

Cornell Cooperative Extension

Eastern NY Commercial Horticulture Program

Vegetable News E-Alert ~ June 30, 2021

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Crop Notes

- **Alliums:** Onion thrips over threshold, less leek moth damage than usual this year (North). Heavy rains and high temperatures increase the risk of bacterial bulb rot infections in onions; consider applying copper fungicides prior to rain events.
- **Brassica:** Damage from first generation of swede midge now visible (North). Crop rotation away from infested fields and netting over fall plantings recommended.
- **Chenopods:** Cercospora found on beet greens (North).
- **Sweet Corn:** Few to no moths found yet in traps (North), but minor ECB feeding observed in plantings, below threshold. See sweet corn trap counts for the region posted in this e-alert.
- **Cucurbit:** No downy mildew observed in Eastern NY Region yet, but keep on guard as it is spreading around in South Jersey and now in Lancaster, PA . Striped cucumber beetle, melon aphid, and two-spotted spider mite outbreaks observed in high tunnels. Squash bug adults and eggs observed in field on summer squash and zucchini. Angular leaf spot (ALS), a bacterial foliar disease, has been found in winter squash plantings in the Hudson Valley. Copper applications should be added to fungicide programs targeting powdery and downy mildew for ALS management.
- **Legumes:** Bacterial blight/spot is showing up on foliage of overhead irrigated beans in Mid-Hudson Valley. Early application of fixed copper compounds such as Champ or Kocide, when disease incidence is low, may reduce the spread of bacterial blights, avoid making pesticide applications or cultivating when leaves are wet. Potato leafhoppers (PLH) continue to cause hopperburn on snap beans. Many pyrethroid insecticides are labeled and effective for quick knockdown of PLH populations.
- **Solanaceae:** Bacterial canker has been noted on foliage of tomato plants. (Mid-Hudson Valley)

Studies at Cornell University have shown that tomato fruit are most likely to become infected when they are small (less than ½ inch in diameter), so it is important to apply copper when the fruit are small.

- Lingering effects of Memorial Day weekend frost on tomato growth observed in North: catfacing/poor fruit set, poor overall plant vigor.
- Colorado potato beetles causing severe defoliation in some southern potato fields. See Dr. Brian Nault's recommendations for CPB management here: https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/c/3798/files/2016/02/work-websites-nault-research-ipm-colorado-potato-beetle-in-potato-COLORADO-POTATO-BEETLE_2016-xscipd.pdf
- **Herbs:** No basil downy mildew found yet in North, but has been seen in mid-Hudson Valley. More information on BDM identification and management is available from Dr. Meg McGrath at <https://www.vegetables.cornell.edu/pest-management/disease-factsheets/basil-downy-mildew/>
- **Other:** Spotted wing drosophila now at sustained catch across the Eastern NY Region. First SWD individual caught in Clinton County this week. Tarnished plant bug/Lygus bugs seen feeding on high tunnel cut flowers.

Basil Downy Mildew in Garden Center Seedlings

Ethan Grundberg, CCE ENYCHP

Basil Downy Mildew (BDM) has been found on basil seedlings in garden centers across the East Coast over the past few weeks; be on the lookout for symptoms developing in the field with the high humidity and rain events forecast for much of the region over the next week. The first symptom of BDM is usually the development of angular yellow patches on the top side of basil leaves, followed shortly by the arrival of purplish gray spores on the leaf underside. After sporulation, the yellow patches turn brown and gray. Select BDM-resistant varieties like Propsera,



Amazel, Obsession DMR, Devotion DMR, Passion DMR, and Thunderstruck DMR for field production. Even resistant varieties can develop BDM symptoms under high pressure and require a targeted fungicide program for best management. Conventional fungicide options include Orondis Ultra (newly labeled for 2021), Revus, Ranman, Presidio, and many phosphoric acid fungicides. Note that Orondis Ultra has explicit resistance management use restrictions on the label and growers must be aware that the premix product contains the same active ingredient found in Revus. Few OMRI-listed fungicides have been effective at suppressing BDM in field trials conducted on Long Island. If you are unable to control BDM on your crop, be sure to disk in the infected plantings as soon as possible to help reduce the inoculation source for other plantings.

