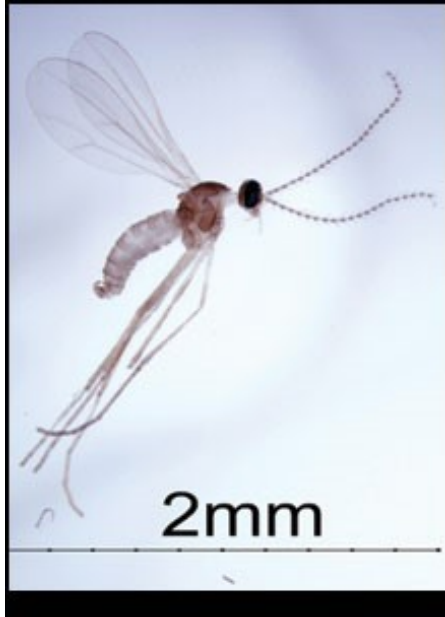


Fig. 2. Adult male swede midge (left). Adults do not feed on plants; larvae (right) cause damage. Photo: S. Ellis, USDA APHIS (left), and H. Fraser, OMAFRA (right), [Swede Midge Information Center for the U.S.](#)

Late Season Lepidopteran Pests in Tomato and Pepper

Teresa Rusinek, CCE ENYCHP

European corn borer (ECB) and Corn Ear Worm (CEW) are not pests we typically associate with solanaceous crops. But later in the growing season, when corn is drying down and less attractive to egg-laying moths, these pests may move into peppers and tomatoes. CEW have a fairly wide host range however, corn and tomato are preferred hosts. When we find CEW in tomato we often call it fruitworm and in cotton crops it's called bollworm. Small fruitworm larvae often enter tomato fruit at the calyx (stem end), they burrow deep into the fruit and cause a wet rot. Larvae are variable in color, making identification tricky sometimes. CEW migrate from the south and do not overwinter in our region. European corn borer (ECB) is often found in peppers especially sweet bell pepper types. ECB typically enter the pepper at the calyx after hatching and after feeding and growing exit through the side wall. Immature fruits that are infested will likely rot and drop off. Those infested closer to maturity may appear healthy and or redden prematurely. ECB do overwinter in our region in crop or weed debris. Armyworms are another late summer "worm" that may move into tomatoes. They feed on both foliage and the surface of fruit. Management must take place early when larvae are small; once larvae become large they are difficult to control. Pay extra attention to scouting when neighboring corn fields are drying down. Keep an eye on our Corn Moth Trap Counts in our weekly newsletters to get a sense if moths are flying in your area. Recommendations from the Midwest follow: If >7 tomato fruitworm (same species as CEW) moths are captured per week in pheromone trap, begin checking fields for sign of damage and consider treatment. Bacillus thuringiensis var. kurstaki is only effective against low populations of small fruitworm and yellowstriped armyworms. Radiant and Entrust SC are also labeled.



Left- ECB larvae in pepper. Photo: University Virginia Cooperative. Extension. Right-Yellow striped armyworm surface feeding on tomato Photo: University Delaware Cooperative Extension



Left- Fruitworm larvae and damage on tomato. Photo- ENYCHP grower.

Right- Fruitworm larvae are variable in color, with pale stripes running lengthwise. Photo- University of California

Slugs and Snails Galore

Crystal Stewart Courtens, CCE ENYCHP

Slugs and snails have maintained high populations through the summer despite the stretch of hot dry weather. We continue to see damage to a variety of crops and slugs and snails can be found on leaves early in the day before dew dries off. Later in the day their trails will remain on leaves and plastic.

There are no scouting thresholds so growers must decide if the damage is cosmetic or reaching an economic threshold. On medium sized plants some slug feeding will not affect yield or quality. Young seedlings can be significantly set back, and of course damage to edible plant parts is a reason to control.

Chemical control: There are two products that are labeled for use on slugs and the same ones are also appropriate for snails. Deadline Bullets are a metaldehyde bait which is both a slug attractant and a poison. There are a lot of vegetables and small fruit on this label, but double check the label to make sure that the crop you want to use this material on is labeled.



Slug eggs on a storage onion.

The rate is 20 - 40 pounds per acre and can be either broadcast or banded between the rows. However, if edible portions of the crop are visible, it can only be banded between the rows (see

label for specific instructions). Evening applications are preferred as that is when the slugs are beginning to feed. This product should not be applied to dry soil, rather apply after irrigation or a rain event. Irrigation should not be applied for 48 hours after banding. You can also apply the bait in a band around the perimeter of the field. Do not exceed 4.5 lbs of AI/A (129 lbs of product/A) per growing season.

