



# VEGEEdge

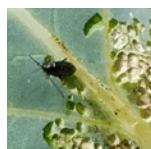
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## Iron Deficiency in Tomatoes

Judson Reid, Cornell Cooperative Extension, Cornell Vegetable Program

Iron is a current common nutrient deficiency in tomatoes. The symptoms of iron deficiency are yellow interveinal discoloration (similar to magnesium), however the location of the symptoms is key to diagnosing iron deficiency. Iron (Fe) is considered a non-mobile nutrient in the plant; in other words, it cannot be moved from older leaf tissue to new growth. Iron must be taken up in solution from the roots to the new growth, which is why we see it always on new growth first (vs magnesium deficiency on older growth). But why do we see so much iron deficiency this week?

Spring of 2020 has been marked by prolonged cool periods, then high temperatures spikes, followed again by cool temps. When sunlight and temperature conspire to drive rapid tomato growth, new tissue is developed quicker than the plant can take up iron from the root zone, despite its relative abundance in the soil. In addition to spring growth spurts, there are several other factors that can lead to iron deficiency.

- High soil pH
- High levels of soil phosphorus
- High levels of soil magnesium
- High levels of soil calcium



The new growth of high tunnel tomatoes will have interveinal yellowing when iron is not available or crop growth is rapid. In severe cases the leaves will be white. Photo by Judson Reid, Cornell Vegetable Program

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## 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:  
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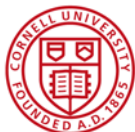
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*This next issue of VegEdge newsletter will be produced on June 17, 2020.*

## Upcoming Events

*View more events at [CVP.CCE.CORNELL.EDU](http://CVP.CCE.CORNELL.EDU)*

### Food Safety & Wash/Pack Facilities Training

June 15, 2020 (Monday) | 6:15 pm - 9:15 pm via Zoom

This virtual training, presented by Robert Hadad and Caitlin Tucker from the CCE Cornell Vegetable Program, will help farmers and workers understand the concepts of food safety from harvest to packing. This training will also cover facility design, operation for washing produce and cleaning/sanitizing to minimize the risk of possible microbial contamination. Topics will include:

- The Basics: Understand **what is contamination**, why do we care, and where does it come from
- Identify **sources and routes of contamination** from field to Wash/Pack line – what to do about it
- Demonstrate the process of **proper handwashing, and recognizing signs and symptoms of illness and injuries**
- Understand the importance of **prioritizing Wash/Pack design and function**
- Review **cleaning and sanitizing procedures for facilities** and basic wash lines
- Review **cleaning and sanitizing procedures for Wash/Pack equipment**

This meeting is a FREE online webinar. For more information and registration, contact Robert Hadad at [rgh26@cornell.edu](mailto:rgh26@cornell.edu) or 585-739-4065.



United States Department of Agriculture  
National Institute of Food and Agriculture

This material is based upon work supported by USDA/NIFA under Award Number 2018-70027-28588.



The soil test results below (Fig. 1) are common to NYS high tunnels soils; and have all the above contributing factors that can lead to iron deficiency.

Element	lbs/acre*	Very Low	Low	Optimum	High	Very High
Phosphorus (P)	836					
Potassium (K)	3,351					
Calcium (Ca)	8,994					
Magnesium (Mg)	1,509					

Element	Value	Element	Value	Element	Value
Soil pH	7.9	Zinc (Zn), lbs/acre	5	% OM	12.8
Iron (Fe), lbs/acre	3	Aluminum (Al), lbs/acre	12		
Manganese (Mn), lbs/acre	64	Soluble Salts, mmhos/cm	0.4		

Figure 1. High tunnel soils are often high in phosphorus, calcium, magnesium and pH. This can lead to iron deficiencies. The level of 3 lbs Fe per acre is considerable acceptable for crop growth.

Iron is critical for photosynthesis and foliage must accumulate to critical levels for healthy flower production. Although most iron deficiencies will clear up in time, severe cases need to be corrected.

Iron is available at pH's close to 6.0, so soil and water pH management is the most important tool for growers. Annual applications of elemental sulfur, as well as continual acidification of irrigation water can help keep the iron in the soil available to the plant. In addition to acidification take a look at nitrogen sources. Nitrate based nitrogen will raise soil pH, while ammonia based N will lower pH. Avoiding over-application of high phosphorus, calcium and magnesium fertilizers is also preventative. Finally, we may need to add iron to the soil or foliage. Chelated iron is available (in OMRI and conventional sources) and can be applied foliar or injected to correct deficiencies. Ferrous sulfate can also be applied if there is a documented deficiency in the soil, but may become unavailable in the presence of high calcium levels.

Concerned about a nutrient deficiency in your crop? Consider foliar testing as a way to catch problems before visual symptoms appear. We are happy to help explain foliar sampling as well as diagnose any symptoms you do see. Call us!



