

they facing?

PAGE 1



Brown marmorated stink bugs were caught in a pheromone trap on a Yates

County vegetable farm. Scout your crops now.

PAGE 4



Uncontrolled weeds in rowmiddles can increase pests and compete with your crops

for nutrients and water. What are your control options?

PAGE 6



Several postemergent herbicides are available for controlling broadleaf weeds

in onions.



OUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE Issue 7 May 28, 2014 Volume 10 **Cornell University Cooperative Extension**

Flooding in the Finger Lakes Region

Cornell Vegetable Program

Judson Reid, CCE Cornell Vegetable Program

Severe rain fall rates over night on May 13/14 created a destructive flash flood in central Yates County. The fiercest portion of the storm was focused over the village of Penn Yan and the uplands immediately north. Damage was severe along drainage routes and the two streams that flow through the village; Jacob and Sucker brooks. Damage to agricultural concerns was significant as two grain mills and several ag support businesses were within the epicenter of damage where storm waters reached over first floor windows. On-farm damage from this event included the loss of recent hay seedings, culvert damage and deposition of washout material such as gravel and rocks. The wet spring preceding the event may have helped reduce damage, as very few fields had been plowed or fit. Where fields had been turned massive loss of topsoil, including gully formation occurred.



Flooding in Yates County. Photo: Judson Reid, Cornell Vegetable Program



VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension regional agriculture team, serving 11 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

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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 enrolling in our program, visit about 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 750 readers.

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Help us serve you better by telling us what you think. Email us at cce-cvp@cornell.edu or write to us at

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Cornell University Cooperative Extension Cornell Vegetable Program

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The next issue of VegEdge will be produced June 4, 2014.

EPA Extends Comment Period: Proposed New Measures to Protect Farm Workers

Cornell PMEP Program, Long Island Fruit & Vegetable Update, 5/15/14

The US EPA is extending the comment period regarding proposed revisions to the Agricultural Worker Protection Standard for an additional 60 days, until August 18, 2014, in response to requests from growers, industry, farmworker advocates and states for additional time to provide input. To learn more and provide comments visit: http://www.epa.gov/oppfead1/safety/workers/proposed/ index.html

continued from cover - Flooding in the Finger Lakes Region



Gravel deposition in pasture. Photo: Judson Reid, Cornell Vegetable Program



Culvert damage in vineyard. Photo: Judson Reid, Cornell Vegetable Program

The following rain on May 16 made matters worse for farmers. An additional 1-3" of rain on already saturated fields caused more erosion and has delayed field work. This event occurred across the central Finger Lakes region including Yates, Seneca and Ontario counties. Isolated showers are causing further delays. One long time farmer notes this will be the latest start on field work since he has ever had. As days go by vegetable transplants are becoming pot-bound/leggy and less suitable. Cover crops such as winter rye are growing unchecked. Final yields of many crops will be down from the flooded fields. See Christy Hoepting's article in the last VegEdge for an example of how late an onion crop can be planted and still be economically viable.

That said, wise farmers know to never work a field too wet, as the damage lasts for years.

The finer aspects of the human spirit were on display after the flood with great efforts to help households and businesses clean up and get back to work. Donations can be made to the Yates Community Endowment Disaster Relief Fund, PO Box 311, Penn Yan, NY 14527 or online at www.racf.org/HelpYates.



Heavy Rains Flood Muckland and Crops

Carol MacNeil, CCE Cornell Vegetable Program

Heavy rains from Tuesday, May 13 through Friday, May 16, brought over 4.5" of rain to the Yates (Potter) and central Wayne County mucklands. The rain was split between the



Tuesday and Thursday night storms in Potter, and if the second storm hadn't hit most crops would have been okay. Unfortunately that was not to be. On Friday afternoon water from the heavy rains in the Italy Hill watershed overnight came down the Flint Creek/Potter Channel and flooded much of the Potter muck. In Wayne County on Thursday strong winds were wind-whipping and killing onions. The heavy fell there from Thursday evening through Friday, way too much for ditches, outlets and pumps to handle on most farms.

Planting had been delayed all over the area because of the late, cold, wet spring. Less potato acreage was planted than usual for mid-May, but all acres were lost to flooding, and/or saturated soils. Potato planting is progressing now where soils have dried out. Good progress had finally been made on onion seeding but growers were unable to finish before the forecast for heavy rains. Onion transplanting is still occurring. Onions acres in both Potter and central Wayne County have been lost but it's too early to be sure how many.



