



Mitigate Crop

Heat Stress

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## **Recognize and Mitigate Crop Heat Stress**

The Ohio State University, OSU Extension, Knox County Agricultural News, 6/14/2021; edited by Robert Hadad, CCE

[El Nino is approaching and possibly a hot dry summer could be knocking on our door step. After every major heat event, we look for rain to mitigate the situation. Even with periodic rain, heat stress can still be problematic and we have already gone through two dry spells. A couple of years ago, The Ohio State University VegNet team put out an article titled, Recognize and Mitigate Crop Heat Stress. Here are the main points from that article. ed. R. Hadad, CCE CVP]

Most agree that a dry year is less problematic than a wet one - provided irrigation is possible. However, it can be difficult for vegetable growers to escape the unwanted effects of excessively high temperatures. A way to separate potentially minor, moderate, and severe heat stress, example effects of moderate-severe heat stress, and main strategies for mitigating heat stress during production are summarized below.

#### **Five Major Factors Influencing the Severity of Heat Stress**

#### 1. Crop and variety (sensitivity 1)

All crops and varieties have a range of temperature in which they perform best. A crop's genetic past (i.e., heritage/Center of Origin) and level of improvement through breeding matter. Individual crops and varieties are thought or proven to be relatively heat tolerant or intolerant.

#### 2. Timing (sensitivity 2)

When high temperatures occur in the crop cycle is key. Crop plants can tolerate high temperatures more reliably at some stages than others. Even relatively tolerant varieties can be impacted by temporary spikes in temperature at the "wrong" time.



Excessive heat has killed the growing point on this high tunnel tomato crop. Photo: J. Reid, 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

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The next issue of VegEdge newsletter will be produced on June 28, 2023.

## Accumulated Growing Degree Days, 6/19/23

Julie Kikkert, CCE Cornell Vegetable Program

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 - June 19, 2023

•					
Location**	2023	2022	2021		
Albion	585	706	699		
Appleton	543	645	647		
Arkport	479	564	573		
Bergen	536	664	642		
Brocton	569	701	695		
Buffalo*	608	692	724		
Ceres	426	551	574		
Elba	512	633	618		
Fairville	532	649	628		
Farmington	554	659	664		
Fulton*	543	642	614		
Geneva	593	679	689		
Hammondsport	524	651	638		
Hanover	531	691	671		
Jamestown	507	583	606		
Lodi	632	763	615		
Lyndonville	548	563	658		
Niagara Falls*	641	724	676		
Penn Yan*	604	699	722		
Rochester*	588	685	684		
Romulus	610	702	695		
Sodus	616	715	707		
Versailles	535	675	641		
Waterport	552	628	629		
Williamson	487	635	604		
* Airport stations					

Airport stations

\*\* For other locations: http://newa.cornell.edu

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#### 3. Intensity

The extent to which actual temperatures exceed the crop's and variety's optimal range is important ... 5 degrees? 15 degrees?

#### 4. Duration

The length of time the temperature was consistently above optimal. Short periods of intense stress can be problematic although the effects of prolonged moderate stress typically accumulate.

#### 5. Mitigation

Were steps taken to lessen the stress?



Pepper plant showing stem damage from excessive heat after transplanting into black plastic mulch. The transplant is weakened and will usually die off. Photo: University of Delaware Extension

Combinations of these five factors represent common scenarios. For example, for vegetables for which pollination is required, excessively high temperatures lasting only hours can disrupt pollination or trigger flower or fruit drop or interruptions in normal developmental patterns. The result can be loss of a "set" (dip in production) and/or malformed or misshapen units to be harvested (e.g., pods, fruits, roots, stems, leaves, tubers). Longer periods of above-optimal temperatures can speed (e.g., bolting) or delay (e.g., prolonged vegetative state) maturity depending on the crop and when they occur in the crop cycle. Heat stress is also implicated as a contributing factor in fruit ripening and physiological disorders (e.g., blossom-end rot). Above-optimal temperatures can also trigger changes in the chemical composition of plant tissues, possibly affecting the color and/or taste of market-able units. Similarly, prevailing temperatures can influence a crop's tolerance to typical inputs and protectants.

