The Sweet Corn Pheromone Trap Network provides scouting and pest monitoring info for fresh market sweet corn. Learn how to use this resource.

PAGE 1

Read the highlights of the CVP's 2015 post-emergent herbicide trial in onions to determine which products provided the most weed control.

PAGE 4

Crucifer flea beetles are especially problematic on Asian crucifers. Frequent scouting and retreatment will be required.

PAGE 7

Need assistance, have questions, or want to review your farm food safety plan? The Cornell Vegetable Program can help!

PAGE 10

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 12 | Issue 07 | June 1, 2016

Cornell University
Cooperative Extension
Cornell Vegetable Program

Photo: Julie Kikkert

Scouting Sweet Corn and Using the Pheromone Trap Network to Determine Spray Intervals

Darcy Telenko, CCE Cornell Vegetable Program

The purpose of the Sweet Corn Pheromone Trap Network is to provide weekly reports on major sweet corn insect pest activity in western NY. The insect pests that are monitored include European corn borer (ECB), fall armyworm (FAW), corn ear worm (CEW) and western bean cutworm (WBC). These reports are available at http://sweetcorn.nysipm.cornell.edu/. The reports can be viewed weekly at the website; in addition, you can subscribe to receive an email of the report. The trap network is a collaboration between the NYS IPM Program, Cornell Cooperative Extension programs, farmers, and crop consultants. The site provides scouting and monitoring information for fresh market sweet corn, and links to resources on the major sweet corn insect and disease pests.

Robert Hadad checking a sweet corn pheromone trap in 2010.
Photo: Angela Parr, Cornell Vegetable Program

continued on page 3

VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension regional agriculture team, serving 12 counties in Western New York.

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
Robert Hadad
Christy Hoepting
Julie Kikkert
Carol MacNeil
Judson Reid
Darcy Telenko

Publishing Specialist/Distribution/Sponsors
Angela Parr

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 Parr at aep63@cornell.edu. Total readership varies but averages 700 readers.

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.

Cornell University
Cooperative Extension
Cornell Vegetable Program

Contents

The next issue of VegEdge will be produced on June 8, 2016.

Squash growing in WNY, 5/31/16. *Photo: Darcy Telenko, Cornell Vegetable Program*

For bare ground fresh market sweet corn scouting for European corn borer (ECB) and fall armyworm (FAW) larvae, should be initiated at early tassel emergence. (Early tassel has been reached in the first sweet corn plantings in the region.) Two well-timed applications at tassel emergence have been found to be more effective than applications at the whorl stage on bare ground sweet corn even when ECB trap counts are high. 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.

The **threshold for ECB and armyworms at tassel emergence is 15% infested plants.** For corn borers, look down into emerging tassels for tiny larvae or frass (white to brown material about the size of fine sand). For armyworms look for ragged feeding holes and frass pellets the texture of coarse sawdust. (See Table 1 for thresholds and comments).

Once a field has reached the **silking stage**, the **worm threshold drops to 5% infested plants**. Scout the ear zone (roughly from two leaves above and one leaf below the ears) for ECB egg masses and ECB or FAW larvae. Egg masses are found most frequently on the underside of leaves near the midrib, and consist of approximately 10-20 flattened eggs overlapping like fish scales. Eggs are white when first laid, turning cream colored after a couple of days, and show the black head capsules of the tiny larvae through the surface of the eggs when within 1 day of hatching (the "black head" stage). Egg masses can also sometimes be found on the flag leaves of the ears or on the husk itself. Eggs take approximately 100 base 50 degree days to hatch. When temperatures are in the 70's during the day and the 50's at night egg masses will take about a week to hatch. When temperatures are in the 80's during the day and the 60's at night, they could hatch in only 4 days. Look down into the tops of the silks for newly hatched larvae, and pull the ear away from the stalk slightly to look for larvae feeding between the stalk and the ear.

Corn earworm is difficult to scout for but pheromone trap catches may be used to time sprays according to the table below. Add one day to the recommended spray interval if daily maximum temperatures are less than 80° F for the previous 2-3 days (Table 2).

Table 2: Corn earworm catch and recommended spray interval.

Average corn earworm catch			
Per Day	**Per Five Days**	**Per Week**	**Days Between Sprays**
<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 80°F for the previous 2-3 days.

European corn borer larva and egg mass. *Photo: Sweet Corn Pheromone Network*

Fall armyworm larva and egg mass. *Photo: Sweet Corn Pheromone Network*

Table 1. Thresholds for the major sweet corn pests

Insect	Crop stage	Fresh market	Processing	Comments
European Corn Borer (ECB) and Fall armyworm	**Early tassel and tassel**	**15% infestation**	**15% infestation**	**Processing:** Monitor trap network once late whorl/tassel or silk stage begin scouting – sample 40 plants (five at each of eight sites).
	Silk stage through harvest	**5% infestation**	**5% infestation**	**Fresh Market:** Monitor trap network and scout weekly or more often if temperature is above 80°F.
Corn earworm		**Monitor trap catches to detect arrival and flight activity (see Table 2 for spray intervals)**		
Western bean cutworm	**July through August**	**1% infested with eggs or larvae**	**4% infested with eggs or larvae**	Use trap network to determine times to scout for WBC in fields.

