



VEGEEdge

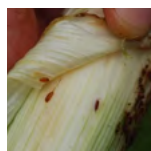
YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 20 • Issue 13 • June 26, 2024



Everything You Need to Know About Buffering and Conditioning Adjuvants

PAGE 1



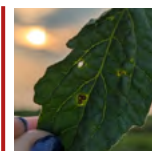
Garlic Issues in 2024

PAGE 4



Abnormal Onion Development from the Wide Temperature Swing in April 2023, Resembling Herbicide Injury

PAGE 5



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

PAGE 6

Everything You Need to Know About Buffering and Conditioning Adjuvants

Christophe Duplais, Department of Entomology, Cornell AgriTech

There are many adjuvants available that are suggested to be combined with pesticides, but not enough information about their role and efficacy. This article focuses on adjuvants that control water pH and water hardness to make sure pesticides perform at their best. **The bottom line is the quality of the spray water is just as important as the pesticide itself.**

Spray water quality is very important in pesticide applications. *Remember that spray water quality concerns pH, hardness, and alkalinity, and is different from the microbial concerns we test for in water quality for food safety.* This article deals with water quality only in terms of its impact on pesticide efficacy.

General Information of Water pH and Hardness

- pH measures the acidity of water, from acidic to alkaline

0 < pH < 6
Acid

pH = 7
Neutral

7 < pH < 14
Alkaline

- Hardness measures the concentration of dissolved minerals (calcium and magnesium) in water in grains per gallon (gpg) or in part per million (ppm), equivalent to mg/L. These minerals come from calcium carbonate and magnesium carbonate.

0-3 gpg
0-60 ppm
Soft to slightly hard

3.5-7 gpg
60-120 ppm
Moderately hard

7-25 gpg
120-425 ppm
Hard to very hard

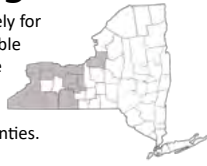


Examples of different pH strips and hardness strips. pH ranges from 0-14 and 4.5-10, hardness range 0-425 ppm. Price is about \$10 for 100-150 strips. Photo: Christophe Duplais, Cornell

continued on [page 3](#)

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

Everything You Need to Know About Buffering and Conditioning Adjuvants 1
Sweet Corn Pheromone Trap Network Report 2
Garlic Issues in 2024 4
Abnormal Onion Development from the Wide Temperature Swing..... 5
CROP Insights..... 6
Upcoming Events 10
Cornell / USDA Potato Field Day..... 10
Chautauqua Produce Auction Vegetable Growers Meeting..... 10
Veg Pest and Cultural Management Field Meetings for Auction Growers 10
Beans for Lunch Webinar – Managing Dry Bean Diseases in the Field 10
Eden-Chautauqua Vegetable Meeting..... 11
Tree Fruit and Small Fruit Twilight Meeting 11
Bejo Open Days 2024 11
Contact Us..... 12

Due to the holiday next week, the next issue of VegEdge newsletter will be produced on July 10, 2024.

Sweet Corn Pheromone Trap Network Report

Marion Zuefle, NYS IPM, 6/25/24

Statewide, 25 of the 35 sites reporting this week (see [trap catch table](#)). European corn borer (ECB)-E was trapped at 5 sites and ECB-Z was trapped at 10 sites. Corn earworm (CEW) was trapped at 17 sites, with 15 sites high enough to be on a 4, 5 or 6-day spray schedule (see [chart](#)). Fall armyworm (FAW) was caught at 1 site and Western bean cutworm (WBC) was caught at 4 sites this week.

Today, while scouting a field, I observed damaged tassels where ECB had already bored into the stems. Additionally, I found tassels within the whorl containing hidden ECB larvae. Timing spray applications is crucial to effectively target the larvae after they leave the tassel but before they bore into the plant.