Irrigation and shading are among the most common strategies for mitigating the effects of excessively high temperatures in field and high tunnel vegetable production. Irrigation is essential for the obvious reason that evapotranspiration is the crop's primary means of cooling itself. A warm period or season calls for the best irrigation (scheduling) practices, not just pouring water on because, as we know, excessive irrigation (soil moisture) disrupts water uptake, compounding the heat stress problem. Circumstances allow some growers to shade the crop (e.g., in high tunnels) as they attempt to reduce the temperature around it.

## **Cornell Vegetable Program Welcomes Summer Field Technicians**

#### **Sarah Mertson**

Hi! My name is Sarah Mertson. I am a senior Biology Major at SUNY Geneseo. I'm from Newark Valley, NY and am currently living in Geneseo for this position. Growing up, I was surrounded by dairy farms, which has sparked my interest in nature and agriculture from a very young



age. I currently work in an organic chemistry lab during the academic year conducting research on extracting lipids from algae and converting them into biodiesel. Even though I do a lot of lab work, I am very excited to get out of the lab and into the field this summer. My ecology class sparked my interest in field work and I am excited to be furthering my field work experience. I am very eager to learn about all the different farms around the area and provide beneficial help and research to the Vegetable Program team!

#### **Destiney Schultz**

Hello, my name is Destiney Schultz, and I am from Churchville, NY. I am a senior at Houghton University majoring in Biology with a focus on Environmental Conservation, and I am looking to continue into Plant Ecology for my post grad work. Through learning about botany and



the environment, I found that I wanted to explore the agriculture side of biology; having the opportunity to work with the Cornell Vegetable Program's team will be an invaluable experience. I have always been fascinated by the process of agriculture, farming, and food distribution in New York State, and I am so excited to work with everyone this summer!

### Scouting for European Corn Borer

Elizabeth Buck, Cornell Cooperative Extension, Cornell Vegetable Program

European Corn Borer (ECB) is a caterpillar pest that primarily attacks corn, is a fairly common pest of peppers, and an occasional problem in snap beans. European corn borer adult moths are flying currently, so let's take some time to review how to scout for it in these various crops.

#### **Recognizing European Corn Borers**

There are two distinct strains of corn borers and each strain (Z and E) has its own flight patterns and maturity timings. This means that we have several periods of corn borer adult (and subsequent larval) activity stretching from mid-May until mid-September.

Adult moths are inch-long, pale yellow-tan, fairly triangular insects. They're hard to spot in the field. You're much more likely to see ECB adults in a pheromone trap. There are really good treatment instructions for sweet corn based on pheromone trap catches.

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Eggs look like fish scales and are laid in clusters on the undersides of leaves. The egg masses are very distinct. If you find egg masses, you can flag that plant and mark the infested leaf with a sharpie to make it easier to monitor when hatch is occurring. The caterpillars are initially small and whitish or gray colored with a dark head. They will eventually grow to about 3/4" of an inch long.

#### Corn

This time of year we typically find that corn borers will lay eggs on whorl stage corn. Caterpillars then feed through the rolled up leaves to access the tassel. They can also drill stems and will later drill into ears.

#### Signs of corn borer feeding activity in corn include:

- A row of 3-4 small holes across a leaf, especially on several adjacent leaves
- Frass or "sawdust" in the whorl
- Tassels that emerge broken, missing parts, or messy
- Frass or "sawdust" in leaf axils (where leaves meet stems) below stem/ear drilling

The holes on emerging leaves is one of the earliest signs. If you suspect corn borer damage, pluck the whorl out of the corn stalk. This will not hurt your yield, the plant will still make an ear. Unfurl the leaves to look for the corn borer. You can also cut drilled stems, but that will sacrifice the plant.

#### Pepper

Though they can drill into pepper stems and cause breakage, corn borers are usually not a big concern until fruiting. The caterpillars will chew a hole into the fruit above the shoulder, often right next to the stem and even under the calyx. The larvae feed inside the developing fruit and typically exit through the lower third of the fruit.



Corn borer damage on a whorl stage corn. Photo: Elizabeth Buck, CCE

Their feeding leaves the pepper full of frass and with two wounds. The entry wound frequently allows soft rot bacteria to enter the fruit, especially if water is pooling around the stem of the fruit. The entry wound is hard to detect. Other early, pre-rot indications of fruit infestation include early and uneven ripening of fruit and picked fruit that rattle when you shake them. Exit wounds are more easily spotted and create large openings favorable for rot.