(Information adapted from the Sweet Corn Pheromone Trap Network Scouting and Threshold Information maintained by Marion Zuefle, Vegetable IPM Extension Area Educator with the New York State Integrated Pest Management Program)

WNY Sweet Corn Trap Network Report, 5/31/16

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

This is the first report of the 2016 season. Seven sites reported this week with European corn borer (ECB)-E trapped at three sites, Penn Yan, Eden and Seneca Castle and one site, Seneca Castle trapping ECB-Z. Corn earworm (CEW) and fall armyworm (FAW) were both trapped at Eden as well. Degree day accumulations, based on the nearest NEWA weather station, are given for each trapping site. Most sites are close to the accumulated degree days for first ECB spring flight according to the development model from the University of Wisconsin.

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

European corn borer (bivoltine) development estimated using a modified base 50F degree day calculation. *From J. W. Apple, Department of Entomology, University of Wisconsin-Madison*

WNY Pheromone Trap Catches: May 31, 2016

Location	ECB -E	ECB -Z	CEW	FAW	WBC	WBC to Date
Baldwinsville (Onondaga)	NA	NA	NA	NA	NA	325
Batavia (Genesee)	0	0	0	0	NA	207
Belfast	NA	NA	NA	NA	NA	303
Bellona (Yates)	NA	NA	NA	NA	NA	360
Eden (Erie)	3	0	1	2	NA	317
Farmington (Ontario)	0	0	0	0	0	296
Hamlin (Monroe)	NA	NA	NA	NA	NA	287
LeRoy (Genesee)	NA	NA	NA	NA	NA	278
Lockport (Niagara)	NA	NA	NA	NA	NA	295
Pavilion	NA	NA	NA	NA	NA	278
Penn Yan (Yates)	1	0	0	0	NA	328
Seneca Castle (Ontario)	5	4	0	0	NA	313
Spencerport (Monroe)	NA	NA	NA	NA	NA	340
Waterport (Orleans)	NA	NA	NA	NA	NA	287
Williamson (Wayne)	NA	NA	NA	NA	NA	265

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

Highlights from 2015 Post-Emergent Herbicide Trial in Onion

Christy Hoepting, CCE Cornell Vegetable Program

A trial was set up in transplanted yellow onions (c.v. Festival) on May 29, 2015 when the onions were in the 3-4-leaf stages. Weed composition was mostly pigweed (PW) and smartweed (SW) with some lamb's quarters (LQ) and the odd ragweed (RW) and purslane (PL), which were 1-2 inch in height. Six days after the second spray application on Jun-11, treatments were evaluated for weed control and crop tolerance (Table 1). It is important to note that the first spray (A) was made following a hot and dry spell when both onions and weeds were tough, and that the second spray (B) was made once the weather changed to cool, rainy and humid conditions when both onions and weeds were more susceptible to herbicide injury.

Best Weed Control Achieved with High Rates of Goal 2XL. Best weed control in the trial (93.3%) was achieved with Goal 2XL 6 fl oz at 3-4 leaf stage followed by Goal 2XL 6 fl oz 1 week later at the 5-leaf stage, which had excellent control of PW, RW and purslane, and slightly less control (VG-E) of SW and LQ. This treatment also had the highest level of crop injury in the trial (6.7%), although certainly tolerable. The 6 fl oz rate of Goal 2XL is technically off-label, because it exceeds the maximum allowed per application. However, two consecutive applications of Goal 2XL at the maximum labeled rate of 4 fl oz was not significantly different than the 6 fl oz rate, although numerically it resulted in slightly lower weed control (86.7%) and onion injury (6.0%). The lower weed control was due to reduced efficacy against LQ and RW compared to the 6 fl oz rate. Even with two more additional weekly applications of these high rates of Goal 2XL, a few immortal weeds persisted that we just could not kill.

The Limitations of Chateau. In this trial, Chateau 2.0 oz followed by Chateau 1.0 oz 7 days later gave excellent control of PW up to 3" tall, Good to very good control of SW causing mortality only to those that were less than 2" tall/wide, and only fair to good control of LQ, which barely injured anything that was greater than 2" tall/wide. It also provided very good to excellent control of purslane and had the least onion injury in the trial (1.7%). Unfortunately, the timing of this treatment was off by a few days and once the SW and LQ exceeded 2", Chateau could no longer kill them and we only got 65% control from this treatment.

Goal to the rescue! When application of Goal 2XL 4 fl oz followed Chateau 2.0 oz instead of Chateau 1.0 oz, control increased significantly from 65% to 77%, primarily because Goal did a slightly better job of controlling SW and LQ that were 2" tall/wide or greater.