Larvae feeding in the whorl are protected from insecticide applications and mortality will not be as high as at tassel emergence, when larvae feeding in the emerging tassel are exposed to the spray. Larvae will leave the tassel as it opens up and no longer provides a moist, protected feeding environment, and move down the plant looking for protected places to feed. Insecticide applications need to be timed to kill larvae before they bore into a new feeding location where again they will be protected from sprays. In fields with very uneven development, two applications may be necessary, one when approximately 25-50% of the tassels have emerged, and again after 75-100% of the tassels have emerged, if the field is still over threshold.



Timing too early. Photo: NYS IPM



Well timed. Photo: NYS IPM



Tassel too late. Photo: NYS IPM

continued from page 1

- The alkalinity test measures the carbonate part in calcium carbonate and magnesium carbonate, while the hardness test measures the mineral part (calcium and magnesium).
- Measuring water pH and hardness is more informative than alkalinity alone
- Water pH and hardness vary depending on the time of year and location in New York State.
- Hard water neutralizes acids, preventing pH from dropping (becoming acidic).

Water pH and Hardness Impact Pesticide Efficacy

- Water pH affects the stability of most pesticides.
- Pesticides work best within a specific pH range between 4 (acid) and 7 (neutral).
- When water is alkaline (pH > 8), pesticide active ingredients are less stable and may degrade.
- Dissolved minerals (calcium, magnesium) can bind to active ingredients, reducing their efficacy and causing precipitation (clogging spray nozzles).

How buffering and conditioning adjuvants work?

Buffering adjuvants are used to adjust and stabilize the pH of the spray solution to the optimal pH range of 4 to 7 (see below for examples).

Water softening with conditioning agents removes calcium and magnesium by binding strongly to the minerals, preventing them from binding to the active ingredients (see below for examples).



Easy, inexpensive testing of water pH and hardness using strips. Example of readings from sink water at Cornell AgriTech. The pH is between 7 and 7.5 with multicolor strips and between 6 and 7 with paper roll. Multicolored pH strips are more accurate than pH rolls. Water hardness is 7 gpg (120 ppm). Conclusion: This water needs to be treated by buffering and conditioning adjuvants. Photo: Christophe Duplais, Cornell

Best Practices for Using Buffering and Conditioning Adjuvants

1. Test your water regularly

This should be carried out regularly, at least every month during the growing season, or before every spray if possible.

pH Testing:

- Use test strips to measure the pH of spray water. pH strips with a multiple color indicator and a different pH range, or pH paper rolls, which are available online (Amazon) (see photo). In general, pH strips are more accurate than paper rolls.
- If you are in doubt about the results because the reading is between 7 and 8, add a buffering adjuvant to ensure that your pH is below 7.

Hardness Testing:

- Test strips for water hardness are also widely available and easy to use. If your water is > 7.5 gpg or 120 ppm, the water tank should be treated with a water softener.

2. Choose the right buffering and conditioning adjuvants

Carefully read and follow the instructions on the adjuvant labels. It is essential to use the right quantity to obtain the desired adjustments.

3. Order of mixing

Always add the buffering and conditioning adjuvants to your tank water first, before adding the pesticides. This ensures that the water is buffered and conditioned before the active ingredients are added to the tank.

Examples of Buffering Adjuvants

There are many products available for only buffering the pH of water, or with multiple functions.

Products for pH buffering only:

- Buffer P.S. (Helena)
- Buffer Xtra Strength (Helena)

Buffering adjuvants with multiple functions:

- Li 700 (Loveland Products) is a pH buffering and a spreader/penetrant and drift control agent.
- Indicate 5[®] (Brandt) contains a pH indicator, turning the spray tank water pink when pH value of 4.5-5.5 is reached. It is also a spreader/penetrant.

continued on page 4

Examples of Conditioning Adjuvants

There are very few conditioning adjuvants available. It is best to choose a product containing citric acid (acid in lemon juice), a good mineral binder whose acidity also lowers the pH. EDTA is an excellent water softener, but it is a persistent substance in the environment that reduces the bioavailability of metals (iron, copper, etc.) essential to soil health and its use should be limited.