Once fruiting begins, watch local corn borer activity by pheromone traps or monitoring young corn plantings. Time sprays to match periods of peak adult flight or if caterpillars are observed. Note that corn sprayed on a regular schedule is not a good indicator or corn borer risk in peppers because any hatching caterpillars will be killed before they can cause much feeding damage.

#### **Snap Bean**

Corn borers are only an occasional pest of snap beans. Fields are most susceptible from the bud stage until a week before harvest. When active in snap beans, corn borer caterpillars will drill into the pods to feed. That is, of course, an unpleasant surprise. If you see caterpillar feeding damage on pods, be sure to correctly identify whether you are dealing with corn borer or the western bean cutworm.

## Sweet Corn Pheromone Trap Network Report, 6/20/23

Marion Zuefle, NYS Integrated Pest Management Program, Cornell; <u>https://sweetcorn.nysipm.cornell.edu/</u>

Statewide, 13 sites reported this week with European corn borer (ECB)-E and ECB-Z caught at 2 sites. The hybrid ECB was only caught at the Hurley site (14). Four sites reported corn earworm (CEW). And still no fall armyworm (FAW) or western bean cutworm (WBC) at any of the reporting sites.

Several sites have accumulated degree days that would indicate peak spring ECB flight and some are nearing the treatment period. Scout your sweet corn for any signs of eggs, larvae or damage. The threshold for ECB, CEW and FAW is 15% infested plants at tassel emergence

See the <u>full blog post</u> for an interactive graph and map to select the location that you are interested in to see what has been reported for that site to date. You can filter to see only certain pests and determine what the current accumulated degree days are for a given site.

Location	ECB-E	ECB-Z	ECB Hybrid	CEW	FAW	wвс
Batavia (Genesee)	0	0	NA	0	0	0
Bellona (Yates)	NA	NA	NA	NA	NA	NA
Eden (Erie)	0	0	NA	8	0	0
Geneva (Ontario)	0	1	0	0	0	0
Hamlin (Monroe)	NA	NA	NA	NA	NA	NA
Leroy (Genesee)	NA	NA	NA	NA	NA	NA
Lyndonville (Orleans)	0	0	NA	0	0	0
Oswego (Oswego)	NA	NA	NA	NA	NA	NA
Panama (Chautauqua)	NA	NA	NA	NA	NA	NA
Penn Yan (Yates)	0	0	0	0	0	NA
Portville (Cattaraugus)	NA	NA	NA	NA	NA	NA
Ransomville (Niagara)	0	0	NA	0	0	0

WNY Pheromone Trap Catches: June 20, 2023

Stanley (Ontario)

Williamson (Wayne) ECB: European Corn Borer; CEW: Corn Earworm; FAW: Fall Armyworm; WBC: Western Bean Cutworm

1

NA

0

NA

0

NA

0

NA

0

NA

0

NA

## Don't Get Burned by Leafhoppers on Beans and Potatoes

Julie Kikkert, Cornell Cooperative Extension, Cornell Vegetable Program

Potato leafhoppers (PLH) often go undetected on crops until the typical feeding damage called "hopperburn" shows up. These tiny insects (up to 1/8 inch long) don't overwinter in New York but migrate from the southern US. Potato leafhoppers are now being reported across the state and populations have increased in alfalfa fields this week (NYS IPM Field Crops), which is often the first crop affected here. Typically, as alfalfa fields are cut, the leafhoppers migrate into other crops. Potatoes, snap beans, dry beans and lima beans are very susceptible to crop damage. The leafhopper is a sucking insect. In the process of 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.

Adult PLH are very long-lived and generations continue to overlap and increase during the summer months. Susceptible crops should be scouted now through August. It is important to note the presence of the young nymphs, which indicate a reproducing population. The insects are wedgeshaped and green. Long hind legs allow them to hop like a grasshopper, and powerful wings allow quick flight. Adults and nymphs are very active and can walk in all directions. When the foliage is disturbed, adults quickly fly up into the air and then settle down again. A sweep net run across the foliage can help determine the population of adults in the field. Adults also get caught in tractor radiator and air intake screens during cultivation or potato hilling. To check for nymphs, examine the underside of leaves. A hand lens may be needed to see the smallest nymphs.