Buctril has its place. Buctril cannot be used until the 3 to 5-leaf stage. Buctril 2EC 8 fl oz followed by 4 fl oz 1 week later had numerically better control (73%) than Buctril 12 fl oz applied all at once (63%), and was not different than Buctril 8 fl oz + Goal 2XL 4 fl oz (72%). Statistically, there were no differences in onion injury among

continued on next page

these treatments, but numerically Buctril 8 fl oz + Goal 2XL 4 fl oz had the least onion injury (2.7%). However, the second applications were made following rain and cool cloudy weather, while the first applications were made after a hot, sunny and dry period. Therefore, there was very likely more phytotoxicity and better efficacy with the second applications, so it was not really possible to determine whether a split application of Buctril was really more effective than a single high rate. Buctril notably was weak on controlling PW and purslane, but provided very good control of SW, so when tank mixed with Goal, control of PW was improved. None of these were quite as good as the treatments with the high rates of Goal 2XL due to PW, LQ and purslane escapes.

What about ragweed control? We did not have good RW pressure in our mixed broadleaf trial to get a good read on the relative efficacy of the various treatments on this weed. In another trial in 2015, we focused on post-emergent control of ragweed with Stinger. Stinger (a.i clopyralid) is a growth regulator type of herbicide belonging to a completely different chemical class than all other herbicides labeled in onions. While not yet labeled on onions, Stinger is going into its second year in the IR-4 program and will soon be available to use in onions as a spot treatment for control of perennial sow thistle. It has post-emergent activity on several different broadleaf weeds including some that can be challenging to control with currently labeled herbicides including RW and SW.

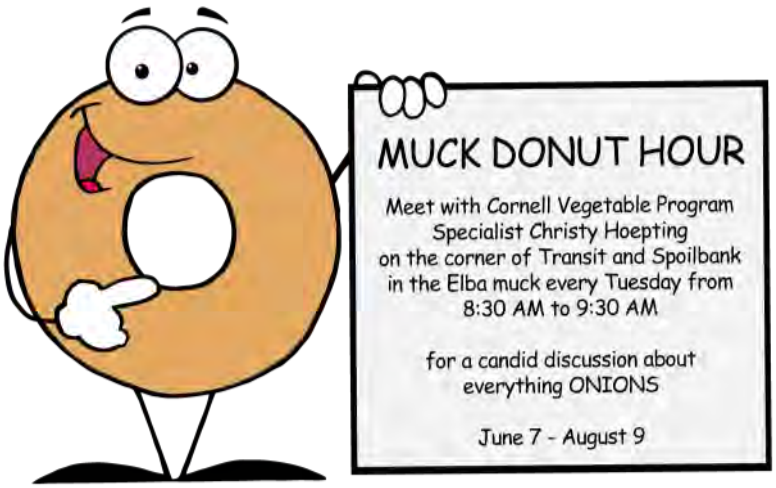
In this trial, Stinger provided only poor to moderate control (single applications of 2 fl oz: 25%; 4 & 6 fl oz: 30%; 8 fl oz: 42 %) of RW, while Goal 2XL 4 fl oz, Buctril 12 fl oz and Buctril 8 fl oz + Goal 2XL 4 fl oz provided 82%, 77% and 78% control, respectively. Part of the poor control of RW by Stinger may be a consequence of the weeds not being actively growing at the time of application, because it had been hot and dry for an extended period. In our past studies with growth regulator herbicides, we have learned the importance of the weed's ability to uptake the herbicide via active growth in order to achieve maximum efficacy.

The best is yet to come! In 2015, we identified some programs that implemented herbicides not currently labeled in New York with improved weed control and crop safety. In fact our best treatment (2 apps 1 week apart) resulted in 97.3% weed control with excellent control of PW causing mortality up to 4", and excellent control of SW, LQ, RW and purslane. In our 2016 post-emergent herbicide trial for control of ragweed, we have already identified some pipeline products with excellent efficacy against this troublesome weed. Stay tuned!

Table 1. Evaluation of POST-emergent herbicides for efficacy and crop tolerance in yellow (c.v Festival) transplanted onions **6 days post spray B (5 leaf) and 13 days post spray A (3-4 leaf) on Jun 11 (onions 6-leaf)**: Elba, NY: 2015.

Treatment (Spray A & B)[1]	% weed control[2]	Weed Control Rating[3] By Species					% onion injury[4]
		Pigweed	Smart-weed	Lamb's quarters	Rag-weed	Purslane	
Untreated	0.0 g[2]						0.0 e
Chateau **2.0** oz **A** Chateau **1.0** oz **B**	65.0 f	E	G-VG	G-F	--	VG-E	1.7 de
Goal 2XL **4** fl oz **A** Goal 2XL **4** fl oz **B**	86.7 bcd	E	VG-E	F-E	G	E	6.0 ab
Goal 2XL **6** fl oz **A*** Goal 2XL **6** fl oz **B***	93.3 ab	E	VG-E	VG-E	E	E	6.7 a
Chateau **2.0** oz **A** Goal 2XL **4** fl oz **B**	76.7 de	E	G-VG	G-E	--	E	3.0 b-e
Buctril 2E **12** fl oz **A**	63.3 f	P-F	G-VG	P-G	--	P-fail	4.0 a-d
Buctril 2E **8** fl oz **A** Buctril 2E **4** fl oz **B**	73.3 ef	F-VG	E-G	P-VG	--	Fail-F	5.7 abc
Buctril 2E **8** fl oz **A** + Goal 2XL **4** fl oz **A**	71.7 ef	E-VG	VG/F	F-VG	--	--	2.7 cde
P value (α=0.05)	***0.0000***						***0.0007***