Products for buffering and conditioning:

- pH Adjust (Brandt)
- Crimson® NG (Winfield United)

Products with multiple functions:

- Weather Gard™ Complete (Loveland Products) is a deposition aid, drift control agent, penetrant (spreader), antifoam, and water buffering and conditioning agents
- FS AMS MAX DR TM (Insight FS) is water conditioner/AMS, drift reduction, surfactant.

Note: Ammonium sulfate (AMS) is a common fertilizer. It is a mineral acid that lowers the pH of spray water. It also dissolves calcium carbonate. Ammonium sulfate can be considered as a buffering and conditioning agent.

Examples of OMRI Listed Adjuvants for Both Buffering and Conditioning

- pH Down (SafeGro Laboratories)
- MixWell Acidifier (JH Biotech)
- CitriSan (Organisan Products)
- Constant BUpHER Acidifier (Brandt) ●

Garlic Issues in 2024

Robert Hadad, Cornell Cooperative Extension, Cornell Vegetable Program

As garlic harvest draws near, hearing from growers on some issues being seen in their garlic over the last couple of weeks. Our region isn't unique. Reading some other state's Extension vegetable newsletters, other places are seeing similar problems.

Allium Leaf Miner

A new invasive pest finally making its way into WNY. As reported in VegEdge in "[A New Pest for the New Year in Western New York: Allium Leafminer is Here to Stay](#)", this is a fly that gets a very early start in March. The female flies will lay eggs on leaves of most allium species but at that time of year it probably will be going after early green onions, early planted onion sets, and garlic. The female lays her eggs in rows along the leaf causing ovipositing damage.

The eggs hatch into larvae that will feed on the leaf surface then they tend to burrow into the leaf stem. This causes more damage. Eventually the larvae emerge (another point of damage), drop to the ground and burrow into the soil until they emerge late in the season ready to mate and lay eggs on more alliums out in the field such as leeks and then even later on fall planted sprouting garlic.

Some damage to "green" garlic being sold at some farmers markets have shown some feeding damage on stems and on the skin of the garlic bulb.

Garlic Anthracnose

See [last week's VegEdge](#) Crop Insights, page 3.

Witch's Broom

This problem pops up occasionally and it always takes everyone by surprise. The symptoms can be scattered over just a few plants in a field one year and not seen again or it can affect many plants and might show up several times over the course of 3-5 years. Instead of just up to a dozen main leaves, **there are a whole bunch of thin leaves without much of a main stem** and shows up when the garlic is getting set to form cloves or when cloves start to form.

Just last week, there was a report in WNY of many plants exhibiting these symptoms. They started out in the early spring with this type of growth coming from hold over garlic seed stock from last season where the problem wasn't seen.

The thinking is that one or more stresses could affect the growing point of the garlic plant causing the damage. Witch's Broom is not something plant pathologists have figured out. Stress could be the trigger. Such stress includes clove seed stock subjected to storage temperatures below 40°F, mechanical injury either at harvest time or from early cultivation, or water stress during clove formation.

This problem affects the marketability of the cloves but isn't spread from plant to plant in any way. Good consistent irrigation is crucial but also having ground that drains easily when there is too much soil moisture from rain. Careful handling of cloves when planting and caution when weeding can also help. ●



Witch's Broom. Photo: UMass Extension

Abnormal Onion Development from the Wide Temperature Swing in April 2023, Resembling Herbicide Injury

Lindsey du Toit, Washington State University, dutoit@wsu.edu

In late May/early June 2023, abnormal growth was observed in multiple onion crops in the Columbia Basin [Washington]. Symptoms resembled those caused by herbicides in the HRAC group 15, such as Outlook (a.i. dimethenamid-P). The main symptom was trapping of the third or fourth true leaf (sometimes several leaves) inside the next youngest leaf, with bulging and, eventually, emergence of the trapped leaf (leaves) out of the neck, bent and twisted (Fig. 1). Symptoms were observed on four cultivars. However, HRAC group 15 herbicides were not used on any of the affected fields, and symptomatic plants tested negative for an extensive array of herbicides.