More information on BDM identification and management is available from Dr. Meg McGrath at <https://www.vegetables.cornell.edu/pest-management/disease-factsheets/basil-downy-mildew/>

How Copper Sprays Work and Avoiding Phytotoxicity

Teresa Rusinek, CCE ENYCHP

Copper fungicide formulations are often used to manage bacterial and fungal diseases in vegetable crops; here's a quick review of how they work. Copper is usually applied in the "fixed form" which lowers its solubility in water. Fixed coppers include basic copper sulfate (e.g., Cuprofix Ultra Disperss), cuprous oxide (e.g., Nordox), copper hydroxide (e.g., Kocide, Champ), copper oxychloride sulfate (e.g., COCS), and copper ions linked to fatty acids or other organic molecules (e.g., Cueva). The spray solution is a suspension of copper particles; those particles persist on plant surfaces after the spray dries. Copper ions are gradually released from copper deposits each time the plant surface becomes wet, providing residual protection against plant pathogens. The slow release of copper ions from these relatively insoluble copper deposits reduces risks of phytotoxicity (plant injury) to plant tissues. Copper ions kill pathogen cells on plant surfaces by destroying enzymes critical for cell functioning, but once a pathogen enters host tissue, it will no longer be susceptible to copper treatments. Therefore, a copper spray acts as a protectant treatment, but lacks post-infection activity.

Copper products come in different formulations and have different properties, it is important to read all the information on the labels. Besides rates, you will want to know about compatibility with other pesticides, adjuvants, and fertilizers. Some growers are tank mixing biological fungicides and plant activators with coppers, while many are compatible, some are not, so check labels for compatibility or call the manufacturer for technical assistance.

The effectiveness of copper sprays has been correlated with the amount of elemental copper applied. The metallic copper content varies widely by product. Professor Emeritus Tom Zitter, Cornell University, suggests that for vegetable crops "Begin by choosing a copper product with at least 20% or more copper as the active ingredient to insure the greatest release of copper ions".

To avoid phytotoxicity with copper sprays, limit the copper ion concentration on plant surfaces by using copper products that are relatively insoluble in water. Formulations vary in solubility — hydroxides are more soluble than oxychlorides which are more soluble than copper sulphates and cuprous oxide. Less soluble formulations are usually more persistent. Copper can accumulate to high levels on plant tissue when sprayed repeatedly to cover new growth and there is no rain. After a rain event, large amounts of copper ions may be released leading to phytotoxicity. Check the pH of your water source, **a tank solution pH of less than 6.5 increases the solubility of fixed coppers and risk of phytotoxicity**. Most copper products are formulated to be almost insoluble in water at pH 7.0. Copper sprays generally cause more phytotoxicity when applied under slow drying conditions, such as when it's wet and cool. Always read the label and follow copper tank mix label instructions.

For a comprehensive list of Copper Products Used for Vegetable Disease Control see: <http://vegetablemdonline.ppath.cornell.edu/NewsArticles/CopperFungicides2012.pdf> and for specific information on copper fungicides in organic disease management see: <http://vegetablemdonline.ppath.cornell.edu/NewsArticles/Copper-Fungicides-Organic.pdf>

Got Beetles?

Chuck Bornt, CCE ENYCHP

Anyone that takes care of a pool knows that in the last couple of weeks you've probably been fishing out a bunch of brown or brownish silver "bugs". These "bugs" are mostly Oriental beetles, June Bugs and Asiatic garden beetles. These beetles, along with Japanese Beetles are the adults of the "white grub" complex that affects many lawns, but can also affect many different vegetable and small fruit crops. The adults can feed on leaves of plants such as sunflowers, basil, raspberries, carrots, beets and a 100 other different plants. Japanese beetles can also be found in the silks of sweet corn when populations are high. Although that can be a problem, the majority of the damage in vegetables comes from the larvae or "white grub" stage feeding on the roots of several different root crops such as sweet potato, carrots and even Irish potatoes. Their long narrow tunnels can cause many roots to