*Exceeds labeled rate of maximum of 4 fl oz of Goal 2Xl per application.
[1]**Spray A:** May-29; onions 3-4-leaf; weeds 1-2" tall or wide; **Spray B:** Jun-6; onions 5-leaf.
[2]% weed control and onion injury was visually estimated.
[3]**Weed Control: fail** = no control; **P: poor** = some control; **F: fair** = moderate control (50-65%); **G: good** = 66-75%; **VG: very good** = 76-89%; **E: excellent** = 90-100%.
[4]Numbers in a column followed by the same letter are not significantly different, Fisher's Protected LSD test, p > 0.05.



Chateau vs. Goal for Post-Emergent Weed Control in Onion

Christy Hoepting, CCE Cornell Vegetable Program

It has been very apparent in my post-emergent herbicide trials how much harder the weeds are to kill this year compared to last year, presumably due to the hot dry weather. For example, Chateau 1.0 oz applied to newly emerging yellow nutsedge resulted in less than 5% mortality this year, compared to 70% mortality in 2015. Similarly, mortality of broadleaf weeds less than 2" tall/wide achieved with Chateau and Goal 2XL has been disappointing compared to previous years in my trials. Growers have experienced similar examples of less than expected levels of control. However, there have also been some exciting successes where timely applications of the most suitable herbicide for the weed escape have resulted in 95% or greater control of an oncoming carpet of weeds (Fig. 1 & 3). As weeds are getting big quickly in this weather, all that we might expect at this time is to burn/hold the weeds back, instead of achieving mortality. Any weeds that are already 4" tall/wide at this point will likely have to be hand weeded. Hopefully, those that can be held at 2" until the 3-leaf stage may be killed with higher rates of Goal and/or Buctril. By the same note, the onions have also been very tolerant to post-emergent herbicide applications in this hot and dry weather with 1-leaf onions sustaining only minor injury (less than 10% visual injury) with applications of Chateau 2.0 oz or Goal 2XL 2 fl oz (both not labeled until 2-leaf stage) in my trials.

Chateau has its place, but it is not always the best burner. Chateau's strength for post-emergent weed control is on pigweed; for smartweed, lamb's quarters and ragweed, it is critical that the size of these species does not exceed 2" tall/wide, and in this weather it is more like 1" tall/wide. In my 2016 trial in side by side comparisons, Goal 2XL 2 fl oz performed better than Chateau 2.0 oz for mortality and burn back of ragweed and smartweed (pigweed not evaluated) (Fig. 2). **Although neither caused significant injury to the onions, Chateau was the safer of the two**. The other strength of Chateau is its pre-emergent activity and long residual when applied as a post-emergent. Since Chateau is safest on young onions, it should be applied first. This should provide excellent control of pigweed as well as lay down its pre-emergent activity. **If weed escapes are 1" or greater one week after Chateau, don't follow with another application of Chateau, but use Goal instead.** For **problem weeds like ragweed** (Fig. 3), do your best to hold them back with Chateau and Goal, and then plan on cleaning them up with Buctril, which can be used when onions are in the 3-leaf stage. Buctril is also excellent on smartweed, but struggles to control lamb's quarters and purslane, so when it is tank mixed with Goal, you can get fairly broad-spectrum weed control. **Don't be afraid to use highest label rates** (e.g. Goal 2XL 4 fl oz and Chateau 2.0 oz) in this hot and dry weather; the onions can tolerate them and that's what you will need to have any effect on the holding back the weeds. *See article* on highlights from 2015 post-emergent herbicide onion trial (page 4) for more information.

Figure 1. Chateau 2.0 oz cleaned up a carpet of nightshade seedlings when it was applied when the weeds were <2" tall/wide. *Photo: C. Hoepting, CVP*

Figure 2. One week post application of Goal 2XL 2 fl oz and Chateau 2.0 oz to 1-leaf onions and 1-2" tall/wide ragweed and <1" smartweed. In this hot and dry weather, neither herbicide achieved the level of mortality that we normally see, but Goal did a slightly better job of holding back these tough weeds.
Photo: C. Hoepting, CVP

Figure 3. Chateau 2.0 oz applied when annual mustards (Field pennycress) and ragweed were 1-2" tall/wide resulted in 100% mortality of mustard, but barely hurt the ragweed, which is clearly recovering. Goal 2XL 4 fl oz may be applied at the 2-leaf stage to burn the ragweed back, and Buctril with or without Goal may later be applied at the 3-5 leaf stages.
Photo: C. Hoepting, CVP