◀ Figure 1. Symptoms of young onion leaves trapped inside older leaves in the neck of onion plants, observed in crops in the Columbia Basin in May 2023. Photos: Lindsey du Toit, WSU

Dr. Michael Havey, onion breeder from the University of Wisconsin-Madison, stated: "I have ... attributed this to very rapid growth of new leaves after a period of slow growth. The older leaves may not develop normally during the period of slow growth and then the new leaves do not "find" the pore." **Each leaf of an onion plant emerges through a 'pore' in the base of the next youngest leaf (Fig. 2).** The first three weeks of April 2023 were exceptionally cold, followed by a severe spike in temperature the last week of April. **During this very warm period, rapid growth of the youngest leaf outpaced the growth rate of leaves that developed during the cold weeks in April. As a result, the youngest leaf did not emerge through 'pore' and became trapped inside the older leaf.** Most of the affected plants eventually outgrew the symptoms. The impact of this damage to bulb yield has not been determined.

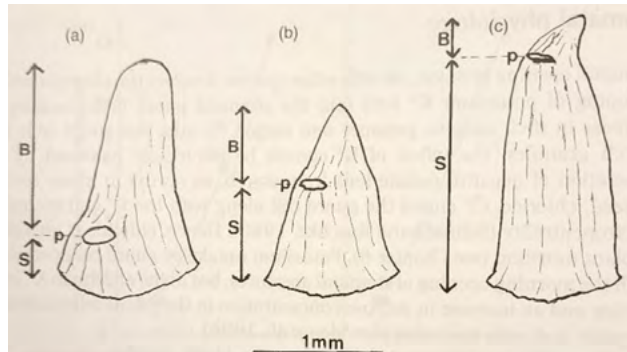


Figure 2. The 'pore' (p) through which onion leaf initials emerge during (a) blade growth, (b) early-stage bulbing, and (c) established bulbing. Bulbing is characterized by a decrease in ratio of blade length (B) to sheath length (S). Fig. 4.26 from page 124 of "Onions and Other Vegetable Alliums, 2nd Edition" by J. L. Brewster, CABI, Cambridge, MA ●



WHAT A MEETING! Thank you to the 69 muck onion growers from all 5 major onion growing regions in NYS, Cornell Extension and Researchers, and allied private industry representatives who participated in the Annual Muck Onion Twilight Meeting in Oswego last Thursday night! Thank you to Joe Burghart of Dunsmoor Farms for hosting the herbicide demonstration and meeting!

My head was spinning all night long with ideas about herbicide and fungicide programs! The herbicide tour was especially interactive. – Christy Hoeping

CROP Insights

Observations from the Field and Research-Based Recommendations

BEETS

Seeing some leaf miner activity and bacterial leaf spot in fresh market plantings. On the whole, fresh market beets generally look good. – EB

As we head into July, scouting for *Cercospora* leaf spot (CLS) should begin. CLS has been detected on Long Island and usually shows up in our region mid-July. CLS typically shows up in beets as the foliage closes in the rows. I'll write more about CLS management in the next VegEdge issue on July 10. For now, you may want to refamiliarize yourself with this disease by looking over the Cornell fact sheet at <https://www.vegetables.cornell.edu/pest-management/disease-factsheets/cercospora-leaf-spot-of-table-beet/> – JK

COLE CROPS

Seeing swede midge damage on collards and kale. The larvae of this pesky microscopic fly feed at the growing point of plants. This can cause the growing tip of the plant to become distorted and cause a variety of symptoms that can be misdiagnosed. Damage can show as leaf puckering, twisting, and crinkling (Fig. 1). Brown scarring is commonly seen on the leaf petioles or stems, swede midge damage can also result in multi-stemmed plants or multiple heads, or no heads at all. – LBK

Some wirestem damage being reported, primarily on farms with a known history of rhizoctonia. Rhizoc is a persistent soil borne pathogen that attacks many crops. Treatment with azoxystrobin (Quadris) as labelled can help reduce further losses from continuing root infections. It is way better to prevent rhizoc-caused wirestem issues by keeping your transplants up off the ground and on clean surfaces. If you are seeing much wirestem shortly after/at transplant, plan to remove loose soil and sanitize your production and hardening off spaces before setting out the next batch. – EB