Hopperburn in green beans. Photo: UMass Extension Vegetable Program



Potato leafhopper nymph. Photo: University of Minnesota.

Bean fields should be scouted regularly for PLH for the remainder of the season. 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. 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 don't 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. Several foliar insecticides are labeled and work very well. Be cautious as some are labeled only for dry beans and others only for succulent beans. Refer to the 2023 Cornell Guidelines for product selection. For organic beans, trials at Cornell in 2019 in 'Huntington' snap beans demonstrated that none of the OMRI-listed products that were tested (Aza-Direct, Azera, Pyganic Specialty, Venerate XC) reduced PLH densities after a single spray. Aza-Direct and Azera significantly reduced PLH densities after two applications, and there was no improvement when three applications were made. Pyganic Specialty was not effective in reducing PLH densities after two sprays; however, it was effective after three sprays. Venerate XC failed to manage PLH. None of the OMRI-listed products were as effective as a single application of the conventional insecticide Warrior II with Zeon Technology. Data are from B. Nault, Cornell AgriTech. For the complete data, contact Julie Kikkert at jrk2@cornell.edu.

Potatoes are very sensitive to leafhopper feeding and the treatment threshold is just an average of one adult per sweep with a net, or more than 15 nymphs per 50 compound leaves. Elba and King Hairy are resistant to potato leafhopper. Varieties with some tolerance include Green Mountain, some russets, Snowden, Ontario and Katahdin. Early maturing varieties such as Superior and Norland are unusually susceptible to yield reduction caused by leafhopper feeding. Several conventional products are labeled for leafhoppers in potatoes (consult the 2023 Cornell Vegetable Guidelines). For organic management see the 2016 Organic Production and IPM Guide for Potatoes at https://ecommons.cornell.edu/handle/1813/42897.

## **CR** P Insights

#### Observations from the Field and Research-Based Recommendations

#### GENERAL

Flea beetles are quite active in large numbers on a number of crops across the region. Rain B showers can deter adult mating and egg laying cycles. Where we have had cool temperatures and a string of rainy days, flea beetle activity had dropped. Back into the hot and dry weather, the numbers are increasing again. Keep up with irrigation during the dry days to keep plants from stressing and more appealing to leaf feeding insects. Brassicas, especially leafy greens have been hammered. Eggplants, potatoes, tomatoes, and even some peppers have various degrees of damage. Admire and other recommended products listed in the Cornell Vegetable Guidelines have some efficacy if applied on a tight schedule (following label instructions). To avoid harming beneficial predators, Entrust can offer some reduction in flea beetle numbers. – RH

#### BEETS

Cultivation and weed management are important tasks during the month of June. <u>Black cutworms</u> remain a concern for any newly emerging seedlings. <u>Cercospora leaf spot</u> usually does not appear in field grown beets until mid-July, hence fungicide applications are not needed at this time. <u>Bacterial black spot</u> 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 at this time. - JK

#### **LETTUCE AND GREENS**

Lettuce bolting after the heat, younger plantings looking better. For romaine and chard – especially pale stemmed varieties – tarnished plant bug numbers are increasing. They are attracted to heavy, pale colored midribs and cause unsightly black, sunken wounds that can allow secondary bacteria to enter and cause rots. Tarnished plant bugs enjoy pigweed. Another good reason to go through and weed. – EB