Magnesium deficiency is visible on the lower leaves first, whereas iron will be in the newest foliage. Heavy fruit loads are associated with Mg deficiency.  
*Photo by Judson Reid, CCE Cornell Vegetable Program*



Healthy flowers require adequate levels of foliar iron (Fe) levels. High pH, P, Mg and Ca in the soil can restrict Fe uptake.  
*Photo by Judson Reid, CCE Cornell Vegetable Program* ●

# Flea Beetle Life Cycle and Control in Cole Crops

Elizabeth Buck, CCE Cornell Vegetable Program

Flea beetles are a persistent and perennial problem in cole crops. Two types tend to feed on cole crops, the shiny, blackish-blue crucifer flea beetle and the striped flea beetle, which has two orange bands on the outer edge of its back. Both species overwinter as adults and begin their annual life cycle feeding on weeds. While the striped flea beetle will feed on many types of plants, including crops and weedy hosts, the crucifer flea beetle prefers brassica crops, brassica family weeds, and sweet alyssum (an ornamental brassica flower that can be used to attract beneficials). Adults can fly well and will transition from weeds to cole crops, where they commence feeding and egg laying. Eggs are laid in the soil near plants or on wounded roots. Larvae hatch and spend a number of weeks feeding on the roots before pupating and emerging as adults to feed on the foliage. The long larval period is why there is a second flush of adult activity in late July or early August.

## CONCERN FOR CROP

Flea beetle damage is unsightly. Luckily, many cole crops can tolerate feeding damage for a portion of their development. Small seedlings and transplants are at greatest risk from flea beetles, as they cannot recover well from lost foliage. The threshold for control in the seedling stage is 1 flea beetle per plant. Young plants should be scouted several times a week if they are placed out during periods of flea beetle activity. The first generation is the primary concern for young plants.

Older plants with at least 5-6 true leaves can compensate for foliage lost to minor feeding damage. Tolerance to moderate feeding pressure increases as the plant grows, which reduces the need to treat. Damage tolerance at this stage depends more on whether you are raising a heading or leafy green cole crop, since consumer acceptability of holey salad and cooking greens tends not to be very high. In heading cole crops, reducing flea beetle feeding becomes more important as the head forms. Flea beetles will cause scarring on cabbage heads and kohlrabi, chew through Brussels sprouts, and damage the curd of cauliflower and broccoli. The second generation is the main concern for heading plants.

## CONTROLLING FLEA BEETLES

Flea beetles are good flyers and overwinter in weeds and brassica crop residue. Culturally (preventatively), you can help cut down on flea beetles by:

- Thoroughly working down cole crop residues
- Establishing good rotations that put some distance between cole crop fields
- Controlling weeds around field margins, particularly brassica weeds
- Making a particular effort to control brassica weeds this season in next year's planned cole crops field(s).
- Working down germinated winter annual brassica weeds in next year's cole crops fields during the fall.
- Using row cover or insect netting to exclude flea beetles *before they arrive, and only in areas where they are unlikely to emerge.*



Crucifer flea beetles and feeding injury on cabbage.

Photo by Christy Hoepting, CCE Cornell Vegetable Program

There are many chemical control options for flea beetles. **Systemic insecticides** like Admire (imidacloprid) can **offer longer windows of control**, but it is important to note that **control is reduced feeding damage** and may not appear as a reduction in the number of adults on the crop.

### Reactive Controls, Organic:

- Entrust, applied with Nu-Film P (best control)
- Pyganic (moderate control)
- Surround, applied with Nu-Film P (can have good control, leaves residue)

Neem, azadirachtin, and plant oil products have limited effect on flea beetles.

### Reactive Controls, Conventional:

- Pyrethroids, Group 3A (many labeled)
- Neonics, Group 4A (specific label language designating use for soil or foliar applications only)
- Exirel, Group 28
- Sevin XLR Plus, Group 1A (a carbamate class insecticide)

Nearly all the registered conventional insecticides that treat flea beetle are restricted use materials. PHIs range from 0-7 days. **Rotating chemistry classes is especially important since adults are long lived and there are two generations per year!** ●

# Resources for Farm Business Safety Plan Required by New York

Richard Stup, CCE Ag Workforce Development

As the [New York Forward](#) plan is implemented across the state, businesses of all kinds are [required to have a COVID-19 written safety plan](#) in place. Both essential agricultural businesses that have remained open throughout the COVID-19 pandemic and those non-food related agricultural businesses who will re-open must have a safety plan.