Crucifer Flea Beetles

Christy Hoepting, CCE Cornell Vegetable Program

Flea beetles (FB) are especially problematic on Asian crucifers. When FB reach 1 beetle per plant at the 6-8 leaf stage, 50% infested during the cotyledon stage, or at the first signs of shot hole feeding damage, the crop needs to be sprayed (Fig. 1). Any of the labeled pyrethroids (i.e. Baythroid XL, Brigade, Warrior, Hero, Mustang MAXX and their generics), Sevin, or neonicotinoid pre-mixes with a pyrethroid including Voliam Xpress, Endigo and Leverage may be used. Soil applications of Platinum (neonicotinoid) or Verimark (diamide) provide longer residual control. Spun-bounded row covers can also be used to protect from FB, which will also protect against cabbage maggot, but the trick is that they need to be applied before the FB get there and the edges need to be sealed tightly. Organic chemical options include Entrust, which has a 2(ee) label for suppression of FB. Abby Seaman, NYS IPM, found that both Surround and hot pepper wax worked as well as Rotenone, the old standard for FB, at protecting seedlings from lethal attacks of FB. They will not prevent enough feeding for greens to be marketable, but they will prevent enough feeding for broccoli, cauliflower, cabbage, etc. to outgrow the damage. Other organic chemical options include Mycotrol O, azadirachtin (various products including Aza-Direct, AzaGaurd, Neemix, Molt-X and other brands) and Pyganic (see labels for crops and rates). Frequent scouting and retreatment will be required and under heavy flea beetle pressure you may only get some suppression with some of these materials.

Figure 1. Crucifer flea beetles (black) and feeding injury on cabbage. The spray threshold is 1 flea beetle per plant between the 6-8 leaf stages. Sprays often need to be reapplied frequently. *Photo: C. Hoepting*

Late Blight Risk – Severity Values are Accumulating

Carol MacNeil, CCE Cornell Vegetable Program

Potato volunteers began emerging on May 12 in Wayne County. Planted potatoes were emerging May 19 in Erie County. If the first potatoes that emerge (or the first Southern tomatoes that are planted) are infected with late blight (LB) then spores from those infections could be in the air, carried on the wind for up to 30 miles. LB was widespread in Western NY and the Finger Lakes Region last year, so infected potatoes could have overwintered in most counties. Since May 12, 18 Blitecast severity values (SVs) have accumulated in Arkport and Gainesville. In the CVP area, Albion has 13 SVs and will likely reach 18 in the next week. Within about a week of reaching 18 SVs growers need to apply a fungicide on all potatoes 4+ inches tall, and on all field tomatoes, to protect them against LB. (A copper fungicide applied to tomatoes for bacterial diseases is effective against LB, though its residual activity is shorter than for chlorothalonil or mancozeb.) *Destroy all potato culls and volunteers so they don't serve as a source of LB for your potato or tomato crop.*

For a tally of LB SVs for many locations: http://newa.cornell.edu/index.php?page=potato-late-blight. Select the closest weather station, select a first emergence date of May 12-19, and click on Get Report. To compare the weather station with your farm (distance, elevation, topography, etc.) check out the station specs: http://newa.cornell.edu/index.php?page=station-pages-ny

To find out about getting your own weather station, compatible with the Northeast Climate Center/LB forecast systems, go to: http://newa.cornell.edu/index.php?page=get-weather-station

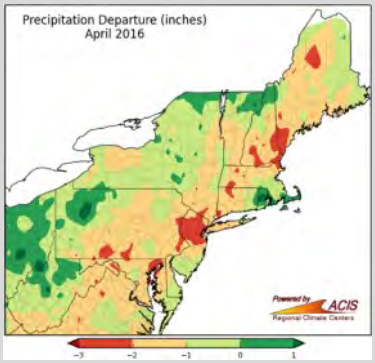
Technical Resources a "Click" Away

Robert Hadad, CCE Cornell Vegetable Program, information from Chris Callahn, UVM Extension Ag Engineer

Here are some resources to help growers muddle through issues we don't often think about.

- Guidance on **wash water discharge from vegetable pack sheds**: http://go.uvm.edu/vegwater This document is based on VT regulations but there is some great information here that is quite useful for NY produce operations.
- Guidelines for **selecting a good thermostat** for agricultural use: http://go.uvm.edu/thermostats
- Summary of **materials available that provide a "smooth and cleanable" finish surface for coolers, wash areas, and pack sheds**: http://go.uvm.edu/smoothnclean
- A new Excel-based calculator to **help size piping systems and to select pumps for heating systems and other water moving applications**: http://go.uvm.edu/pumpnpipe

CROP INSIGHTS



Northeast Regional Climate Center, 29 May, 2016. http://www.nrcc.cornell.edu/regional/monthly/monthly.html

GENERAL

Rainfall has been spotty throughout the region as dry weather continues to plague western NY. For the month of April much of our region was 1-2 inches below the normal for precipitation.

Even with these dry conditions insect and weed pests are thriving.