#### ONIONS

It's summertime! The change from increasing daylength to decreasing day length during the summer solstice is what triggers bulbing in onion. Many direct seeded fields are at 5-leaf stage, while earliest transplanted onions have 1-inch bulbs. Post-emergent herbicides following the cooler wetter weather of last week resulted in more crop injury than those applied weeks prior during sunny, dry and windy conditions. Also, at 5-leaf stage the plant architecture of the individual varieties begins to take shape and those that have leaves that are less upright will droop and twist, which can both visually and physically exaggerate post-emergent herbicide injury. The maximum stage for Buctril is 5-leaf and the maximum stage is 6-leaf for Chateau and Stinger. Application of these herbicides after these crop stages will result in significant leaf burn with Buctril and Chateau, and bulb malformation (basal plate pushes out) with Stinger. Necrotic spotting and twisting generally does not affect yield, but yield can be reduced when the outer leaves get burned. Goal 2XL may be applied until 45 days prior to harvest (= mid-July for crops that are harvested in early September) up to a total of 32 fl oz/A per crop per season. Any weeds that are 4 inches or greater at this time, even if they are burned back will likely have to be hand weeded, although continued applications of Goal will help to hold them back. Stinger is a growth regulator and will "ball up" the growing points of thistles and ragweed. When weeds are in this condition, they generally are not actively growing or accumulating biomass, which counts a lot for weed control. Hand weeding smaller injured weeds is drastically less destructive than hand weeding larger healthy weeds.

Onion thrips were detected for the first time in several fields this week and have reached the spray threshold of 0.6 to 1.0 per leaf in some locations in Elba. Cornell highly recommends using Movento as the first insecticide in sequence for control of onion thrips, because it only has activity on nymphs and not adults (adults are far more prevalent later in the season), and it is only effective when applied prior to bulbing. Thus, the spray threshold for Movento is early bulb swell or 0.6 to 1.0 thrips per leaf, whichever comes first. Generally, early bulb swell does not occur until 7-8 leaf stage. Thus, if thrips are below 0.6 per leaf this week, you can likely wait until next week before you make your first Movento application. Movento usually has a 2-week (range 1-3 weeks) period of residual thrips control following two sequential applications that are applied with-in 7-10 days. If it is timed too early ahead of thrips, it is like a waste of an insecticide spray. Where thrips pressure is high and the thrips spray season is long, as it is in Elba muck, it is important to not "waste" any insecticide sprays, because it can be a struggle to finish the spray season in just 8 sprays. For insecticide resistance management, the ideal situation would be to use each mode of action with back-to-back sprays only once.

Botrytis leaf blight (BLB) was detected for the first time in direct seeded onion fields this week but is currently at very low levels. Mancozeb 1 lb a.i./A is an economical fungicide choice for BLB when pressure is low that does not put any pressure

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on SLB fungicide resistance. Similarly, Bravo/a.i. chlorothalonil does not put any pressure on SLB fungicide resistance. It is very effective on BLB but is not compatible in a tank mix with insecticides for onion thrips. Fungicides for BLB generally do not need to be initiated until pressure reaches 1.0 BLB halo lesions/leaf.

The Muck Onion Twilight Meeting in Oswego is this <u>Thursday, June 22</u> at John Dunsmoor Farms Lake Elizabeth location (use 779 County Route 53, Oswego in Google maps) from 4-7 with dinner at 7 pm. We have been working very hard getting the latest research results ready to share with you at this meeting. Emphasis will be on field performance and new developments in fungicide resistance for Stemphylium leaf blight. Onions will be at the 2.5-3 leaf stage in the herbicide demonstration, which will showcase pre-emergent herbicide programs applied up until the barley-kill stage and post-emergent applications applied to 1.5 and 2-leaf onions, as well as an onion maggot trial. Hope to see you there! – CH

#### PEAS

Harvest time is here for the earliest plantings. - JK

#### **PEPPERS**

Seeing losses in several fields to assorted causes like stem burn after transplanting and pythium infections carried out from the seedling house.

Aphids present in several fields, scout now. Threshold for treatment is an average of ~5 aphids/leaf. Check two upper and two lower leaves per plant, be sure to look at both leaf surfaces. Beneficials can and do move into pepper fields to handle aphids. Monitor aphid populations if you're below threshold or if you have hot spots to allow beneficials time to move in.