A task force of Cornell Cooperative Extension (CCE) specialists developed a new set of resources to help farms comply with this requirement and efficiently prepare plans during this busy time of the year. [NY Forward Business Safety Plan Support for Farms](#) contains:

- 1. Plan Templates.** Download these blank forms that you can use electronically to write your plan or simply print out and hand write your plan. Available in Adobe PDF and Microsoft Word formats.
- 2. Considerations and Examples for Your Plan.** The CCE team prepared two new documents that provide ideas for your consideration and examples of how you might complete your plan for common farm situations. The main document here is intended for most farms engaged in production agriculture and a companion document is for those farms that include retail sales as part of their business.
- 3. Key References and Support Documents.** A huge number of resources have been created since March. We have selected the most relevant documents that farms need to complete business safety plans, including guidance documents from state government and best management practice (BMP) documents from Cornell experts. These references focus on specific types of farms and their specialized needs.

We've also included quite a few related references and support articles. Access all of these resources at: <https://agworkforce.cals.cornell.edu/ny-forward-business-safety-plan/>. You can reach out to CCE business management educators across the state to assist with this important business safety task. ●

## NY Sweet Corn Trap Network Report, 6/9/2020

Marion Zuefle, NYS IPM Program; from <http://sweetcorn.nysipm.cornell.edu>

Statewide, 17 sites reported this week with European corn borer (ECB)-E caught at two sites, Hurley and Seneca Castle, both with high trap catches. ECB-Z was caught at three sites, Hurley, Seneca Castle and Feura Bush. Four sites reported corn earworm (CEW) with three of those sites high enough to be on a 5 or 6 day spray interval (see table). No fall armyworm (FAW) or western bean cutworm (WBC) were caught at any of the reporting sites.

As I mentioned last week, there are six sites that also have a trap for the hybrid ECB, marked with an asterisk. Only four of the six sites have traps set at this time. Of those four sites three caught the hybrid ECB this week. Next to each site I have also included the accumulated degree days (base 86/50). Most sites are in the egg laying stage with some entering the peak spring moth flight (see table below).

When scouting for ECB focus on the emerging tassel. Separate the leaves and look down into the tassel for any

**European corn borer (bivoltine) development estimated using a modified base 50F degree day calculation**

Development Stage	Accumulated Degree Days
<b>First Generation</b>	
First spring moths	374
First eggs	450
Peak spring moths	631
First generation treatment period	800-1000
<b>Second Generation</b>	
First summer moths	1400
First eggs	1450
First egg hatch	1550
Peak summer moths	1733
Second generation treatment period	1550-2100

signs of feeding, frass or larvae. The threshold for ECB and FAW is 15% infested plants at tassel emergence.

### WNY Pheromone Trap Catches: June 9, 2020

Location	ECB-E	ECB-Z	ECB Hybrid	CEW	FAW	WBC	DD to Date
Batavia (Genesee)	0	0	NA	0	0	0	535
Bellona (Yates)	NA	NA	NA	NA	NA	NA	544
Brockport (Monroe)	0	0	NA	0	0	0	571
Eden (Erie)	0	0	NA	3	0	0	567
Farmington (Ontario)	0	0	3	0	0	0	565
Geneva (Ontario)	NA	NA	NA	NA	NA	NA	546
Hamlin (Monroe)	NA	NA	NA	NA	NA	NA	531
Kennedy (Chautauqua)	NA	NA	NA	NA	NA	NA	540
Leroy (Genesee)	NA	NA	NA	NA	NA	NA	530
Lyndonville (Orleans)	0	0	NA	0	0	0	509
Oswego (Oswego)	0	0	NA	0	0	0	431
Panama (Chautauqua)	0	0	NA	1	0	0	479
Penn Yan (Yates)	0	0	0	0	0	0	521
Portville (Cattaraugus)	NA	NA	NA	NA	NA	NA	501
Ransomville (Niagara)	0	0	NA	0	0	0	552
Seneca Castle (Ontario)	33	1	4	0	0	0	515
Williamson (Wayne)	NA	NA	NA	NA	NA	NA	463

ECB: European Corn Borer; CEW: Corn Earworm; FAW: Fall Armyworm; WBC: Western Bean Cutworm; NA: not available; DD: Degree Day (mod. base 50F) accumulation

Average Corn Earworm Catch			Days Between Sprays
Per Day	Per Five Days	Per Week	
<0.2	<1.0	<1.4	No spray (for CEW)
0.2-0.5	1.0-2.5	1.4-3.5	6 days
0.5-1.0	2.5-5.0	3.5-7.0	5 days
1-13	5-65	7-91	4 days
over 13	over 65	over 91	3 days

Add one day to the recommended spray interval if daily maximum temperatures are less than 80F for the previous 2-3 days. ●



# Mancozeb for Early Botrytis Leaf Blight Control in Onion

Christy Hoepting, Cornell Cooperative Extension, Cornell Vegetable Program

At the 2019 Empire Expo Onion Session, special guest speaker, Hervé Van der Heyden from Cie de recherche Phytodata, Inc. in Sheridan, Quebec shared his experience with controlling leaf diseases in onion. His program uses a combination of scouting data, spore trapping and disease prediction modeling/forecasting to determine when to treat for Botrytis leaf blight (BLB). One of the things that struck me about his presentation was the **success that the Quebec onion growers were having for control of BLB with use of low rate of mancozeb at first spore trap catch.**

