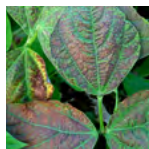




VEGEEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 20 • Issue 12 • June 20, 2024



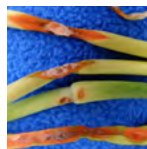
New Spots on Vegetable Leaves Could be Ozone

PAGE 1



Releasing Natural Enemies for Pest Management on Urban Farms

PAGE 2



CROP Insights – Observations from the Field and Research-Based Recommendations

PAGE 3



Upcoming Events

PAGE 4

New Spots on Vegetable Leaves Could be Ozone

Robert Hadad, Cornell Cooperative Extension, Cornell Vegetable Program

On Monday, 6/17, the beginning of a prolonged heat wave moved across NY. The Weather Service put out an alert for ground-level ozone accumulation. During the day, plant leaves have their stomates open and the ozone can enter plant tissue. High ozone concentrations can cause leaf damage but unlike disease symptoms which appear over time, ozone damage can show up quite quickly. Since plants would be exposed all over, spots or between leaf vein chlorosis will appear and cover much of the plant foliage. If the plants were stressed beforehand due to lack of soil moisture, the stomates might have been closed and this might limit the amount of damage that otherwise could occur.

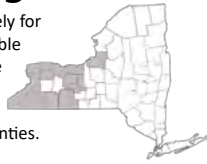
To reduce further injury to the plants, reduce stress as much as possible. Irrigate if the soil moisture is low providing consistent waterings over the course of several days rather than saturating the soil with one big application. Limit foliar applications of pesticides or other sprays until the weather moderates and plants perk up.



Top: Tiny whitish to yellow spotting advancing to tannish brown as the ozone damaged tissue dies off. Bottom: Damaged leaf tissue in between the veins showing chlorosis. Photos: Margaret McGrath, CCE ●

About VegEdge

VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension partnership between Cornell University and CCE Associations in 14 counties.



The newsletter is a service to our enrollees and is intended for educational purposes, strengthening the relationship between our enrollees, the Cornell Vegetable Program team, and Cornell University.

We're interested in your comments. Contact us at: CCE Cornell Vegetable Program 480 North Main Street, Canandaigua, NY 14224 Email: cce-cvp@cornell.edu Web address: cvp.cce.cornell.edu

Contributing Writers

Elizabeth Buck
Robert Hadad
Christy Hoeping
Margie Lund
Julie Kikkert
Judson Reid

Publishing Specialist/Distribution/Sponsors

Angela Ochterski

VegEdge is published 25 times per year, parallel to the production schedule of Western New York growers. Enrollees in the Cornell Vegetable Program receive a complimentary electronic subscription to the newsletter. Print copies are available for an additional fee. You must be enrolled in the Cornell Vegetable Program to subscribe to the newsletter. For information about enrolling in our program, visit cvp.cce.cornell.edu. Cornell Cooperative Extension staff, Cornell faculty, and other states' Extension personnel may request to receive a complimentary electronic subscription to VegEdge by emailing Angela Ochterski at aep63@cornell.edu. Total readership varies but averages 700 readers.

Information provided is general and educational in nature. Employees and staff of the Cornell Vegetable Program, Cornell Cooperative Extension, and Cornell University do not endorse or recommend any specific product or service.

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are possible. Some materials may no longer be available and some uses may no longer be legal. All pesticides distributed, sold or applied in NYS must be registered with the NYS Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide usage in NYS should be directed to the appropriate Cornell Cooperative Extension (CCE) specialist or your regional DEC office.

CCE and its employees assume no liability for the effectiveness or results of any chemicals for pesticide usage. No endorsement of products or companies is made or implied. READ THE LABEL BEFORE APPLYING ANY PESTICIDE.

.....
Help us serve you better by telling us what you think. Email us at cce-cvp@cornell.edu or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.