Brown Marmorated Stink Bugs Showing Up in Traps

Judson Reid, CCE Cornell Vegetable Program

Brown marmorated stink bugs (BMSB) were caught last week in a pheromone trap maintained by Cornell Entomologist Art Agnello near a wooded area on a Yates County vegetable farm. We are still learning about this invasive pest as it expands its population and range in North America. We do know that it overwinters in trees and structures and is highly attracted to fruits and vegetables. Its feeding damage is more severe than native stink bugs (see photos).

Art notes that there are no specific management thresholds yet, but suggests that growers begin scouting crops now (see photo of recently hatched BMSB). Materials rated by Peter Jentsch at the Cornell Hudson Valley Lab indicate highest efficacy with bifenthrin (Brigade or similar, 1 day PHI) and methomyl (Lannate, 1 day PHI). Progress has been made in documenting the efficacy of the organic material Mycotrol, also available in the non-certified form of BotaniGard (both 0 day PHI). Peter shares that the active ingredient, the fungus *Beauvaria bassiana*, is most effective when applied under high humidity. This allows the fungal spores to survive and colonize the insect's body.



Brown marmorated stink bugs on pepper (above). Yellowing, typical of BMSB damage, on tomato (left). *Photos: Judson Reid, Cornell Vegetable Program*



Recently hatched brown marmorated stink bugs. Photo: Judson Reid, Cornell Vegetable Program

An excellent video series on BMSB from NEIPM can be seen at: <u>http://bit.ly/Sb8jZS</u> •



New Technician Joins the Cornell Vegetable Program Team

Please join us in welcoming Cordelia Hall to the Cornell Vegetable Program. She will be a full-time, year-round program technician and will support the team's research and educational programs. Cordelia is housed at the CCE Genesee County office in Batavia, along with CVP Program Aide, Elizabeth Buck. We've asked Cordelia to introduce herself below.



Cordelia Hall - I am very excited to be joining the vegetable program team as a Research Technician. I have worked on several vegetable farms in New York, Vermont and Wisconsin over the last eight years and spent four years managing a market farm and CSA in Yates County. Conducting cucurbit variety trials on my farm inspired an interest in vegetable research, so I went back to school to study horticultural science at Finger Lakes Community College. My new position is a great opportunity to serve the vegetable growers of Western New York and I look forward to a great season with the team.

Chateau for Weed Control in Onions, Cornell Research Summary

Christy Hoepting, CCE Cornell Vegetable Program

POST-EMERGENCE EFFICACY AGAINST WEEDS Chateau WDG provided excellent control of pigweed (PW) (Fig. 1)

- 1.0 of Chateau oz killed PW less than 2 inches tall
- 2.0 oz of Chateau killed PW 4 inches tall, but struggled to kill once 4" tall PW had branches
- 3.0 oz of Chateau killed 6+ inch tall unbranched PW
- Double app of Chateau (2.0 oz at 3 leaf + 1.0 oz at 5 leaf) provided better control than a single app of a high rate (3.0 oz at 3 leaf)
- Hi-Low is the Way to Go! Applying the high rate first (2.0 oz at 3 leaf + 1.0 oz at 5 leaf) provided better control than applying the low rate first (1.0 fl oz at 3 leaf + 2.0 fl oz at 5 leaf)

Chateau WDG killed yellow nutsedge (NS) shorter than 2" tall

- 1.0 oz Chateau killed NS less than 2 inch tall
- 1.0 to 3.0 oz Chateau burned back (sometimes killed) NS 4" tall
- NS taller than 4 inches was burned back, but eventually grew back
- Hi-Low is the Way to Go! Double app, starting with high rate (2.0 oz at 3 leaf + 1.0 oz at 5 leaf) was more effective than double app starting with the low rate (1.0 oz at 3 leaf + 2.0 oz at 5 leaf)
- Chateau may be used to control emerged NS if applied when NS is less than 2-3 inches tall. It may be used to hold back larger NS to reduce competition with onions and production of nutlets.