Post Emergent Weed Control in Pumpkins and Winter Squash

Chuck Bornt, CCE ENYCHP

I've gotten quite a few calls in the last couple days about post emergent weed control in pumpkins and winter squash – as you know, we don't have a whole lot of post-emergent herbicides at our disposal for cucurbits, and those that we do have are more grass herbicides than broadleaf materials. Halosulfuron or Sandea or Profine, is the only post emergent broadleaf material we have and can be quite effective if used properly. If you used either Sandea or Profine pre-emergent even with another pre-emergent, we again would expect to see a few weeds such as Common Lambquarters and Ragweed start to breakthrough our pre-emergent herbicide right about this time of the season. Effective as this material may be, it has a fairly short residual of about 4 weeks, especially when used at the recommended rate (0.5 ounces per acre) for pumpkins and squash. If you used Sandea or Profine post plant/pre-emergent at 0.5 oz. per acre, you can still come back in with another 0.5 oz per acre as a post emergent application. Even if you did not use Sandea pre, do not use more than 0.5 ozs per acre as this will increase the level of injury. This is very effective on young, small actively growing weeds like velvetleaf, yellow nutsedge and ragweed, but not effective on already growing lambsquarter. If lambquarters is not a problem but other weeds such as ragweed and pigweed are, broadcast right over the top as long as your pumpkins/squash have a minimum of 2–5 true leaves and there cannot be any female flowers visible. If there is a lot of lambsquarter visible, you may want to consider cultivating first followed by a post emergent application of Sandea/Profine. You will also need to add a non-ionic surfactant (NIS) to the tank at a rate of 1 to 2 quarts per 100 gallons of spray solution. I will also forewarn you now; do not be surprised if after the application you notice the growing points on your pumpkins and squash turning slightly yellow and not really growing too fast—this is somewhat typical of post emergent halosulfuron applications and plants normally grow out of it within 3-5 days.

DO NOT TANK MIX SANDEA/PROFINE F WITH YOUR POST EMERGERNT GRASS HERBICIDE! There is a lot of information out there to support that mixing halosulfuron with any of the post emergent grass materials causes a synergism and neither will work as expected. Allow at least 4 to 5 days between applications! For post-emergent grass control, you can use Poast 1.5 EC (sethoxdim) and Select Max or Section 2 EC (same active ingredient, clethodim, but are used at different rates and different adjuvants). See Table 1 for more information. Which one you choose will depend on what grasses you have. If perennial grass like quackgrass is your main problem then I would recommend using Select Max or Section (they also work very well on annual grasses). If your grass species are mostly annual, you can use Poast or Poast Plus. Any of these herbicides need to be applied to actively growing grasses – grasses that are under drought or heat stress will result in reduced control. I find that applying these materials a couple days after a rain really improves control. And last but not least, don't expect to see results in two or three days! These grass herbicides take 7–10 days for you to really notice anything dying back. Do not apply to recently cultivated grasses or cultivate a minimum of 10 days after an application. And, the smaller the grass, the better control you will achieve.

Table 1: Grass herbicides labeled for use in cucurbits.				
Product	Labeled crops	Weeds controlled	Rate	Comments
Select Max	All cucurbits	Annual grass Perennial grasses	9-16 ounces per acre 12-16 ounces per acre	Adjuvants: Non-ionic Surfactant (NIS) at 0.25% v/v in the finished spray volume (2 pints per 100 gallons of water). Do not apply more than 16 fluid ounces per application. Do not apply more than 64 fluid ounces per year. Use a minimum of 10 gallons of water per acre with a maximum of 40 gallons per acre. Do not tank mix with broadleaf herbicides or apply a post-emergence broadleaf herbicide within one day following application of or reduced grass control may result.
Section 2EC	All cucurbits	Annual grass Perennial grass	6 ounces per acre 8 ounces per acre	Adjuvants: Crop oil concentrate (COC) at 1% v/v in the finished spray volume (1 gallon per 100 gallons of water). Use a minimum of 10 gallons of water per acre with a maximum of 40 gallons per acre. Do not use more than 8 fluid ounces per application to cucurbits. Do not apply more than 32 fluid ounces per acre per year. Do not tank mix with broadleaf herbicides or apply a post-emergence broadleaf herbicide within one day following application of or reduced grass control may result.
Poast 1.5EC	All cucurbits	Annual grasses perennial grass grass suppression	1.5 pints per acre	Adjuvants: Crop oil Concentrate (COC) at 2 pints per acre. Use a minimum of 10 gallons of water per acre with a maximum of 20 gallons per acre. Do not use more than 3.0 pints per acre per season. Although the label does not specify, I would not tank mix with broadleaf herbicides due to increase injury potential or apply a post-emergence broadleaf herbicide within one day following application of or reduced grass control may result.

Keep an Eye Out for Spider Mites

Elisabeth Hodgdon, CCE ENYCHP

In the past couple of weeks, I've started seeing more two-spotted spider mite problems popping up on farms in my region. Although elsewhere in Eastern NY has been receiving a fair amount of rain, here in the North Country it's been abnormally dry. Dry and hot conditions favor two-spotted spider mites. High tunnels are particularly suitable habitats for these pests. These tiny arachnids feed on the undersides of leaves and cause speckling and discoloration. It's often easier to spot the damage first before noticing the tiny mites themselves. Mite feeding weakens the plants, disfigures marketable plant parts, and reduces yield.