**MY EXPERIENCE HAS BEEN THE OPPOSITE: MANCOZEB 3 LB HAS CONSISTENTLY BEEN NOT SIGNIFICANTLY DIFFERENT THAN THE UNTREATED CHECK IN NUMEROUS ON-FARM FUNGICIDE TRIALS.**

So, how could the low rate be any better? In 2019, I compared mancozeb and Bravo at low and high rates at an early timing (= first detection of BLB) and threshold timing (= 1.0 BLB halo lesion/3 outer leaves). Disease pressure was lower than hoped, but the **trial yielded some interesting results (Table 1, next page) that may have some utility for New York onion growers as we strive to effectively manage fungicide resistance.**

## START SPRAY AT FIRST DETECTION OF BLB FOR MANCOZEB TO BE EFFECTIVE

Much to my surprise, when I initiated first fungicide application at first detection of BLB when onions had only 3 leaves on June 12, after 2-3 sprays (12 days after 2nd spray/3 days after 3rd spray), mancozeb 3 lb had the lowest number of BLB halo lesions in the trial, which was not significantly different than mancozeb 1 lb, Bravo 3 pt and Luna Tranquility 16 fl oz. The same trend also occurred after the sixth spray (data not shown).

## MANCOZEB NOT EFFECTIVE WHEN WAIT UNTIL BLB SPRAY THRESHOLD

Alternatively, when I waited until BLB halo counts reached the spray threshold (1.0 BLB halo lesions per leaf), to make the first fungicide application on June 25 when onions had 4-5 leaves, after six consecutive sprays, there was no significant difference between mancozeb 1 lb and 3 lb and the untreated check. After 9 sprays at harvest, mancozeb 1 lb was not significantly different than the untreated, but mancozeb 3 lb had lower BLB necrotic spot severity. This is what I usually see in my trials. Mancozeb only worked for BLB when sprays initiated at first detection of BLB.



Botrytis leaf blight lesions. Left: "Halo" lesions are silvery spots that often have a straw-colored necrotic spot in the center, but not always! They appear first in the season, but during July, they fizzle and give way to necrotic spots (right), which do not have halos. BLB necrotic spots dominate through August until harvest. Photos by C. Hoepting (left) and S. Vande Brake (right), CCE Cornell Vegetable Program

## BRAVO 3 PT AND LUNA TRANQUILITY 16 FL OZ BEST IN TRIAL

In the early timing trial, Bravo 3 pt and Luna Tranquility 16 fl oz were not significantly different than the best treatment or each other. In the at-threshold timing trial, after 6 sprays these treatments had the lowest BLB necrotic spot severity in the trial and were not significantly different than each other. At harvest after 9 sprays Bravo 3 pt had the lowest BLB necrotic spot rating in the trial, which was not significantly different than Luna Tranquility 16 fl oz. These results are similar to my previous trials.

## BRAVO 1.5 ALONE OR WITH MANCOZEB 1 LB

Interestingly, compared to Bravo 3 pt, Bravo 1.5 pt had significantly more BLB halo lesions after 2-3 sprays in early timing trial, and higher BLB necrotic spot severity after 6 sprays in threshold trial. **Bravo 3 pt was more effective than the 1.5 pt against BLB in this trial.** There was **no synergy between Bravo 1.5 pt + mancozeb 1 lb** in this trial as either Bravo 1.5 pt or mancozeb 1 lb alone never performed better than the combo.

## MANCOZEB EARLY FOR SLB FUNGICIDE RESISTANCE MANAGEMENT

In light of Stemphylium leaf blight (SLB) developing fungicide resistance at an alarming rate to several Fungicide Resistance Action Committee (FRAC) groups, there is an urgent need to preserve the use of the remaining effective FRAC groups for SLB. Most importantly, FRAC 3 (e.g. Inspire Super, Tilt and Quadris Top) and Luna Tranquility (FRAC 7, 9) – much more on this in upcoming newsletter article!

If mancozeb could be applied early at first detection of BLB, then it could be used weekly through first two applications of Movento. Although a great BLB fungicide, Bravo is unfortunately not compatible

*continued on next page*

with Movento, because it reduces the activity of the insecticide. Instead, when applying Movento, Bravo has been switched out with Scala + Rovral (prior to 2019), Quadris Top + Tilt (FRAC 3 + 3) or Inspire Super (FRAC 3, 9), which are also SLB fungicides. However, now that we know that mancozeb has activity on BLB (only when applied at first detection), we can use it with Movento (it is compatible according to early testing conducted by Brian Nault) and preserve our precious SLB fungicides until later in season. Table 2 lists an example spray program. The only caveat to using mancozeb instead of an SLB fungicide for BLB with Movento, is if it is critical to start SLB program early, which currently is unknown.