Contents

New Spots on Vegetable Leaves Could be Ozone 1
Releasing Natural Enemies for Pest Management on Urban Farms 2
CROP Insights..... 3
Upcoming Events 4
 Beans for Lunch Webinar Series..... 4
 Tree Fruit and Small Fruit Twilight Meeting 4
 Cornell / USDA Potato Field Day..... 4
 Vegetable Pest & Cultural Management Field Meetings for Auction Growers 4
Contact Us..... 6

The next issue of VegEdge newsletter will be produced on June 26, 2024.

Releasing Natural Enemies for Pest Management on Urban Farms

Lori Koenick and Judson Reid, CCE Cornell Vegetable Program, and Sam Anderson, CCE Harvest NY

Mimicking the natural world can be an effective approach in sustainable pest management. We can use the good bugs to manage the bad bugs! Many insect and mite pests have natural enemies that can be purchased and released on the farm to help reduce pest populations. The trick is knowing what the right natural enemy is to release at the right time and in the right place. In our experience, this approach works best in enclosed systems, such as greenhouses, high tunnels, and under row cover, to help prevent the natural enemy from dispersing.

Cornell Cooperative Extension has engaged in a multi-year research project exploring sustainable pest management approaches on urban farms. Here we share best practices based on our experiences releasing natural enemies for pest management on urban farms in New York.

There are a few different categories of natural enemies (adapted from Cornell [biocontrol resources](#)):

- **Predators** – These types of enemies directly kill and eat the pest. (ex. Lady-beetles, Minute Pirate Bugs).
- **Parasitoids (parasites)** – These types of enemies have an immature life stage (eggs or larvae) that develops on or within an insect host, ultimately killing the host. Adult parasitoids are free-living and may be predaceous. Often the host/parasite relationship is very specific (ex. Parasitoid wasp *Aphidius colemani* specializes in parasitizing aphids).
- **Pathogens** – These types of enemies are disease-causing microbes (bacteria, fungi, virus, nematode) that infect their host. Commercially available formulations of pathogens are frequently referred to as biopesticides.

Specialists or Generalists

Natural enemies can be specialists or generalists. Specialists attack a narrower range of pests than generalists and depend on a specific food source (typically the target pest) to survive. Generalists are usually able to survive in the absence of the target pest having a broader diet that can include other insects and other substances such as pollen.

continued on page 5

CROP Insights



Observations from the Field and Research-Based Recommendations

GENERAL

From Cornell weed scientist, Lynn Sosnoskie – Just a reminder that herbicide performance, as well as crop safety, can be affected by temperature. The optimal air temperature for applying most post-emergence herbicides is between 65°F and 85°F. When the air temperature drops lower, plant growth, including that of weeds, slows down. This reduced growth leads to slower uptake and translocation of herbicides (i.e., slower symptom development/herbicide activity). At higher temperatures, weeds may be stressed, which can also reduce herbicide activity. Crop injury may be enhanced under hot weather conditions (injury may be exacerbated by adjuvant selection). Also, over 85°F, some herbicide may be more volatile and off-target movement (and unintended injury) may occur.

BEETS

Cultivation and weed management are important tasks during June. Black cutworms remain a concern for any newly emerging seedlings. Cercospora leaf spot usually does not appear in field grown beets until mid-July, hence fungicide applications should not be needed at this time. Bacterial black spot may occur early in the season under cool, moist conditions and plants will outgrow the disease with warm, dry weather. If you have any questions about identification of “spots” on beet leaves, reach out to one of us. – JK

CARROTS

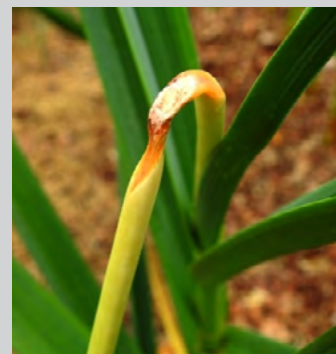
Weeds and leafhopper management remain important now. – JK

CUCUMBERS

Heat stress and excessive water have stressed out many cucumber plantings. Even light weed competition seem to be slowing growth and performance. Do what you can after the heat wave subsides. Remove weeds. Let the air dry out the soil if still wet or irrigate if the soil is too dry. Maybe add some extra N in the drip water for a boost. In their present condition, insects become more attracted to the plants and will really set them back. – RH