Figure 1. Puckered and crinkled leaves are a common symptom of swede midge damage. Photo: L. Koenick, Cornell Vegetable Program

CUCUMBERS

Cucumber downy mildew (DM) was confirmed in southern NJ and Ontario Canada! Let's hope it stays there. Scout your fields a couple of times a week, just in case. DM has had a history of showing up here in WNY over the July 4th holiday week! Stay tuned to VegEdge for updates. – RH

DRY BEANS

Early planted dry beans have emerged. Small numbers of leaf hoppers are present in some fields. Seed treatments should continue to protect beans in early stages. – ML

GARLIC

In addition to all the fun challenges Robert wrote up (see page 4), there are also a few farms dealing with what appears to be overly enthusiastic *Stemphylium* infections that are causing leaf lesions and driving premature foliar dieback (Fig. 2). – EB

See article on physiological disorder that causes "leaf-in-leaf injury" (page 5) – I have seen this in garlic too. – CH

LETTUCE AND GREENS

Tarnished plant bugs (TPB) are active! These bugs have a wide host range and can be a pest on many vegetable and fruit crops including lettuce, tomato, carrots and more. TPB adults and nymphs cause damage when feeding on plant sap, they have piercing-sucking mouthparts. They can cause necrotic damage on any above ground plant parts, they tend to be drawn to new growth, flowers and fruit. Symptoms depend on the crop and plant part affected. Adults (0.25 in) are greenish brown in color and



Figure 2. "Thumbprint" and "dirty tips" with blackened, sooty looking mold caused by *Stemphylium* in garlic. Photos: E. Buck, Cornell Vegetable Program

continued on page 7

have a distinctive triangle marking on the center of their back (Fig. 3). Nymphs (1mm-0.25in) are pale green and can look like aphids when young; you can tell them apart from aphids by how quick they move and they lack cornicles. – LBK

MELONS

Melons don't like atrazine (Fig. 4). Be careful spraying nearby corn fields on gusty days. The flashing injury was exacerbated by cold shortly after exposure. Luckily, this is just a low drift rate and the crop is growing out without permanent tissue discoloration or suffering necrosis on the growing tips. Also along these lines, melons don't necessarily care for Dual over the top, either (Fig. 5).



Figure 3. Tarnished plant bug adults on dill flower buds. Note the distinctive triangle marking in the center of their back. Photo: L. Koenick, CVP



Figure 4. Melon plant exposed to drift rate of atrazine in cold weather exhibits a bright yellow flash on the new growth. More severe injury causes necrosis, as visible on the damaged shoot at lower right. Photo: E. Buck, CVP

ONIONS

Earliest planted and maturing transplants have 2-3 inch bulbs already! Most of the direct seeded crop is in the 6-7 leaf stage with some varieties starting to bulb. Seems like just yesterday, they were babies! Major pre- and post-emergent herbicide applications are complete as hand weeding crews are finishing up getting any remaining escapes. Now, the crop is entering into the leaf disease and onion thrips management phase. Botrytis leaf blight

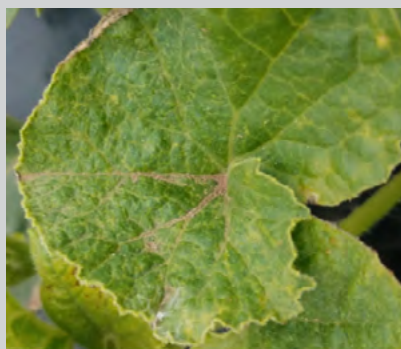


Figure 5. Foliar distortion, blistering, and vein drawstringing caused by exposure to too much Dual and at the wrong crop stage. Photo: E. Buck, CVP

(BLB) halos may be found at low levels in all fields and are expected to increase over the next few weeks. BLB necrotic spots can also be found in transplants and some early direct seeded plantings but are quite minor at this time. Even Stemphylium leaf blight (SLB) can be found in some fields, mostly appearing secondary invading necrotic tissue caused by herbicide injury, but also in the early stages of appearing primary on the outermost oldest leaves in transplants. Elba muck remained dry for the second week in a row, while Wayne and Oswego got rain over the past week. Growers are beginning to irrigate as bulbing is the critical stage for steady and adequate soil moisture supply in onion. Onion thrips are going bonkers in parts of Elba muck and onions got cut from hail and high winds on Saturday night in a couple of fields in Oswego and Wayne.