Table 1. Efficacy of protectant fungicides applied early (at first detection of BLB) and at-threshold timings on Botrytis leaf blight of direct seeded onion (c.v. Red Wing), on-farm small-plot trial, Elba, 2019 (Hoepting *et. al.*).

Timing:	Early	At-Threshold	
BLB at first spray:	First detection	1.0 halo lesion/leaf	
Crop Stage & Date at first spray:	3-leaf (Jun 12)	4-5 leaf (Jun 25)	
Total No. consecutive weekly sprays:	6 sprays	9 sprays	
Treatment Rate/A	No. BLB halo lesions/3 outer leaves/plant	BLB necrotic spot severity (%)	
	6-leaf (Jul 3-5)	7-leaf, 2" bulb (Aug 7,9)	Harvest (Sep 5-6)
	After 2-3 sprays	After 6 sprays	After 9 sprays
Untreated	12.9 a <sup>2</sup>	8.7 ab	23.8 ab
Luna Tranquility 16 fl oz	7.3 bc	2.4 g	12.8 c-f
Bravo WS 3 pt	7.2 bc	2.8 g	9.1 ef
Bravo 1.5 pt	12.4 a	4.6 def	11.0 def
mancozeb 1 lb <sup>1</sup>	7.6 bc	7.8 abc	24.5 a
mancozeb 3 lb <sup>1</sup>	6.3 c	6.7 bc	16.5 bcd
Bravo 1.5 pt + mancozeb 1 lb	7.7 a	4.9 de	18.1 abc
<b>p value (<math>\alpha = 0.05</math>)</b>	<b>0.0001</b>	<b>0.0000</b>	<b>0.0000</b>
green filled cell	Not significantly different than <b>best treatment (bold)</b> .		
yellow filled cell	Not significantly different than <b>worst treatment (bold italic)</b> .		

<sup>1</sup> mancozeb 1 lb/A = Manzate Max 0.8 qt/A. mancozeb 3 lb/A = Manzate Max 2.4 qt/A.

<sup>2</sup> Numbers in a column are not significantly different, Fisher's Protected LSD test,  $p < 0.05$ .

Table 2. Example of early fungicide program that utilizes mancozeb for BLB early and with Movento to preserve precious SLB fungicides.

Week No. & Crop Stage	Fungicide for BLB	Insecticide for thrips
1. 3-leaf or 1st detection, whichever comes first	mancozeb 1-3 lb <sup>1</sup>	
2. 4-5 leaf	mancozeb 1-3 lb	
3. 6-leaf	mancozeb 1-3 lb	Movento 5 fl oz
4. 7-leaf, start bulb	mancozeb 1-3 lb	Movento 5 fl oz
5. 8-leaf	Bravo 3 pt? More on this later...	No insecticide: momentum of Movento

<sup>1</sup> No difference among 1 lb and 3 lb rates in trial for early BLB control. ●

## Prowl H2O + Chateau Herbicide in Onion

Christy Hoepting, Cornell Cooperative Extension, Cornell Vegetable Program

It is not uncommon for the first post-emergent herbicide spray in onion to be Chateau, because it's maximum size limit for most types of weeds is 1.5 inch tall/in-diameter, after which larger weeds have very little injury. In the original Cornell field trials with Chateau, best results were obtained with Chateau 2 oz followed by Chateau 1 oz 7 days later. However, sometimes after the first application of Chateau, weed control is very good and a second app for post-emergent control is not warranted. But what about for pre-emergent control? What is the difference between Chateau 2 oz and 3 oz for pre-emergent weed control? Is it worth it to come back with second app for pre-emergent control even if not warranted for post-emergent control?

Table 1. Pre-emergent control of marsh yellowcress with Chateau and Prowl, 2017 & 2019 onion herbicide trial results, Oswego (Hoepting).

Treatment	Marsh yellowcress Control	Pigweed (Control Rating) <sup>1</sup>	Lady's Thumb/ Smartweed (Control Rating) <sup>1</sup>
<b>Oswego 2017 37 DAT<sup>2</sup> – Pre-emergent weed control</b>			
Prowl EC 2.4 pt	78%		
Prowl EC 3.6 pt	87%		
Prowl EC 4.8 pt	86%		
Prowl H2O 4 pt	60%		
Prowl H2O 4 pt + Chateau 1 oz	77%		
<b>Oswego 2019 39 DAT – Pre-emergent weed control</b>			
Chateau 1 oz	40%	E	Fail
Chateau 2 oz	80%	E	F-G
Chateau 3 oz	92%	E	E
Chateau 2 oz Fb <sup>3</sup> . Chateau 1 oz 10 DAT	97%	E	E

<sup>1</sup> Rating: E: Excellent; VG: Very good; G: Good; F: Fair; P: Poor; Fail.