Weed management (chemical options): Many pre-emergence herbicide treatments require precipitation to move into soil and make available for absorption by the emerging weeds. Incorporated herbicides are less dependent on rainfall, but moist soil is still required for uptake by the weed seedlings. Post-emergence herbicides may be a possible option, but it is important for proper weed identification and proper selection of herbicide for each individual crop. The dry conditions we have experience may complicate the situation with uneven crop stands and multiple weed flushes as precipitation occurs. If you are looking to use a post-emergence application to catch those weed escapes remember to catch them early – most herbicides are labelled for weeds less than 6 inches tall, and may vary from weed species on the optimum size for control. Therefore, make sure to read the label to understand proper timing for both crop and weed species.

The yellow nutsedge in sweet corn (left) is now too large to control with herbicides and will be hard to manage in-row, while 3-4 inch lambsquarters, pigweed, and wild mustard in tomato (right) can still easily be control by either herbicide or cultivation.
Photos: Darcy Telenko, CVP

Weed management (non-chemical options): Management of weeds using cultivation and flame-weeding will also have the best results if implemented when weeds are small.

COLE CROPS

Thresholds of a number of cabbage insects have been met this week at a number of locations, these include flea beetle, imported cabbageworm, diamondback moth, and cabbage looper.

GREENS

Brassicas getting hit hard from flea beetles and slugs. When treating for flea beetles, be sure to spray on the ground on either side of the plants. Flea beetles will jump off the plants by sensing vibrations and try to hide on the ground. To achieve better insect kill, try to make better contact of the insecticide to the insect.

The extreme temperature shifts will stress plants. Keep up with irrigation to minimize the stress which leads to bolting.

LETTUCE

Seeing some bottom rot, tip burn, slug damage, and some aphid activity.

ONIONS

The onion crop will be beginning the month of June with excellent stands. Oldest direct seeded onions are in the 3-leaf stage, and oldest transplants are in 8-leaf stage. Several growers have been irrigating in this dry weather and the crop is looking forward to some rain this week. The onions have grown a lot in the heat over the past couple of weeks, and so have the weeds! There have been flushes of new weeds breaking through the pre-emergent herbicide programs all over the place and a wide range in success controlling them. *See article* on Chateau vs. Goal for post-emergent weed control in onion (page 6).

Onion thrips pressure has also increased in this hot weather, but generally has not yet reached the spray threshold of 1.0 onion thrips per leaf, except in some upland locations in transplanted onions. Start scouting for onion thrips at this time in transplanted onions. Disease pressure is extremely low. **Muck Donut Hour starts next Tuesday, June 7** at the corner of Transit and Spoilbank in the Elba muck.

POTATO

Potato planting continues. Many fields, and volunteers, have emerged in the past week. The first Colorado potato beetle (CPB) adults were seen a week ago on volunteers. With the recent hot weather CPB egg masses are now common. Locations in the Cornell Vegetable Program area may reach 18 late blight (LB) severity values (SVs) in the next week. *(See the Late Blight Risk section, page 7.)*

If you have poor stands in Reba, Superior or Norwis from Maine seed it could be due to the virulent bacterial blackleg Dickeya. It can't be diagnosed on rotting tubers, however. If many recently emerged potatoes are wilting, check for blackening of the stem at the soil line, a characteristic symptom. Contact Carol MacNeil at crm6@cornell.edu or 585-313-8796 ASAP for sampling.

continued on next page

PROCESSING CROPS

Dry soils prevailed over the past two weeks, but scattered showers over the weekend provided relief. Rain amounts varied greatly over the region (see weather chart, page 11), with some areas experiencing heavy downpours with localized flooding and wind/rain tattered plants. Planting and weed management are the priority activities at this time.

Post-emergence herbicides need to be applied at the correct stage of crop growth to avoid crop injury. This is especially important for peas. Most products refer to the number of nodes in a pea plant. A node is a point on a stem where a leaf is or has been attached. When a pea seed germinates, the cotyledons remain below the soil surface (see photo). The shoot grows upward. The first two nodes have incomplete or stipular leaves. Beginning with the third node, the pea plant has a compound leaf comprised of two fleshy stipules at the base, a petiole (leaf stalk) with two or three pairs of leaflets, and usually several tendrils at the end. When counting nodes, it is very important to remember that one or several nodes may be below the soil surface depending on how deep the seed was planted. Thistrol and Raptor herbicides cannot be applied within a certain number of nodes to flowering. Early varieties can flower as soon as 9 nodes. The first node to flower for many of the processing varieties is listed in Table 1.