Be sure to scout your high tunnels and field crops for mites weekly using a hand lens. In particular, mite issues in tunnels can quickly become a large problem. An entire tunnel of cukes can be taken down by mites if left unchecked. Many crop species can host these pests, but cucurbits and solanaceous crops are usually the worst-hit vegetable crops, but if conditions are right others can be damaged as well. Strawberries, raspberries, dahlias, and other ornamentals are also prone to damage. Agri-Mek, Acramite, Portal, Zeal, Gladiator, and Endigo are among the several conventional spray options. Organic growers can opt to use M-Pede, azadirachtin/neem, or a horticultural oil. For tunnel crops, you must choose a product specifically labeled for greenhouse use. Be sure to get good coverage of leaf undersides where mites are located, particularly if using a product without translaminar activity, including the organic products mentioned. Additionally, predatory mites can work very well when released early—contact your biocontrol supplier for amounts, timing, and other information.



Fig. 1: Two-spotted spider mites feeding on underside of cucumber leaf. Photo: E. Hodgdon



Fig. 2: Unmarketable high tunnel cucumber with speckling due to mite feeding. Photo: A. Galimberti

Eastern NY Next-Gen Veg 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 nf257@cornell.edu to sign up to receive information about the new Eastern NY Next-Gen Veg Grower Group.

- We will be holding informational meetings at production field days this summer where you can learn more about this program and meet other Next-Gen farmers, please contact Natasha Field at nf257@cornell.edu if you plan on attending any of these meetings.
- **Berry Production Twilight Meeting July 8th** at Rulf's Orchard Peru, NY
<https://enych.cce.cornell.edu/event.php?id=1549>
- **Weed ID and Management meetings July 13 - July 14, 2021 Goshen; Fuerea Bush, NY**
<https://enych.cce.cornell.edu/event.php?id=1554>
- 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.

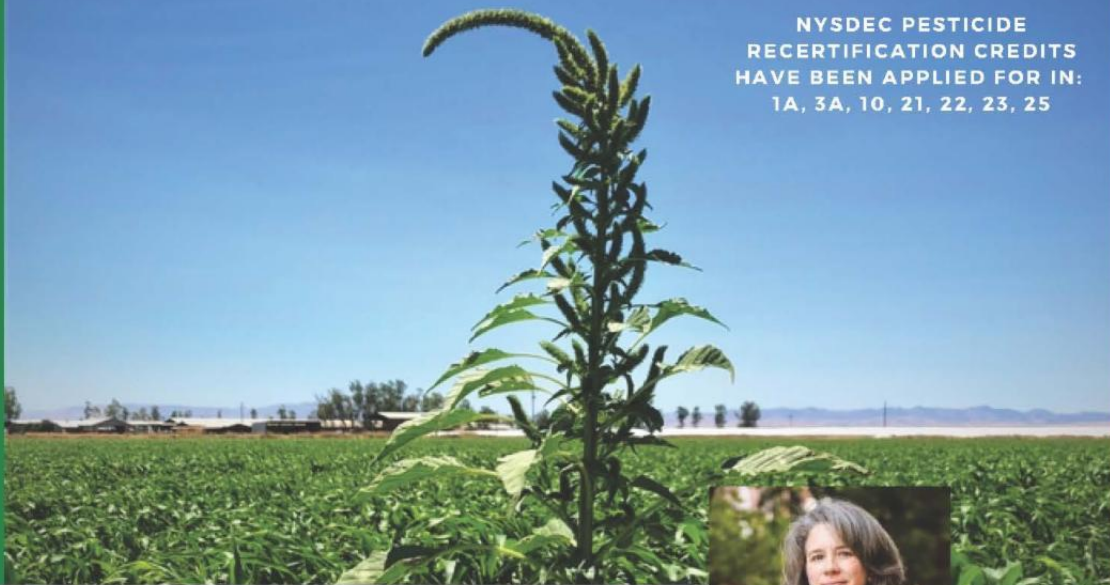
This project is supported by USDA/NIFA under award number 2018-70027-28588

Veg Farmers! How has the overtime at 60 hours regulation affected your farm? How would you adjust to overtime at 50 or 40 hours?