<sup>2</sup> DAT: Days after treatment.

<sup>3</sup> Fb: followed by.

Timing of Chateau often aligns with application of Prowl for pre-emergent control, but Prowl EC + Chateau can cause serious injury to onion, and is not labelled. Prowl H2O is the only thing allowed to be used in same tank mix as Chateau. Table 1 (on previous page) outlines relative performance of Chateau, Prowl EC and Prowl H2O for pre-emergent control of marsh yellowcress. Evaluations were made at about 5.5 weeks post application.

#### KEY FINDINGS (EMPHASIS ON ANNUAL MUSTARD, MARSH YELLOWCRESS (MYC), UNLESS OTHERWISE STATED:

- No significant difference between Prowl EC 2.4, 3.6 and 4.8 pt rates, although numerically slightly better control with medium and high rates.
- Prowl H2O 4 pt provided less control than any rate of Prowl EC.
- Prowl H2O 4 pt + Chateau 1 oz same as Prowl EC 2.4 pt.
- Chateau 2 oz almost as good as Chateau 3 oz, and twice as good as 1 oz.
- Chateau 2 oz followed by 1 oz almost 100% MYC control.
- Chateau 3 oz was needed to achieve excellent pre-emergent control of Lady's thumb.
- Chateau 1-3 oz all were excellent on pre-emergent control of pigweed.

Even if post-emergent weed control is not necessary, growers may want to follow up with second application of Chateau for the added pre-emergent control of MYC and LT/SW. ●



#### GENERAL

Black cutworm larval feeding will continue for the next several weeks and growers should be on the watch for them in multiple vegetable crops including beet, carrot, cucumber, leafy greens, melon, peas, potato, pumpkin, snap beans, squash, and sweet corn. There is a good short video on scouting for cutworms in field corn from the CCE NWNH field crops educators at <https://vimeo.com/130331770>. For more information on cutworms and armyworms, see last week's VegEdge. - JK

#### BEETS

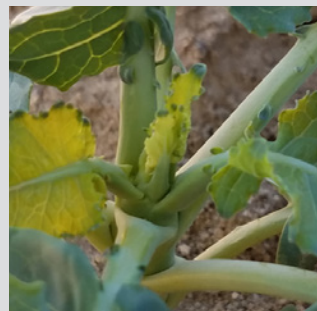
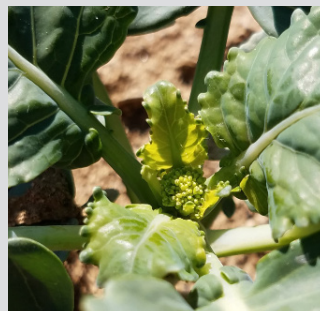
The crop is generally looking good and the majority of acreage is planted. Some early plantings were set back when they had frost and snow on them several weeks ago. Now we are into hot, dry conditions. I have not seen or heard of bacterial leaf spot or other leaf diseases to date, but it doesn't mean it's not out there somewhere. It is a bit early for *Cercospora* leaf spot to be showing up unless you have a crop in a protected environment like high tunnels. Beets leaves will show some spots if there is minor insect feeding, soil hitting leaves from wind or rain splash, or herbicide damage. Feel free to send a photo or contact a CVP team member for leaf spot diagnosis. We did see black cutworm damage at low levels last week in some processing fields and scouting should be a high priority for the next several weeks. For large acreage beet growers, a product with bifenthrin (Sniper or Hero) will provide the greatest efficacy and residual for control of black cutworms. - JK

#### CARROTS

The processing crop has early plantings on the muck now several inches tall and growing well. There has been some crop stand loss due to damping off, hot and dry conditions, and herbicide injury. Some of the upland plantings just went in and are or will be emerging soon. The dry soils in parts of our region may cause some wind whipping or desiccation of tiny seedlings. Weed control is important at this stage of crop growth. Scouting and management of leaf hoppers should begin as well. - JK

#### COLE CROPS

Portions of some early cauliflower and broccoli plantings were physiologically pushed into early heading by the temperature swings. The heads ranged from button to 3" miniature heads. There are differences in tolerance among varieties. When scouting, look for plants that are undersized but otherwise appear healthy. Check the growing point to see if a button is forming underneath (see photos below). Continuing to see diamond back moths in late afternoon scouting, keep an eye on worm pressure. - EB



Broccoli plant with a that has begun heading and is button stage (left). Center of a broccoli plant showing normal growing point development for this time of year, with many small, tightly stacked leaves (right).

continued on next page



continued...