There are no new changes to **Cornell recommendations for the onion thrips management plan. Movento is recommended as the first insecticide in sequence:**

- Movento 5 fl oz with a penetrating surfactant beginning at 0.6 onion thrips/leaf, followed by the second application 7-10 days later.
- If using Senstar, either first or second application may be Movento, but not both, because its label requires 14 days between sprays.
- The effectiveness of Movento decreases substantially during bulbing, which is why it is strategically placed first in sequence. As long as the second application goes on when onions have 0.5-1" bulbs, it should still be effective.
- Increasing the number of days between applications from 7 to 10 days is a strategy that may be used to delay the third insecticide application in sequence, resulting in one less insecticide spray overall. Do not stretch this interval if thrips are >1.0 per leaf 7 days after the first application.
- Movento does not control adult thrips.
 - Usually, 1 week after the second application, adult thrips are all that you will see when you scout, which is an indication that the Movento is in the plant and doing its job very well.
 - Although these adults can cause some feeding damage, Movento has ovicidal properties (kills eggs) and any babies that these adults make will not live to feed on your onions.
 - However, in Elba, adult thrips may infect onion plants with Iris yellow spot virus (IYSV), in which case, addition of an adulticide insecticide such as Lannate LV/Agri-Mek +/- Warrior to Movento may control the adults and postpone early introductions of IYSV.

There are also no new recommendations for **Botrytis leaf blight halos**, in part, because I have not gotten good BLB halo data from a fungicide trial in a couple of years (focus has been on SLB and BLB necrotic spots).

- **Bravo 3 pt** has very good activity on BLB halos but is not recommended to be co-applied (in the same tank mix) as Movento, because it can reduce the efficacy of Movento. As far as we know, all other fungicides are compatible with Movento.
- **Mancozeb 1 lb a.i.** (e.g. Manzate Max 0.8 qt/A) is effective only when BLB halo pressure is very low (< 3 BLB halo lesions/leaf) and works best when first applied at first detection.
- **Mancozeb 3 lb a.i.** (e.g. Manzate Max 2.4 qt/A) is effective under slightly higher pressure.
- **Omega** (FRAC 19) has excellent activity on BLB halos.
- As of 2021, the **FRAC 7s** (Miravis Prime, Luna Tranquility, Merivon) had very good to good activity on BLB halos.
- In 2023, **Rovral 1.5 pt** failed to control BLB halo lesions in Elba. In 2021, it was still good in Oswego.

“Leaf-in-Leaf” improper unfurling of the whorl (Fig. 6): I see this type of injury periodically in onions and have seen it in garlic sometimes too, which resembles Outlook injury. There were a few plants in one of the scouting fields in Elba this week with this type of injury. See article on page 5 from Lindsey du Toit, out of Washington, which explains how this physiological disorder may be attributed to rapid growth following very slow growth. – CH



◀ Figure 6. “Leaf-in-leaf” improper unfurling of the whorl injury, which resembles Outlook injury, may in fact be caused by a period of rapid growth following a period of very slow growth. Photos: C. Hoepfing, CVP

Thrips are on the move as grain fields dry down. **Fresh market onion growers should assess thrips pressure this week and next week.** Thrips like to hide deep down in the new growth and under leaf folds. Count the number of thrips per plant and divide by the number of leaves for 10 plants. Average it out and hopefully you’re less than 1.0! If not, you can treat with Radiant or Entrust. Pyrethroids like Warrior are weak and unlikely to handle high pressure. – EB