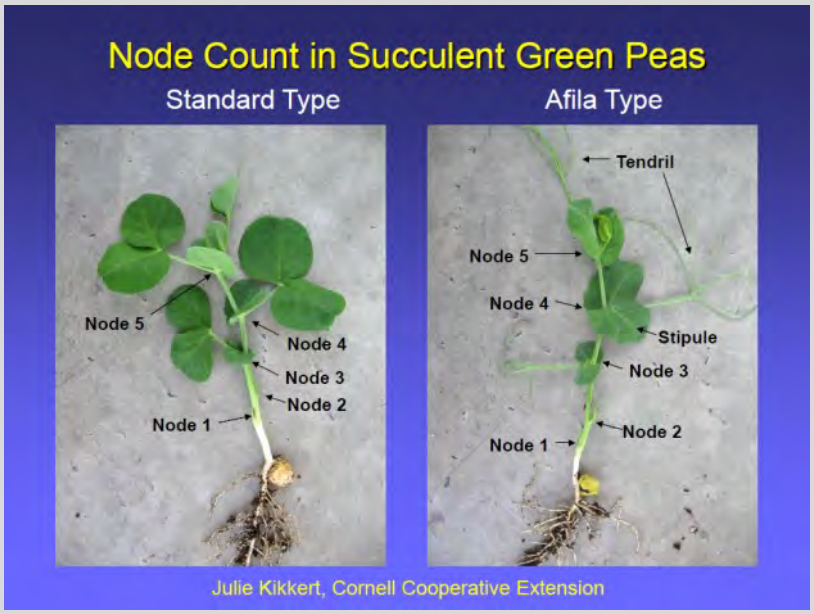


Table 1. The average node to first flower for commonly grown processing pea varieties in New York.

Variety	Vine type	1st node to flower
Early Season		
Spring	Normal	9 to 10
Salinero	Normal	9 to 10
Mid-Season		
Portage	Afila	10
Gusty	Afila	10 to 13
CMG 416AF	Afila	10 to 11
Late-Season		
Bolero	Normal	14 to 15
Grundy	Normal	16
Ricco	Afila	16
Spartan	Afila	12 to 14
FP 2278	Afila	15

SQUASH

Stripped cucumber beetles are active. Greater than 5 beetles per plant could threaten plant stands from cotyledon to 4 leaf stage and insecticides should be applied within 24 hours. To reduce susceptibility to bacterial wilt, plants that are beyond 4-leaf stage until vines begin to run should be protected with an insecticide when beetle density is 1 or more per plant. (Scout five plants in five locations of a field to determine average number of beetles per plant).

SWEET CORN

Early sweet corn plantings are at beginning tassel. The first report of the sweet corn pheromone trap network for WNY is available http://sweetcorn.nysipm.cornell.edu/ and is provided on page 4 . European corn borer was trapped at three sites (Penn Yan, Eden, and Seneca Castle), corn earworm and fall army worm were also trapped in Eden. See cover article for a review of the major sweet corn insects, scouting, and when to implement control options.

VINE CROPS

Striped cucumber beetles have been active with a few spots having a heavy infestation. If seedlings or transplants aren't protected with row cover, treatment will be necessary. Despite insecticide usage, the cucumber beetles still can pass Bacterial wilt as they feed on the treated plants. Using a trap crop of earlier planted cucurbits, like Hubbard squash, can focus the beetles on these plants where they can be treated. With this approach, the overwintered adult cucumber beetle numbers can be reduced hopefully reducing the numbers of offspring of the next generation.

For more information on trap cropping, go to http://www.uvm.edu/vtvegandberry/factsheets/PerimeterTC.html a website article posted by Vern Grubinger, Vegetable and Fruit Specialist with U. of VT.

UPCOMING EVENTS *view all Cornell Vegetable Program upcoming events at cvp.cce.cornell.edu*

Muck Donut Hour

Every Tuesday, June 7 - August 9 | 8:30 AM - 9:30 AM
Elba Muck, corner of Transit and Spoilbank, Elba, NY

Meet with Cornell Vegetable Program Specialist Christy Hoepting every Tuesday morning to ask questions and share your observations. Grower experience is combined with research and scouting information for a whole lot of talk about growing ONIONS!

Hands-on Field and Vegetable Pest Management

June 8, 2016 | 1:00 PM - 4:00 PM
Miller Farm, 5483 Glover Hill Rd, Cattaraugus, NY 14719

Cornell Vegetable Program Fresh Market Specialists will educate growers on weed and insect identification and management in mixed field crop and vegetable systems; with additional focus on integrated weed management. Topics such as resistant varieties, pest/disease, cultural management and appropriate spray options will be included. 3.0 DEC recertification credits will be offered. Event is FREE! Questions? Contact Judson Reid, 585-313-8912.