## ONIONS

News is that Botrytis leaf blight (BLB) increased over the past week, so far reports only from Elba. BLB pressure in Elba was highly variable with many transplanted and direct seeded fields at first detection and others already exceeding the traditional spray threshold of 1.0 BLB halo lesions per leaf. Most direct seeded fields are in the 2-leaf stage and earliest transplants have 7-8 leaves. Cornell 2019 fungicide trial showed that early applications of mancozeb resulted in significant control of BLB that was comparable to Bravo 3 pt when initiated early at first detection of BLB. When waited until at-threshold to initiate first fungicide spray, mancozeb did not work. There may be opportunity to use mancozeb early and through Movento for BLB so that we do not have to use precious Stemphylium leaf blight (SLB) fungicides for BLB with Movento – see article. Since I did not see any significant differences between 1 lb and 3 lb of mancozeb, and experience from Quebec is that low rates are more effective than high rate, mancozeb 1 lb should be fine. Despite all this, I can't make myself spray 2-leaf onions with fungicides!

Onion thrips are beginning to build as well. Although there are no fields that have yet reached the spray threshold of 1.0 thrips per leaf to spray, early transplants that are in early bulb-swell stage should get their first application of Movento this week. See article on relative performance of Prowl EC and H2O, and pre-emergent control of Chateau of marsh yellowcress (MYC) from field trials in Oswego 2017 and 2019. Growers with MYC and Lady's thumb/smartweed may want to ensure improved pre-emergent control of these weeds with double application of Chateau. Even a single application of Chateau has excellent pre-emergent control of pigweed. Chateau is labeled for 2- to 6-leaf stage. - CH

## PEAS

The pea crop is growing well, but hot and dry conditions are not favorable. The processing pea crop is in several stages of growth as harvest will begin later this month and likely continue through about the third week of July. Weed control is important in plantings that are just emerging or at early stages of growth. Evidence of some herbicide overlap can be seen in a few fields with yellowing or dying streaks. - JK

## POTATOES

Many potato fields are now well on their way. The first generation of Colorado potato beetles have started laying eggs on volunteers. Insecticides applied in-furrow should continue to protect field-planted potatoes for a few weeks. However, be sure to monitor current potato fields nearby any fields where potatoes were planted last year, in case beetle populations are showing signs of resistance to the insecticides used.

Late blight severity values are still low in many areas. However, we have reached 18 severity values in some wet and foggy areas including Buffalo, Niagara Falls, and Wellsville, and are close to 18 severity values in Ceres and Versailles. The first fungicide application should occur as soon as possible after 18 Blightcast severity values have accumulated since first potato tissue emergence in your region. Apply a fungicide as soon as possible after the threshold has been reached to any potato fields with plants larger than six inches tall. - ML and JG

Late Blight Severity Values\* 6/09/2020

Location	Total	Forecast 6/10 - 6/12	Location	Total	Forecast 6/10 - 6/12
Albion	1	0	Hammondsport	1	0
Arkport	4	1	Knowlesville	3	0
Baldwinsville	1	1	Lyndonville	3	1
Bergen	0	0	Medina	9	0
Buffalo	28	0	Niagara Falls	20	0
Burt	3	1	Penn Yan	12	0
Ceres	15	2	Rochester	13	0
Elba	0	0	Sodus	3	0
Fairville	1	0	Versailles	15	1
Farmington	6	0	Wellsville	26	1
Fulton	13	0	Williamson	2	0
Geneva	3	0			

\* Severity value accumulations start 5/20/2020

## SNAP BEANS

Planting of the processing crop has progressed well. Dry soils may slow germination in some fields or field sections. Soil moisture varies across our region based on hit or miss storms this past week. - JK

## SWEET CORN

Take note of the black cutworm alert in the general section and scouting video. The treatment threshold for sweet corn is greater than 5% of plants damaged in a field. - JK

## TOMATOES

See Potatoes for Late Blight Severity Values.



## Berry Update, June 10

Esther Kibbe, Cornell Cooperative Extension, Harvest NY

### STRAWBERRIES

mostly at fruit set with some late flowers still present, especially on later varieties. Starting to see ripening berries on early varieties (Wendy, Earliglow), so expect harvest to start within the next week, though cooler weather this weekend may slow things down again. I'm glad to see lots of irrigation going on in the fields this week – adequate water is very important for fruit size and plant health. If using overhead sprinklers or jets, be sure to turn off water in time for the plants to dry off going into the evening to reduce disease development. The warm weather has also brought on pests: tarnished plant bugs, aphids, spittlebugs, thrips. The tarnished plant bugs, in particular, can be very damaging to fruit quality, causing malformed berries. Tap several flower clusters over a white paper or plastic lid to see what is in your field. As we move to harvest, the focus switches to fruit rots (botrytis, anthracnose, leather rot) and pests of ripe fruit (SWD, slugs, sap beetles). Two-spot spider mites are a concern throughout the season, particularly under hot, dry conditions. Remember that mite thresholds are quite low – use a presence/absence method. Look at 60 fully expanded tri-foliate leaves and if you find 15 mites you have reached threshold. You may want to spray and then add beneficial predator mites as soon as possible to fields to control these pests.