An organic product is iron phosphate, Sluggo AG. Spread bait around perimeter of field and then between the rows near the base of plants. If the area is heavily watered, use the highest labeled rate. Reapply as the bait is consumed or at least every 2 weeks. Like the metaldehyde product, the soil must be wet for best activity. This product has been quite effective for organic growers. Slugs and snails lay eggs in early fall, though we are already seeding some egg masses now. Controlling populations in the fall will help reduce numbers next year.

Ozone Injury to Crops in the Hudson Valley

Ethan Grundberg, CCE ENYCHP

Many growers in the region have commented on the poor air quality over the last few weeks, especially when smoke from the wildfires in Oregon settled in New York. Levels of the gas ozone were also elevated in areas closer to New York City over a period of several days in both mid-July and July 26-27. When ozone reaches concentrations of 70-80 ppb continuously for four hours or more, or if the combined Air Quality Index (AQI) exceeds 50 for more than four hours, the risk of ozone damage to plants increases. Risk of ozone injury to crops increases not only with high concentrations of the gas at ground level, but also with higher temperatures, high humidity, and still air.

Elevated ozone levels in the lower atmosphere can impact vegetable crops in a number of ways, but vegetable specialist Teresa Rusinek summarizes the typical symptoms resulting from exposure as “chlorosis (yellowing of leaf tissue due to a lack of chlorophyll); necrosis (death of plant tissue); flecking (tiny light-tan irregular spots less than 1mm diameter), stippling (small dark pigmented areas approximately 2-4 mm diameter), bronzing, and reddening.” These symptoms are most often observed on older leaves of the affected plants. Susceptibility to injury also varies by crop and even cultivar, but crops known to be particularly sensitive to ozone damage include summer squash, cantaloupe, pumpkins, potatoes, snap beans, and radishes.

Unfortunately, there is no cure for ozone injured plants. However, a proper diagnosis can help avoid additional costs of foliar fertilizers and fungicides that may be applied in an effort to correct a perceived nutrient deficiency or fungal disease. For more images of ozone injury on vegetable crops and more information, please see the following resources:

http://www.ozoneinjury.org/crops/index.php?option=com_content&view=category&id=4&Itemid=23

<https://sites.udel.edu/weeklycropupdate/?p=13572>

<http://www.omafra.gov.on.ca/english/crops/facts/01-015.htm>

Note the interveinal chlorosis of one of the older leaves as a result of ozone injury on this radish from Orange County, NY.



Phytophthora capsici – From Standing Water to

Ruined Fruit

Maire Ullrich, CCE ENYCHP

What is it? It's Late Blight's sneaky little cousin.

Like *Phytophthora infestans* (Late Blight), *Phytophthora capsici* is a water mold. The fungi have little tails that help the spores move through water to get their next victim.

Unlike Late Blight, it can attack the roots and crown as well as the fruits of plants. Also, this disease also has a wider range of impacted crops and not only infects solanaceous crops (peppers, eggplant and tomatoes) but cucurbits as well. *Phytophthora capsicii* is the number one reason for losses due to disease in peppers. It can easily cause a total crop loss on peppers and cucurbits.

Symptoms:

- The most notable symptoms is a cottony white mold growth on the fruit or stems. On cucurbits, fungus growth begins where the fruit touches the soil and then moves to engulf the fruit.
- Wilting, from root and crown infections are also common.
- On peppers black stem lesions are common.
- On tomatoes it causes buckeye rot, a concentric circle lesion on the fruit.
- This disease progresses quickly and can turn a seemingly healthy pepper field to looking like it was hit by a flame thrower in a matter of days.

Management:

- The best management practices are sanitation and rotation. Don't bring contaminated soil from infected fields to "clean" fields. Rotate with grain and other non-susceptible crops.
- Separate susceptible crops, if possible, to reduce spread in a field.
- Avoid using surface water for irrigation.
- Select resistant or tolerant varieties when possible if you have it on your farm.
- Manage soil water:
 - Don't over water and be sure irrigation leaks are fixed
 - Avoid soil compaction, reduce hard pans and increase percolation with other techniques such as increasing organic matter and, if necessary, repair any tile drainage.
 - Plant on raised beds
 - Consider using mulch or no-till cover crops to keep soil and the crop separated and reduce soil and water splashing.

What about Fungicides?

Fungicide control of this disease is not promising. Usually by the time it is diagnosed, it is well on its way to causing serious damage. Mefenoxam/mancozeb compounds have been recommended for years and resistance has begun to be evident. Other protectants such as coppers, phosphoric acid or biofungicide formulations may provide some control but, early disease progression applications provide best, if any, chance at efficacy. Additionally, systemic fungicides could be combined with protectant ones to have potential curative effects. For your specific crop recommendations refer to the 2021 Cornell Pest Management Guidelines: <https://cropandpestguides.cce.cornell.edu/>

For more:

<https://www.vegetables.cornell.edu/pest-management/disease-factsheets/phytophthora-blight-and-its-management-in-cucurbit-crops-and-other-vegetables/>



Pepper, pumpkin, cucumber, and tomato with Pcap.