Thrips will start moving in as hay is cut and flowers emerge. Again, thrips can be managed well with naturally-occurring beneficials, particularly minute pirate bug. Yellow marigolds help draw the minute pirate bugs into the field. – EB

#### POTATOES

Some fields are showing signs of herbicide damage, including poor emergence, stunting, curling of leaves, and yellowing of veins. This damage could be a result of pre-emergence herbicides or carry over from herbicides used on previous crops that persist in the soil. Colorado potato beetle adults and potato leaf-hopper adults are appearing in some fields, insecticides applied to seed or at planting should control both pests for now. – ML

Simcast forecasting has begun for this season. With wet weather this past week, forecasting indicates that Brant, Buffalo, Ceres, Dansville, Fulton, Niagara Falls, Penn Yan, Rochester, Sodus, and Versailles have reached the 30 blight units (BU) needed to trigger a spray for late blight this week. If the weather station closest to you has not yet reached 30 BU and the forecast indicates that it will in the next 2-3 days, a spray is still recommended. The chart assumes use of a susceptible potato variety Reba, and an application of chlorothalonil on June 14. Because weather conditions can vary depending on topography and altitude, the recent disease information and disease forecasts will be most accurate very close to the weather station used. For locations that are not close to a weather station, forecast information should only be used as a general indication of how favorable weather has been for late blight. Forecast BUs are subject to changes as the weather forecast changes, so check forecasting tools regularly to see if disease forecasts have changed. Information for other weather stations can be found at: https://newa.cornell.edu/all-weather-data-query. On a national level, no late blight has been reported this year. - ML

#### **SNAP BEANS**

I saw my first <u>Japanese beetle</u> this week. High populations of Japanese beetles and <u>Mexican bean beetles</u> can defoliate fresh market beans. These beetles are not a major problem in processing beans but could be for organic production. <u>Potato leafhoppers</u> are present across the area and snap bean fields should be scouted regularly. (See article "Don't Get Burned by Leafhoppers on Beans and Potatoes" on page 5.) Snap beans are sensitive to herbicides which may cause

#### Late Blight Risk Chart, 6/21/23

Location	Blight Units 6/14-6/201	Predicted Blight Units 6/21-6/23 <sup>2</sup>
Albion	18	18
Arkport	21	32
Baldwinsville	25	25
Bergen	24	24
Brant	30	30
Buffalo	33	45
Burt	-	-
Ceres	38	50
Dansville	42	60
Elba	27	32
Fairville	21	21
Farmington	25	25
Fulton	47	65
Geneva	29	29
Hammondsport	23	34
Knowlesville	12	12
Lyndonville	18	28
Medina	6	6
Niagara Falls	31	44
Penn Yan	33	52
Rochester	32	49
Sodus	44	44
Versailles	32	32
Wellsville	19	32
Williamson	24	24

Calculated using a May 31 crop emergence date. Last fungicide application June 14 on susceptible cultivar Reba. Numbers in red indicate locations that have or will surpass the 30 BUs needed to trigger a fungicide application.

1 Past week Simcast Blight Units (BU)

2 Three-day predicted Simcast Blight Units (BU)

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

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#### **SQUASH**

Zukes and yellows coming to market. Cuke beetles generally well controlled. Powdery mildew tends to start shortly (week or two) after harvest starts in those crops. Watch the undersides of the lowest leaves to catch this disease early. – EB

#### **SWEET CORN**

Processing sweet corn is putting on good growth at this time. Planting the late crop and weed management are tasks at this time. – JK

Starting to see silks on early fresh market plantings. Occasional feeding damage from European Corn Borer (ECB) present on whorls. (See article "Scouting for European Corn Borer" on page 3.) Corn earworm is present, so watch trap counts as early fields reach silking. – EB

#### TOMATOES

Field plantings are generally looking good, though behind as is everything else. Some risk for start of diseases following last week's rains, consider an application of protectants. Occasional Colorado Potato Beetle feeding, usually localized to a few hot spots within a field and rarely merits treatment of entire planting. Seeing some bacterial canker in tunnel tomatoes. Bacterial canker is serious, all the more so in the high-touch management systems of a tunnel. Remove infected plants, enhance sanitation practices and be strict with how you move through the house, treat with copper and reapply infrequently as needed to provide coverage to new growth. – EB