PEPPERS

Make sure you grow a frame. I’ve seen several fields where transplants were stunted (various causes) and the crop has jumped into flowering and setting fruit. Undersized pepper plants will continue to fruit at the expense of growing a better frame, especially if the underlying stress is hard to resolve. Without enough frame your overall yield potential will be low and whatever fruit does set will be at high risk of sun scald. Otherwise, starting to see a little bit of bacterial disease in pepper – use copper and practice good field sanitation; don’t drag it to new places on people and equipment. – EB

POTATOES

Colorado potato beetle larvae and potato leaf hoppers are active in potato fields. Many potatoes are showing signs of heat stress from high temperatures in the past week (wilted leaves, brown spots on leaves). Irrigating when possible will help yields, especially in plants that are in the tuber initiation to full bloom stages. – ML

SNAP BEANS

Potato leaf hoppers (PLH) are active across the region. They often go undetected until the typical feeding damage called “hopperburn” shows up. These tiny insects (up to 1/8 inch long) do not overwinter in NY but migrate from southern states. The leafhopper is a sucking insect. In removing sap from the plant, leafhoppers leave a toxic salivary secretion in the plant that causes injury. The first sign of feeding is whitening of the leaf veins. These areas then become flaccid and yellow, then dry up and turn brown. Curling of the leaves is also common. Bean fields should be scouted regularly for PLH for the remainder of the season. Fields planted with seeds that were treated with Cruiser insecticide generally do not need a foliar treatment before bloom, however, they may need a treatment after bloom if PLH pressure is high. In general, Cruiser seed

treatments are working if you do not see the presence of nymphs on the plants. While adults may be seen on plants early in the season, they rarely feed because ingestion of Cruiser causes a cessation in feeding. In non-Cruiser treated fields, during pre-bloom, treat when more than one nymph per trifoliate leaf is found or when the number of adults exceeds 100 per 20 sweeps with a sweep net. On newly emerging beans, lower densities of PLH than those mentioned above may be damaging. Several foliar insecticides are labeled and work very well. Refer to the 2024 Cornell Guidelines for product selection. Multiple applications may be needed. – JK

SQUASH

Squash vine borers have a defined flight period that roughly corresponds to when chickory begins to bloom. Once it begins, adults fly for about 3 weeks. Now is the time to take preventative measures (exclusion, scouting, trapping) if you have a history of trouble with squash vine borers. – EB

SWEET CORN

You ever notice how good sweet corn pollen smells?...Continuing to catch corn earworms across the region. Corn borers are spotty but where there are issues now is the time to act! The [Sweet Corn Pheromone Trap Network blog](#) has an excellent write up on recognizing corn borer damage and properly timing applications. – EB

TOMATOES

Bacterial speck/spot are kicking off, as is septoria. Bacterial lesions will have yellow haloes, especially when held up to the light (Fig. 7). Septoria develops tan centers with less pronounced halos. Be very cautious and alert if you chose to reuse your stakes. Excellent way to inoculate your field for all three diseases, plus early blight. – EB

Nutrient deficiencies and the occasional toxicity (excess) are abundant as growers are harvesting tomatoes out of greenhouses this week. The most common deficiencies are magnesium, potassium and manganese. Large fruited, early maturing determinate varieties are particularly susceptible to deficiencies for several reasons:

- Root zones are often compromised by early planting dates (cold soil at transplant time).
- The canopy is not commensurate with the number of flowers the plant sets.
- The canopy is in competition with the fruit load for nutrients within the plant.

Understandably, growers respond to deficiencies with increased fertilizer applications. This can lead to nutrient toxicity. The impact of minor, or micro-nutrients, is greatly amplified by the relatively small concentration the plant needs for sufficiency. Sodium (Na) is rather unique in that it isn't considered an essential crop nutrient, but can play a beneficial role at low concentrations. However, when supply is excess, a salinity stress can occur, leading to wilting on sunny days, foliar burn (Fig. 8) and Blossom End Rot (Fig. 9) of fruit. Sodium can also replace other important nutrients in cell uptake, leading to further deficiencies, for example in the case of potassium (K).