Poetry Corner

Courtesy of the CCE ENYCHP specialists and colleagues

Limericks

There once was an aphid in vine crops
Whose multiplying was seemingly nonstop
Ask the aphid why
"Born pregnant am I"
Biology this crazy will make your head pop.

A small brown moth from down South
Spawned a caterpillar with a voracious mouth
It burrowed its way into tomatoes
And pooped out little potatoes
And that's why you need to pay attention to
heliiothis trap counts

Oh look at my mild onions so sweet
Standing out in the field all pretty and neat
That's a funny joke
As they all now croak
Big candy onions are rot's favorite treat.

There once was a slug from the hedge line
He slimed his way up the tomato vine
After eating his fill
He went back down the hill
Till he hit Sluggo he was feeling quite fine

Haiku

Green, rosy, yellow
Aphids increase in vine crops
Spreading virus, eww.

Slug eggs, so sticky
Growing the next wave of doom
Why on my onions?

Postharvest handling
Is a vigilant struggle
To keep death alive

Upcoming Events

Field Day at Philia Farm

Thursday, August 5 from 4-6 pm

Philia Farm

134 Miller Rd, Johnstown, NY

Cost: FREE

Join Cornell Cooperative Extension's Eastern NY Commercial Horticulture Program for a field day at Philia Farm in Johnstown, NY from 4-6 pm on August 5th. The meeting will showcase a variety of research projects, including:

- High tunnel pea variety trial
- Storage onion trial
- Leek trial
- Biofungicide trial on beets
- Mesotunnel insect netting trial
- Reduced tillage trial for fall vegetable crops

DEC Pesticide Recertification Credits: 2 in category 23

This meeting is now FREE to attend. Please pre-register at <https://enych.cce.cornell.edu/event.php?id=1553> by August 3rd so that we can order refreshments!

Questions: Contact Crystal Stewart-Courtens (518-775-0018).

Cornell 2021 Hemp Field Day

Thursday, August 12, 2021

Cornell AgriTech, Geneva, NY AND Virtually

Cornell's 2021 Hemp Field Day will be offered in-person in Geneva, at the Agri-Tech Station and virtually. Keep an eye on this site for more information and registration coming soon:

<https://hemp.cals.cornell.edu/2021/05/26/upcoming-event-2021-cornell-hemp-field-day/>

Respirator Fit Testing Clinic

Wednesday, August 11, 2021

Appointment scheduling window: July 19 - August 10

CCE Warren County, 377 Schroon River Rd, Warrensburg, NY 12885

Wednesday, August 18, 2021

Appointment scheduling window: July 29 – August 17

Cornell Hudson Valley Lab, 3357 U.S. Hwy 9W, Highland, NY

The New York Center for Agricultural Medicine and Health (NYCAMH) and HealthWorks is pleased to provide respirator fit testing clinics in your region in 2021. During the clinics NYCAMH will provide medical evaluations; respirator fit tests; and WPS compliant trainings on how to properly inspect, put on, take off, fit, seal check, use, clean, maintain, and store respirators.

Clinic appointments are one hour long, and groups of 4 workers can be seen at a time. Medical evaluations, fit tests, and trainings are available in both English and Spanish.

If you are unable to attend the clinic in your area you may schedule an appointment at another clinic location. To schedule an appointment please have the following information available:

- Total number of people attending from your farm
- Name of each person being scheduled
- Language spoken by each attendee
- Make and model of each respirator to be tested

To schedule an appointment please call the NYCAMH office during the date ranges listed above and ask to speak with farm respirator clinic scheduler.

We can be reached at 607-547-7014 #7 or Email fittest@bassett.org Monday-Friday, 8:00 AM-4:30 PM

A respirator fit test ensures that a particular make, model, and size of respirator fits the wearer's face and will meet the wearer's needs. A fit test is specific to the make, model, and size of respirator. If a worker wears more than one style of respirator, including filtering facepieces, they must be fit tested for each one. Please keep in mind while determining who will come to the clinic that a clean-shaven face is a necessity for masks to be effective and for fit testing to be possible. It is important to us that your workers be protected from any respiratory hazards. It is important to us that you be protected from potential OSHA or DEC fines. If you have any questions, please call us.

Corn Trap Counts

County	ECB-E	ECB-Z	FAW	WBC	CEW
Albany	0	0	3	62	0
Clinton 1	5	0	0	178	0
Clinton 2	0	0	2	88	0
Columbia	0	0	22	75	2
Dutchess	3	0	0	20	0
Essex	0	0	1	19	0
Orange	0	0	61	18	0
Rensselaer	0	0	0	0	1
Ulster 1	0	0	0	3	12
Ulster 3	6	0	0	0	0
Washington	0	0	4	67	3

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