These are questions that Cornell University has been asked by NYS Ag and Markets to figure out this summer in anticipation of likely hearings by the NYS Farm Labor Wage Board this fall on this issue. I think that vegetable farms are particularly affected by this law because of your high reliance on seasonal labor. I am looking for vegetable farmers in NYS who are willing to complete an in-person survey and share data on their cost of overtime to help with this study. All data will be confidential and not attributable back to any farm. I will be interviewing farms in July and August.

If you are willing to help, please contact Elizabeth Higgins at emh56@cornell.edu or you can call or text me at (518) 949-3722. Your assistance on this project would be appreciated and would be helpful to the industry.

NYSDEC PESTICIDE
RECERTIFICATION CREDITS
HAVE BEEN APPLIED FOR IN:
1A, 3A, 10, 21, 22, 23, 25



PALMER AMARANTH & OTHER WEEDS TO WATCH

FIELD MEETING WITH
DR. LYNN SOSNOSKIE, CORNELL WEED ECOLOGIST



Two Dates & Locations

TUESDAY, JULY 13, 2021
6:00PM - 7:30PM
Wagon Wheel Farm
363 Sarah Wells Trail
Goshen, NY 10924

WEDNESDAY, JULY 14, 2021
10:30AM-12:00 noon
Stanton's Feura Farm
210 Onesquethaw Creek Rd.
Fuerea Bush, NY 12067

Fees:

\$15/Farm before 7/9.
\$25/Farm after & at the door.
Cash or check only at the door.
Credit card only for on-line
pre registration.

Registration Link:

[HTTP://WEBLINK.DONORPERFECT.COM](http://weblink.donorperfect.com/weedstowatch2021)
[/WEEDSTOWATCH2021](http://weblink.donorperfect.com/weedstowatch2021)

*on meeting date, all in-effect NYSDOH COVID safety protocols will be followed

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Onboarding Seasonal Workers - Using Google Classroom for Training New Farm Employees

Elizabeth Higgins, CCE ENYCHP

Does your farm use training videos for onboarding or trainings such as sexual harassment prevention and safety? Do you have good records documenting attendance at trainings? A problem many farmers face is keeping all their hiring paperwork, training materials and videos and training documentation organized so they are easily accessed when needed. Google Classroom is a possible solution. Some farms are using Google Classroom to post links to all of the training resources that they use to

onboard new employees. This may include video links, standard operating procedures, maps, and other documents that are important for employees to view.

Google Classroom is a free learning tool available to anyone. All you need is a Google account. <https://www.google.com/>. Google Classroom is one of the apps available within Google. Within Google Classroom you can post links to videos, pictures, standard operating procedures, and any other important materials, which allows you to keep all of your critical materials only a click away. It organizes materials including documents, PowerPoints, videos, and allows the student to take quizzes and ask questions, among other features.

If you are looking for a jumpstart on creating your own Google Classroom, email Elizabeth Higgins (emh56@cornell.edu), to request a copy of a pre-filled, bilingual classroom that is organized with key resources and links for onboarding farm employees. It is packed with links to required new employee paperwork, safety training videos, sexual harassment prevention training resources including recommended training videos, and quizzes, as well as prompts for where to include information specific to your farm.

There is a video on using Google Classroom from a webinar given last February. You can find it here <https://bit.ly/3AedLBk>, and we are developing a guidebook for using it that will be available in early July.

This material is based on work supported by USDA/NIFA under award 2018-70027-28588.

Hemp Trainings

July 6 - July 7, 2021 (6pm - 7:15pm)

Join us for two evenings on ZOOM, as experts from Cornell University and NYS Ag and Markets present and discuss the current opportunities and issues surrounding hemp grain and fiber production in New York State.

Tuesday, July 6 - Variety research, planting and harvesting methods, insects, weeds, and diseases.
Wednesday, July 7 - Processing and processors, hemp production economics, and the latest regulatory and policy updates from the New York State Dept. of Ag and Markets.

Free registration, must register for ZOOM link:

https://cnydfc.cce.cornell.edu/event_preregistration_new.php?id=1617

Corn Trap Counts

County	ECB E	ECB Z	FAW	WBC	CEW
Albany	0	0	0	0	1
Clinton 1	0	0	0	0	0
Clinton 2	0	0	0	0	0
Columbia	0	0	0	0	16
Dutchess	0	0	N/A	N/A	1
Essex	0	0	0	0	0
Orange	1	2	N/A	N/A	2
Ulster 1	0	0	N/A	N/A	4
Ulster 2	0	2	0	0	0
Ulster 3	0	0	N/A	0	0
Washington	0	0	0	0	0

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