POST-emergence apps of Chateau WDG 1.0 to 3.0 oz applied to weeds greater than 2 inches tall or wide did NOT control: lamb's quarters, purslane, ragweed, hairy galingsoga, milk pusley or pineapple weed

- POST-emergence control of weeds with Chateau requires that they be very small
- 1.0 oz of Chateau killed PA smartweed at the cotyledon to 1-leaf stage
- 2.0 oz of Chateau killed marsh yellowcress up to 4 inch in diameter
- 2.0 oz Chateau killed milk pusley and purslane less than 1 inch tall
- 2.0 oz Chateau burned and held back for 2 weeks, but did not kill perennial sowthistle 3-5 inches in diameter
- 1.0 oz Chateau + 1.5 floz Goal 2XL killed PA smartweed and lamb's quarters 4-6 inches tall, but did not kill marsh yellowcress larger than 2" tall

ONION CROP TOLERANCE TO CHATEAU

- None to minor crop injury (necrotic speckling) to onions with 0.5 to 2.0 oz applied to onions at the flag leaf to 5-leaf stage
 - In one case, 2.0 oz applied to the flag leaf stage resulted in 11% stand ٥ reduction
 - In one case, 2.0 oz at 2-leaf stage resulted in moderate crop injury ٥ (burning)
- None to minor crop injury (necrotic speckling) with 3.0 oz applied to onions at the 2 to 5 leaf stage; even 3.0 oz at 3 leaf + 3.0 oz at 5 leaf did not result in unacceptable injury
- Moderate crop injury with 1.0 to 3.0 oz applied to onions at the 7 leaf stage
- Major leaf burning with 1.0 to 3.0 oz applied to 8 to 10 leaf onions

Caveat: At least under spray conditions of this trial: 75 to 85°F, 45 to 65% RH, and sunny

 Moderate crop injury with 1.0 oz Chateau + 1.5 fl oz Goal 2XL at the 2-4 leaf stage

Best performing treatment:

Chateau 2.0 oz to 1-2 leaf onions followed by Chateau 1.0 oz 1 week later to 2-3 leaf onions.

 To kill broadleaf weeds less than 2 inches and pigweed up to 4 inches tall, and to burn back perennial sowthistle 3-5 inch rosettes and nutsedge 4+ inches tall

PRE-EMERGENT WEED CONTROL OF MARSH YELLOW-CRESS (FIG. 2) WITH CHATEAU

In the absence of PRE-emergent applications of Outlook, Prowl and Buctril:

- 0.5 oz Chateau applied PRE-emergent to weeds and onions plus 1.5 oz at flag leaf resulted in 47% weed control and very good crop tolerance with no stand reduction or stunting
- 1.0 oz Chateau applied PRE-emergent to weeds and onions plus 2.0 oz at flag leaf resulted in 64% weed control and very good weed control with no stand reduction or stunting
- 6.0 oz Chateau applied PRE-emergent to weeds and onions resulted in 89% weed control with good crop tolerance with 15% stand reduction and no stunting
- 2.0 oz Chateau applied at loop plus 1.0 oz at flag leaf resulted in 84% weed control and very good crop tolerance with no stand reduction or stunting (Fig. 3)



Figure 2. Marsh yellowcress, annual mustard species. In Cornell trial, standard preemergent program of Outlook (split app), Prowl (3 apps) and Buctril (1 app PRE onions) provided 6 weeks of control before marsh yellowcress broke through. Then, 2.0 oz Chateau at 2leaf followed by 1.0 oz 1 week later killed seedlings up to 4 inch diameter. Photo: Christy Hoepting, CVP



Figure 3. Pre-emergent control of marsh yellowcress with 2.0 oz Chateau (loop-stage) + 1.0 oz (flag-leaf) resulted in 84% weed control and very good crop tolerance with no stand reduction or stunting. Comparatively, standard PRE-emergent program (Outlook, Prowl and Buctril) provided 97% weed control with very good crop tolerance and minor stunting.

Photo taken June 5, 2013: Christy Hoepting, Cornell Vegetable Program





than 4 inches tall (not

leaf + 1.0 oz at 5-leaf.

branched) killed by POST-

Chateau WDG 2.0 oz at 3-

emergence application of

Photo: Christy Hoepting, CVP

How is Your Weed Management Program Working Between the Rows?

Darcy E. P. Telenko, CCE Cornell Vegetable Program

Many crops have been transplanted or seeded and it is now time to begin scouting for newly emerging weed seedlings. Weed seedlings of galinsoga, lambsquarters, ragweed, pigweed, and annual grasses are emerging in rowmiddles of these newly transplanted vegetables. In-row, pre-emergence management systems are working, but what is your plan for between the rows? Uncontrolled weeds in row-middles can increase unwanted insects and diseases and will compete with vegetables for nutrients and water. Options available for post-emergence control of weeds include:

- Cultivation if this is your main control plan remember to focus on weeds when they are at the white thread stage (root is first emerging from the seed). By cultivating early when weed seedling are young you'll knock them out when they are most vulnerable.
- Cover crops in row middles spring application of cover crops such as rye, clover, barley, and oats in row middles may be an alternative option to using cultivation and herbicides. Judson Reid has evaluated winter rye in row middles to reduce weed pressure in both tomato and onion plastic -mulched beds. Rye provided very good weed control comparable to cultivation and herbicides, but increased pest feeding in tomatoes and reduced yield in both crops. Current research projects are directed at evaluating other winter grains and mixes of clover, rye and barley as inter-row cover crops. Further information is available at http:// cvp.cce.cornell.edu/submission.php?id=111
- Chemical control the weed species and vegetable crop will determine what options are available for using herbicides between the rows. In plasticulture you can apply any herbicide that is currently labeled for the crop unless otherwise noted in the label. Always read product label before using to determine crop safety, effectiveness on specific weeds, and proper use. Herbicides need to be applied before the weeds are greater than 1 inch tall (size of a quarter) in order to get the greatest response. Use hooded sprayer to limit herbicide residual collecting on plastic. This residual has the potential with rain or irrigation to wash down into the crop, exposing it to a higher concentration and causing injury. When banding herbicide applications remember to calculate the actual area of soil being treated, for example with 36-inch beds and 36- inch row-middles, only half of the of soil is actually being sprayed, so only half of the amount of herbicide would be required.
 - Organic herbicides organic options are limited but there are a few products on the market for post-emergence control of weeds with variable success such as Racer (sodium nonanoate; salt fatty acid), Nature's Avenger (citrus oil), clove oil, and Weed Pharm (acetic acid/ vinegar). Time of application appears to be important in limiting crop injury and/or allowing time for regrowth, and applying when weeds are most susceptible.
 - Conventional herbicides see Table 1 for a list of some commonly used post-emergence control of weeds in fresh market vegetables.

A good field map of weeds early in the season and then again in the fall will assist future weed management plans to control troublesome weeds. Proper identification, density, and location in the field and can direct future crop rotations, cover crops, and fall tillage options that can be used to reduce the weed seed bank. It is recommended for vegetable crops to have a three year rotation that includes a sod based crop which will not only help build nutrients in the soil, but also compete with troublesome weed species.



Weeds emerging between Plasticulture squash. Photo: Darcy E. P. Telenko, Cornell Vegetable Program



Galinsoga seedlings. Photo: Darcy E. P. Telenko, Cornell Vegetable Program



Lambsquarter seedling. Photo: Darcy E. P. Telenko, Cornell Vegetable Program

 Table 1.
 A list of some commercially available herbicides for post-emergence control of weeds in fresh market vegetables¹.

 Always read product label for before using any pesticide. (This is not a complete list of all commercially available products)

					Brassica	Sweet
Herbicide (active ingredient)	Weeds controlled	Tomato	Pepper	Cucurbits	crops	corn
Aim EC (carfentrazone)	Small annual broadleaves – lambsquarters, eastern black night- shade, redroot pigweed, velvetleaf	MAY ONLY BE USED AS A HOODED, ROW MIDDLE APPLICATION no contact with crop or operated at more than 5 MPH see additional precautions			Up to 8 th collar growth	
Curbit (ethalfluralin)	Pre-emergence weed control for annual grasses			Х		
* [†] Dual Magnum (<i>S-metolachlor</i>)	Pre-emergence weed control for annual grasses, selected broad- leaves, and yellow nutsedge		X-48-72 hour post transplant	X ²	x	x
Goal Tender 4F (ozyfluorfen) Special local needs registration -4 leaf stage direct seeded and mini- mum 2 weeks after transplanting	Common groundsel, lambquarters, pigweed, common purslane, shep- herdspurse, annual sowthistle				x	
*Gramoxone Inteon (<i>paraquat</i>) Directed (shielded) spray	Annual broadleaves and grasses	х	х	Х		х
Matrix (rimsulfuron)	Annual grasses, some broadleaves, suppress quackgrass and Canada thistle	х				
Metribuzin – many types	Annual broadleaves and grasses	х				
Poast (sethoxydim)	Annual grasses	х	х	х	х	
Prowl H2O (pendimethalin)	Pre-emergence weed control annual grasses and select broad leaves.	х	х		X ³	х
Sandea 75 DF (halosulfuron)	Sedges and select broadleaves - galinsoga, pigweed, mustard/radish sp., ragweed, velvetleaf	х	х	х		
*Select Max (clethodim)	Annual and perennial grasses	х	х	х	х	
* [†] Stinger 3EC (<i>clopyralid</i>)	Galinsoga, wild buckwheat, ragweed, and smartweed				x	х
¹ Information from the 2014 Cornell Integrated Crop and Pest Management Guidelines for Commercial Vegetable Production.						