#### **HIGH TUNNEL**

There have been multiple cases of excess salts in local high tunnels recently. Covered areas that have not been exposed to rain or snow for several years will accumulate any salts added to the soil via irrigation water, fertilizer or compost. Excess salts can cause a marginal burning on foliage (Fig. 1), wilting, and blossom end rot. This injured tissue can then become a sporulation point for Botrytis gray mold (Fig. 2). To prevent salt accumulation (and crop loss), high tunnel soil should be tested annually for EC (electrical conductivity, a measure of salts). If EC is high, a leaching event, through either plastic removal, or overhead irrigation can reset salt levels. After testing and treating soil, fertilizers can be compared for salt index; the lower the value, the less salts (for example sodium nitrate is a 100 on the salt index, compared to potassium nitrate, which is 70). Early planted, high yielding determinate tomato varieties have high nutrient demands (Fig. 3), which can lead growers to apply excess fertilizers, leading to further injury. Early planted crops often have impaired root systems from cold soils, further exuberating salt injuries. Irrigation water can be another source of salts for high tunnel soils. Similar to soil, an EC test is important, along with the analysis of TDS (total dissolved solids). It is difficult (impractical) to remove salts from irrigation water, but knowing the salt levels in the water helps us implement other best practices to avoid injury. Finally, compost should also be considered as a source of salts. In general plant-based material is less of a threat than animal-based compost.

If high salt levels are detected in a standing tomato crop, the application of clear water to the soil is recommended. Remember that vegetable crops can easily develop other root zone maladies if water is overapplied. – JR



Figure 1. Excess salts can cause a marginal burning on foliage, wilting and blossom end rot. *Photo: J. Reid, CCE* 



Figure 2. Dead tissue on tomato foliage can become a sporulation point for Botrytis gray mold. *Photo: J. Reid, CCE* 



Figure 3. Early planted, high yielding determinate tomato varieties have high nutrient demands such as this tomato that is K deficient. Often this leads growers to apply excess fertilizers, leading to further injury. Early planted crops often have impaired root systems from cold soils, further exuberating salt injuries. *Photo: J. Reid, CCE* 

## **Upcoming Events**

#### Vegetable Pest & Cultural Management Field **Meetings for Auction Growers**

**Ontario Produce Auction Meeting** June 27, 2023 (Tuesday) | 7:00 pm - 9:00 pm Amos Zimmerman Farm, 519 State Rte 247, Rushville, NY

**Finger Lakes Produce Auction Meeting** July 12, 2023 (Wednesday) | 7:00 pm - 9:00 pm Location TBD

Seneca Produce Auction Meeting - NOTE new address August 2, 2023 (Wednesday) | 7:00 pm - 9:00 pm David Peachey Farm, 5426 Rt 414, Romulus, NY 14541

These meetings are peer learning events that gather produce auction growers together to tour another farmer's produce farm. Judson Reid, Senior Extension Associate with the Cornell Vegetable Program, along with CCE staff will instruct participants and facilitate peer-based learning. Details on each topic will focus on field observations at the farm.

DEC recertification credits will be offered (1.75 credits in categories 10, 1a, 23, 24).

No registration is required. For more information, contact Judson Reid at 585-313-8912.

#### Transition to Supervisor Training...in Spanish! July 20-21, 2023 (Thursday-Friday) | 11:00 am - 4:00 pm CCE Ontario County, 480 N Main St, Canandaigua, NY

Making the transition from individual performer to supervisor is challenging for most farm employees, it's even harder when language and cultural barriers get in the way. Cornell Agricultural Workforce Development offers training, in Spanish, to equip employees with the knowledge and skills they need to succeed as they seek to advance and take on more responsibility.

See a bilingual flyer here: Transition to Supervisor, English-Spanish

This program is open to supervisors and employees with potential to be supervisors from all types of agricultural operations. The training is very applied to work and engaging. We will focus on these topics:

- Develop effective work relationships •
- Learn essential communication skills .
- Manage conflict
- Lead a multi-cultural team
- Build an effective workplace culture to be able to influence teamwork

Cost is \$300 per participant and includes lunch for both days. **REGISTER** online.

For any questions, in English or Spanish, please contact: Mary/ María "Bess" Lewis, M.A.T., Bilingual Management Development Specialist / Especialista Bilingüe para el Desarrollo Administrativo, (607) 255-1891, ml2656@cornell.edu

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## **Cornell Cooperative Extension** Cornell Vegetable Program

480 North Main Street Canandaigua, NY 14424





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.

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**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)

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

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## **Cornell Cooperative Extension** Cornell Vegetable Program

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

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