If you have new strawberries planted, don't forget about weeding and watering them too. Close cultivation is the best choice for matted row strawberries in the first season. Photo by Esther Kibbe, CCE Harvest NY

### BLUEBERRIES

Petal fall to small green fruit, crop loads vary by field, but generally seems to be good. As bees come out of the fields, insecticides for cranberry and cherry fruitworm, leafrollers and tip borers are appropriate. Be ready for an early SWD season this year, after a fairly mild winter. The Spotted Wing Drosophila (SWD) trapping network is starting to catch males. Adults have been trapped in cherry orchards already, but not many in berry locations yet. In some fields I am seeing a lot of blossom blight; likely botrytis, Phomopsis or mummyberry strikes. It is probably too late to do anything this season except pruning out affected canes, but make a note for next spring's dormant spray. However, a petal fall fungicide spray is indicated for anthracnose fruit rot, especially if this has been a problem in previous years.

### BRAMBLES

Raspberries progressing to fruit set, black raspberries in full bloom. Brambles need irrigation as well for good plant growth. Apply at least an inch per week while it continues to be dry. With a mild winter, SWD management will be critical. Be sure to keep rows well-mowed and free of weeds – SWD loves thick, sheltered plantings. Consider stripping lower 12-18" of canes to help dry out planting, and improve insecticide penetration. It is just about time to start seeing Japanese Beetles – no need to scout, they will make themselves known!

### CURRENTS

Nice fruit set in the plantings I've seen. No issues observed, but they are susceptible to various fruit worms, mites and foliar diseases. ●

## Online GAPs Training – Any Interest?

Robert Hadad, Cornell Cooperative Extension, Cornell Vegetable Program

This announcement is to gauge the interest from farmers for an online Good Agricultural Practices training. Farm food safety is hugely important and no farm shouldn't have food safety practices in place. Typically, we run this training as an in-person, 2-day session. The first day covers the principles and practices of farm food safety. The second day is for those who want to write a farm food safety plan with our help.

Whether you just want to learn more about food safety or if your buyer is demanding you have an audit with certification to maintain your markets, the GAPs program is a great program. Maybe you are exempt from the FDA FSMA regulations, you aren't exempt from implementing food safety practices.

The proposed online training will be divided over 2 nights one week, with an additional night the following week for those wanting to write a food safety plan. **If people are interested, I need to hear back on choosing a date.** The first option is 7/13-14 & 7/20. The second option is to hold off until early fall, probably late September or early October. Please contact Robert Hadad at rgh26@cornell.edu or 585-739-4065. ●



## Weather Charts

John Gibbons, CCE Cornell Vegetable Program

WEEKLY WEATHER SUMMARY: 6/02/20 - 6/08/2020

Location**	Rainfall (inch)		Temperature (°F)	
	Week	Month June	Max	Min
Albion	0.17	0.17	87	50
Arkport	0.06	0.06	84	47
Bergen	0.31	0.31	88	50
Brocton	0.01	0.01	79	50
Buffalo*	1.63	1.63	80	49
Burt	0.10	0.10	84	47
Ceres	0.67	0.67	82	43
Elba	0.30	0.30	84	48
Fairville	0.12	0.12	88	46
Farmington	0.31	0.31	88	47
Fulton*	0.38	0.38	85	46
Geneva	0.24	0.24	87	48
Hammondsport	0.47	0.47	86	46
Hanover	0.02	0.02	81	49
Lodi	0.47	0.47	84	50
Niagara Falls*	0.99	0.99	82	52
Penn Yan*	0.30	0.30	86	50
Rochester*	0.46	0.46	85	49
Sodus	0.02	0.02	86	44
South Bristol	0.45	0.45	84	51
Varick	0.36	0.36	87	49
Versailles	0.06	0.06	81	48
Williamson	0.13	0.13	84	49

## ACCUMULATED GROWING DEGREE DAYS (AGDD)

BASE 50°F: APRIL 1 - JUNE 8, 2020

Location**	2020	2019	2018
Albion	394	324	552
Arkport	338	332	608
Bergen	396	335	516
Brocton	414	366	NA
Buffalo*	388	318	590
Burt	348	265	458
Ceres	340	399	501
Elba	379	307	538
Fairville	388	306	501
Farmington	405	322	518
Fulton*	396	294	504
Geneva	406	352	530
Hammondsport	397	344	514
Hanover	408	365	549
Lodi	423	381	563
Niagara Falls*	380	290	603
Penn Yan*	415	386	567
Rochester*	404	389	599
Sodus	379	301	493
South Bristol	397	342	534
Varick	440	396	560
Versailles	408	374	541
Williamson	373	272	477

\*Airport stations

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

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# Cornell Cooperative Extension Cornell Vegetable Program

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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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