GARLIC

With scapes all over the place, be on the lookout for garlic anthracnose. The symptoms pop up as a weird twisting of the scape with first a yellowing then orange discoloration/fuzz. The scape then rots at that point and drops off. The disease can move down the stalk into the stem and eventually could end up in the bulb (severe cases). If seeing the twisted stalk and orange, cut off the scape well below that point and remove from the field. – RH



Garlic anthracnose. Photo: M. McGrath, CCE

PEAS

Harvest of the processing crop began this week. Daytime temperatures above 78 F at flowering and pod fill can significantly decrease yields. Additionally, hot temperatures near harvest will mature the peas quickly resulting in a shortened harvest window. Any peas that were planted into compacted soils will have smaller root systems to support top growth. Root rot can also limit plant growth. These areas will show up as yellow patches in fields. For later planted peas, weed scouting and management is critical until the crop begins flowering. The best chance for control is when weeds are small. Basagran and Thistrol don't have any soil residual, so the best time to spray is when the majority of weeds have emerged. Ideally, the first flush of weeds would have one or two leaves and the next flush would be in the cotyledon stage. Keep in mind that rain will stimulate new flushes of weeds. If you have nightshades, pigweed or mustard in your field, a better choice may be Beyond Xtra (formerly Raptor) or Pursuit. Basagran will only control hairy nightshade, whereas Beyond Xtra and Pursuit will control both hairy and eastern black nightshade. Poast, Assure II/Targa and Select Max all provide good to excellent control of the most prevalent annual grasses in NY. – JK

POTATOES

Colorado potato beetle larvae and adults are active in potato fields. Low numbers of potato leaf hoppers are also showing up in some potatoes. Seed treatments or insecticides sprayed at planting should provide early control, but populations should be monitored. – ML

SNAP BEANS

Rain showers stimulate weed seed germination. Make sure to scout fields and manage weed escapes when they are tiny. Snap beans are sensitive to herbicides which may cause stunting or poor growth. Leaves may be spotted, yellow or curly. Potential causes are carry-over herbicides from previous crops, unusual weather during the current year affecting pre-emergence herbicides, from post-emergent products used on the current crop or from field drift. These situations can be difficult to diagnose. – JK

Upcoming Events – See [Cornell Vegetable Program events at CVP.CCE.CORNELL.EDU/EVENTS.PHP](https://CVP.CCE.CORNELL.EDU/EVENTS.PHP)

Beans for Lunch Webinar Series

Are you growing dry beans this year? Have questions? Join Cornell University and University of Vermont for a two-part summer webinar series. We will discuss the top pests of dry bean to watch for and troubleshoot in-season challenges with your fellow farmers, service providers, and Extension personnel. These webinars are intended to be informal and interactive. Both certified organic and conventional methods will be discussed.

Managing Dry Bean Insect Pests in the Field | June 21, 2024 (Friday) | Noon to 1:00 pm

Hear from Clark Moore, CCA of Western NY Crop Management Association about common dry bean pests to look out for, scouting techniques, and management options.

Managing Dry Bean Diseases in the Field | July 19, 2024 (Friday) | Noon to 1:00 pm

Learn from Dr. Sarah Pethybridge of Cornell AgriTech about common dry bean diseases to look out for, how to distinguish them from each other, and your options for management.

FREE event, but you must pre-register at <https://go.uvm.edu/beansforlunchwebinar> before the webinar date to receive the confirmation email with the webinar link to access it.