How to avoid salt toxicity? 3 critical tests:

- Soil test annually and be sure to request the additional soluble salts or EC package.
- Test irrigation water for nutrient and EC (electrical conductivity a measure of salts)
- Foliar tests crops and specify that your lab include Na in their results.

With these results we can make informed decisions when salt levels are high, such as:

- Leaching soils with high EC
- Add gypsum to soil leaching events when Na is high
- Select fertilizers with low salt indices
- Consider other sources of irrigation water when EC is high

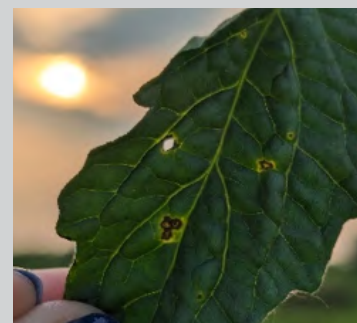


Figure 7. Bacterial lesions will have yellow haloes, especially when held up to the light. Photo: CVP



Figure 8. High salts can build up over time and cause marginal burning of tomatoes. Photo: J. Reid, CVP



Figure 9. Blossom End Rot is a water induced calcium deficiency in fruiting vegetables such as tomato. High sodium, or other salts, increase water stress in the plant, leading to Blossom End Rot. Photos: J. Reid, CVP ●

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 Spsychalla 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.

Chautauqua Produce Auction Vegetable Growers Meeting

July 9, 2024 (Tuesday) | 6:30 pm - 8:30 pm

5186 Cheney Rd, Conewango Valley, NY 14726 (address is approximate; it's the only veg farm on top of hill portion of Cheney Rd)

A field walk will include aggressive pepper anthracnose, potato management, slugs, corn earworm, and more. 2.0 DEC credits in categories 1a and 23 (veg). Open to all growers seeking credit. As a reminder, license holders in categories 21, 22, 24 and 25 can apply some category 23 credits towards renewal of their licenses.

FREE! Contact Elizabeth Buck at 585-406-3419 with questions.

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

Beans for Lunch Webinar – Managing Dry Bean Diseases in the Field

Are you growing dry beans this year? Have questions? In this webinar, Cornell University and University of Vermont will discuss pests of dry beans and troubleshoot in-season challenges with your fellow farmers, service providers, and Extension personnel. The webinar will be informal and interactive. Both certified organic and conventional methods will be discussed.

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.

Upcoming Events

Eden-Chautauqua Vegetable Meeting

July 25, 2024 (Thursday) | 6:00 pm - 8:00 pm
Yerico Farms LLC, 3186 E Main St, Dunkirk, NY 14048

We'll take a look at sprayers, pepper anthracnose, and walk the fields discussing other crop production issues.

FREE! Contact Elizabeth Buck at 585-406-3419 with questions.

Tree Fruit and Small Fruit Twilight Meeting

July 25, 2024 (Thursday) | 6:30 pm - 8:30 pm
Simpelaar Fruit Farms, 6018 State Rt 3, Mexico, NY

Join specialists Anya Osatuke, Janet Van Zoeren, Robert Hadad, and Anna Wallis for a conversation about tree fruit and berry phenology, pest management, food safety and water quality. This meeting will examine seasonal changes in tree fruit and berry crops, demonstrate scouting techniques, and discuss integrative pest management solutions to maximize the health and productivity of berry and fruit plantings. 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

Bejo Open Days 2024

August 19, 2024 (Monday) | open 9:00 am - 4:00 pm with field tours at both 10:00 am and 11:00 am
4188 Pre Emption Rd, Geneva, NY 14456

Bejo Seeds is pleased to welcome you once again to their 2024 Open Days in Geneva, NY! Take a **Behind the Scenes** look into Bejo—Bees, BMOX, and their latest innovations in Breeding! Of course, they will also have their Kitchen Garden, raised beds and field trials. Questions or comments? Please email media@bejoseeds.com

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.