Soil Health & Cover Crop Workshop

June 30, 2016 | 9:00 AM - Noon
Elba Firemen's Recreation Hall, 7143 Oak Orchard Rd, Elba, NY 14058

Topics include **Soil health basics and why to start cover cropping**, *Jeff Rasawehr, crop farmer and owner of Centerseeds, Celina, Ohio,* **A Local Farmer Panel** with cover crop advice for the beginner, **The Cornell Climate Smart Farming Program,** *Darcy Telenko, Cornell Vegetable Program,* and an introduction to the **Western New York Soil Health Alliance.** *Sponsored by: Western New York Soil Health Alliance, a Farmer-to-Farmer Network.*

To pre-register for this FREE event, contact Orleans County SWCD at Dennis.Kirby@ny.nacdnet.net or 585-589-5959, or Genesee County SWCD at Molly.Stetz@ny.nacdnet.net or 585-343-2362

Fresh Market Vegetable Field Day: Early Disease Detection & Weed Management Options

July 6, 2016 | 9:00 AM - 3:30 PM
CVP Fresh Market Demo Site at Partridge's on the Farm Market, 4924 Ellicott St Rd (Rt 63), Batavia, NY 14020

View demonstration plots to exemplify early disease detection and weed management options for fresh market vegetable production. In addition to the demonstration plots, sessions will be offered throughout the day on weed and disease identification and biology, soil health and resistance management by CVP team members and county agriculture Educators. Regional equipment dealers and industry representatives will be invited to display equipment and new technology. CCA and DEC credits will be available.

- Tomato varieties and organic spray programs for disease management
- Cucumber varieties and organic spray programs for downy mildew
- Specialty crop vegetable varieties for viewing
- Pesticide tank mixing 101
- Weed identification and biology
- Stale seedbed techniques for weed management in pumpkin, winter squash, and root crops
- Improving soil health through the use of cover crops
- Herbicide options in sweet corn

$20 per person before June 30th includes lunch and information packet / $30 per person at the door (lunch cannot be guaranteed unless you have pre-registered). Please contact us for special food accommodations. Pay online at https://cvp.cce.cornell.edu/event_preregistration.php?event=564 or contact Eva McKendry at 716-652-5400.

FARM FOOD SAFETY

Farm Food Safety Plans and Audits

Need assistance, have questions, want to review your plan, or have an on-farm walk through before an audit? Contact Robert Hadad, Cornell Vegetable Program, at 585-739-4065 or rgh26@cornell.edu.

For more information on farm food safety practices, wash line information, and SOPs, check out the CVP website at cvp.cce.cornell.edu/food_safety.php.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 5/24 – 5/30/16

Location	Rainfall (inch)		Temp (°F)	
	Week	Month May	Max	Min
Albion	0.00	1.07	90	53
Appleton, North	0.00	0.71	88	47
Baldwinsville	0.21	1.31	91	49
Buffalo*	0.06	1.22	89	55
Butler	0.21	1.52	91	47
Ceres	0.32	3.21	88	39
Elba	0.08	1.44	87	48
Farmington	0.46	1.69	90	51
Gainesville	0.76	2.36	88	50
Geneva	0.41	1.66	89	56
Lodi	0.91	2.54	95	50
Niagara Falls*	0.00	0.91	91	51
Penn Yan*	1.16	2.84	89	50
Rochester*	1.48	2.93	91	50
Romulus	0.75	2.27	86	48
Silver Creek	0.01	1.78	84	52
Sodus	1.13	2.41	91	45
Versailles	0.31	1.72	87	45
Williamson	0.73	1.90	88	48

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 – May 30, 2016

Location	2016	2015	2014
Albion	298	439	293
Appleton, North	221	348	210
Baldwinsville	304	453	368
Buffalo	318	442	288
Butler	297	473	354
Ceres	208	366	283
Elba	197	332	230
Farmington	272	440	333
Gainesville	199	347	244
Geneva	289	443	341
Lodi	319	509	388
Niagara Falls	334	396	258
Penn Yan	296	484	356
Rochester	312	491	357
Romulus	250	446	339
Silver Creek	250	383	264
Sodus	242	379	315
Versailles	268	400	292
Williamson	246	392	296

* Airport stations
** Data from other station/airport sites is at: http://newa.cornell.edu/ Weather Data, Daily Summary and Degree Days.

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

VEGETABLE SPECIALISTS

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

Christy Hoepting | 585-721-6953 cell | 585-798-4265 x38 office | cah59@cornell.edu
onions, cabbage and pesticide management

Julie Kikkert | 585-313-8160 cell | 585-394-3977 x404 office | jrk2@cornell.edu
processing crops (sweet corn, snap beans, lima beans, peas, beets, and carrots)

Carol MacNeil | 585-313-8796 cell | 585-394-3977 x406 office | crm6@cornell.edu
potatoes, dry beans, and soil health

Judson Reid | 585-313-8912 cell | 315-536-5123 office | jer11@cornell.edu
greenhouse production, small farming operations, and fresh market vegetables

Darcy Telenko | 716-697-4965 cell | 716-652-5400 x178 office | dep10@cornell.edu
soil health, weed management, plant pathology

PROGRAM ASSISTANTS

Amy Celentano | ac2642@cornell.edu

John Gibbons | 716-474-5238 cell | jpg10@cornell.edu

Cordelia Hall | ch776@cornell.edu

Gretchen Seigworth | gs649@cornell.edu

ADMINISTRATION

Peter Landre | ptl2@cornell.edu

Angela Parr | 585-394-3977 x426 office | aep63@cornell.edu

Steve Reiners | sr43@cornell.edu

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

Cornell University
Cooperative Extension
Cornell Vegetable Program