Tree Fruit and Small Fruit Twilight Meeting

June 27, 2024 (Thursday) | 6:30 pm - 8:30 pm

Lakeview Apple Orchards, 2336 Barnes Rd, Penn Yan, NY

Join CCE Specialists for a conversation about tree fruit and berry phenology, pest management, food safety and water quality. Attendees are encouraged to bring pictures or descriptions of pests they are concerned about on their farm. 1.5 DEC credits will be offered in categories 1a, 10, and 22. This event is free to attend, and no pre-registration is required. Pizza and refreshments provided by Valent. Questions? Please contact aco56@cornell.edu

Cornell / USDA Potato Field Day

July 1, 2024 (Monday) | 9:30 am - 4:00 pm

Thompson Vegetable Research Farm, 133 Fall Creek Rd, Freeville, NY 13068

9:30 AM Registration

10:00 Brian Nault: **Identifying potato pest management programs without inclusion of neonicotinoids**

Laura Martinez: **Combining biological and behavioral control for Colorado potato beetle management using synthetic pheromones**

Walter De Jong: **The National Chip Processing Trial / Northeast Regional Potato Yield Trial**

Zach Hansen: **Update on Status of Late blight / Searching for Fields to Sample for Colletotrichum and Verticillium**

Michelle Heck and Stephanie Preising: **Potato Defenders: Harnessing transgenic plants to shield potatoes from aphids and aphid-borne viruses**

Bryan Swingle: **Soft Rot Resistance / Developing Tools to Detect Soft Rot Pathogens and Zebra Chip**

12:30 Lunch at the Thompson Vegetable Research Lab in Freeville

1:30 Travel to potato breeding plots on Mount Pleasant, where Walter De Jong and Pia Sychalla will describe the breeding process

3:00 Travel to Cornell campus, where Xiaohong Wang will provide a tour of the Golden Nematode Quarantine Facility

~4:00 PM Program ends

For more info, contact Margie Lund, 607-377-9109, mel296@cornell.edu. Sponsored by the Empire State Potato Growers.

Vegetable Pest and Cultural Management Field Meetings for Auction Growers

These courses will demonstrate pest management in fresh market vegetables in both field and greenhouse (high tunnel) vegetables; primarily for those growing for wholesale auction. A hands-on demonstration of weed, insect and disease identification in vegetables including management options such as inter-row cover crops, grafting and where appropriate, spray options will be used to educate growers. Details on each topic will focus on field observations at these farms. All meetings begin at 7:00 pm and last approximately 2 hours.

YATES - July 12, 2024 (Friday) | Mahlon Hoover Jr.'s farm, 3878 NY-14, Himrod, NY 14842

ONTARIO - July 16, 2024 (Tuesday) | Daniel Nolt's farm, 3725 State Highway 245, Stanley, NY 14561

SENECA - July 24, 2024 (Wednesday) | Levi Esh's farm, 2033 Yerkes, Romulus, NY 14541

Use as a Short-Term or Long-term Pest Management Approach

Natural enemies can be used as a short-term or long-term approach depending on the species and environmental conditions. Releasing multiple types of natural enemies can give us both quick pest reduction, and long-term management potential. For example, in an urban greenhouse growing mixed vegetables, we noticed aphid numbers building early in the summer season. Lacewing larvae (*Chrysoperla rufilabris*) were released twice early in the season to be **used as a quick knockdown of the aphid population**. Afterwards, aphid predatory midge (*Aphidoletes aphidimyza*) was released weekly over a period of six weeks as a **more sustained biocontrol approach** throughout the season, as they reproduce and maintain population throughout the season.

Steps to Success Using Natural Enemies

Releasing natural enemies works best when used as a preventative approach when pest populations are low. We recommend **releasing early** in the season, **using multiple and consistent releases** throughout the season, and **using in combination with multiple strategies** such good cultural control practices.

When releasing natural enemies, it's best to follow these steps:

1. **Scout often** – Check your crops regularly for any pest, disease, and cultural problems.
2. **Correct pest identification** – It is critical to know the specific pest species and stage of life cycle when making management decisions. For some natural enemies and their target pests, you need to match up their life cycles.
3. **Do your research!** Natural enemies are alive – most have a short shelf life and require specific storage conditions. Learn the environmental conditions (temperature, humidity) for your natural enemy to thrive. Many pesticides (including spray residue) can harm and kill natural enemies. Biocontrol providers are an excellent resource of this information.
4. **Release the natural enemy. Things to consider:**
 - **Timing** – Should you avoid direct sunlight? Does it need to be done at night?
 - **Environmental conditions** – What are needed? For example, when releasing entomopathogenic nematodes in the soil, should you water the soil beforehand?
 - **Placement** – Should you release the natural enemy right next to the pest or put it in a more central location? Should you sprinkle it right on the leaves or place the container on the ground? How the natural enemies are packaged can influence placement. Again, biocontrol providers can be a great resource for this information.
5. **Monitor progress** – Check to see how long the natural enemy is active and know what success should look like with the specific natural enemy used (e.g., mummified aphids, reduction in pest numbers, etc.). When monitoring, note if pest pressure and damage are less. Consider if you need to do another release or incorporate another pest management tactic.

Interested in learning more?

Contact project team members Sam Anderson (swa39@cornell.edu)
Lori Koenick (lbk75@cornell.edu), Judson Reid (jer11@cornell.edu).

This work is funded by a NESARE Research and Education Grant "Sustainable Pest Management for New York Urban Farmers." ●

VEGEdge SPONSORS



Mitchell Young, 603-393-3448
James Young, 269-945-7799
www.takii.com



Vegetable Seeds for Professionals
315-789-4155
www.bejoseeds.com



www.cecrocker.com
Stafford, NY (585) 345-4141
Pavilion, NY (585) 584-3036



Pest control products for fruit,
vegetable and field crops.
Jared Seitz, 717-817-3912



Elba muck 716-474-0500 | Albion 585-409-7540
Knowlesville 585-798-3350 | Batavia 716-253-0259
Growmark FS - Filling Your Crop Needs



Call 800-544-7938 for sales or
visit www.harrisseed.com
A Grower Friendly Company



People...Products...Knowledge...

Medina, NY...(585) 798-6215
Geneva, NY...(315) 789-4450
Genoa, NY...(315) 497-2713



Greg Curcio
(585) 303-4691
gcurcio@seedway.com



Sara Christ, 585.794.8937
Jason Detzel, 845.707.5631
www.stokeseeds.com

Cornell Cooperative Extension Cornell Vegetable Program

480 North Main Street
Canandaigua, NY 14424

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

VegEdge is the highly regarded newsletter produced by the Cornell Vegetable Program. It provides readers with information on upcoming meetings, pesticide updates, pest management strategies, cultural practices, marketing ideas, and research results from Cornell University and Cornell Cooperative Extension. VegEdge is produced every few weeks, with frequency increasing leading up to and during the growing season.

Contact Us

VEGETABLE SPECIALISTS

Elizabeth Buck | 585-406-3419 cell | emb273@cornell.edu
fresh market vegetables, weed management, soil health

Robert Hadad | 585-739-4065 cell | rgh26@cornell.edu
farm food safety, organic, business & marketing, fresh market vegetables

Christy Hoepting | 585-721-6953 cell | cah59@cornell.edu
onions, cabbage, broccoli, garlic, pesticide management

Julie Kikkert, Team Leader | 585-313-8160 cell | jrk2@cornell.edu
processing crops (table beets, carrots, peas, snap beans, sweet corn)

Margie Lund | 607-377-9109 cell | mel296@cornell.edu
potatoes, dry beans, post-harvest handling and storage

Judson Reid | 585-313-8912 cell | jer11@cornell.edu
greenhouses/high tunnels, small farming operations, fresh market vegs

PROGRAM ASSISTANTS & SUPPORT

Lori Koenick | lbk75@cornell.edu

Sarah Mertson | slm369@cornell.edu

Angela Ochterski | aep63@cornell.edu

Destiney Schultz | ds2422@cornell.edu

ADMINISTRATION

Peter Landre | ptl2@cornell.edu

Steve Reiners | sr43@cornell.edu

Cornell Cooperative Extension Cornell Vegetable Program

For more information about our program, email cce-cvp@cornell.edu or visit CVP.CCE.CORNELL.EDU



Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EEO, Protected Veterans, and Individuals with Disabilities and provides equal program and employment opportunities.