² Only labeled for cucumber, cantaloupe, muskmelon, pumpkin, watermelon and winter squash.

³ Only labeled for cabbage, broccoli, cauliflower, and Brussels sprouts.

*=Restricted-use pesticide. ⁺= Not for use in Nassau/Suffolk Counties

Agricultural Mediation: Straight Talk; Fair Solutions

Michelle Mitchell, Center For Dispute Settlement

The Center for Dispute Settlement's Agricultural Mediation Program helps people in conflict reach workable solutions that everyone can live with. It helps to avoid escalating conflict, reduces stress and saves time and money. Often, between farmers and non-farmers, it is a learning opportunity. The types of situations that may be appropriate for mediation include:

- Issues with farm laborers
- Neighbor complaints
- Settlement of loans or debts
- Farm business planning
- Farm succession planning
- USDA Appeals
- Family issues, including parenting and divorce mediation

Mediation is a voluntary, confidential process that occurs in a neutral setting. People who are directly involved make decisions and solve problems for themselves. The mediator facilitates conversation and assists in agreement writing. 80% of agricultural mediations result in agreements. Learn more about mediation at <u>www.nysamp.com</u> or call the New York State Agricultural Mediation Program toll-free at 866-669 -7267. You can also contact The Center for Dispute Settlement at 800-862-4733, the Yates County Office at 315-531-3409, or visit <u>www.cdsadr.org</u> for other Center for Dispute Settlement locations.





COLE CROPS

<u>Flea beetles</u> (Fig. 1) are currently the most common early pest of Cole crops, especially in Chinese cabbage and need to be controlled in direct seeded and transplanted crops up until the 6-leaf stage of cabbage, broccoli or Brussels sprouts unless a flush of beetles begin to chew on the cabbage head bound for fresh market. Brassicas whose leaves are marketed such as kale and collards need to be protected more diligently. Any of the labeled pyrethroid insecticides (i.e. Mustang MAX, Baythroid, Brigade, Warrior, Hero and their generics), Sevin, Leverage, Admire Pro (soil or foliar apps), Voliam Xpress, Platinum (soil app only), Actara (soil app only) and Endigo may be applied to manage FB. Note that <u>Thionex</u> is no longer labeled on Cole crops. Check labels for crop and other restrictions. Soil-applied systemic insecticides, Admire Pro, Actara and Platinum can provide longer term control against damage, although beetles may be present when scouting. With foliar sprays, even if good control was achieved, re-infestations can occur rapidly and require additional sprays.



Cole crop seedling. Photo: University of Saskatchewan

For organic growers, spun-bounded row covers can also be used to exclude <u>flea</u> <u>beetles</u> and <u>cabbage maggot</u>, if they are put on immediately following trans-

planting. It is important to cover the edges with soil to prevent gaps that flea beetles will find. Cabbage maggot adults emerge from the soil, in which case row covers will not help on ground that is already infested. Entrust also 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 seed-lings 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.

Newly hatched larvae of <u>Imported cabbage worm</u> and <u>diamondback moth</u> were observed this week. The early season spray threshold for worm pests in 5% infestation. Emergence of the overwintering population of <u>cabbage maggot</u> as adult flies is 75 to 95% complete across our region, according to degree day models available on NEWA. This event coincides with the flowering of Yellow Rocket. Thus, increased feeding activity is also expected to occur within the next couple of weeks.

GREENS

Lettuce has done fairly well despite a late start. Looseleaf heads are being harvested after early April planting. Pest pressure has been non-existence however due to the wide swings in temperatures and rains, bottom drop (Sclerotinia) and some root rots have reduced yields in some plantings.

In brassicas, flea beetles have remained a problem for younger plantings. Imported cabbage worm eggs have been laid with hatching beginning this week. Young larvae have been found feeding on rapi, collards, kale, and mustards.



Bottom drop (Sclerotinia) in lettuce. Photo: Sally Miller, Ohio State University



Cabbage worm (in white oval) on cabbage . Notice the feeding damage on the leaf. *Photo: Darcy Telenko, CVP*

ONIONS

Elba is looking very good with excellent stands, and earliest direct seeded onions are at the 1-leaf stage and earliest transplanted onions are at the 6-leaf stage. Disease pressure is very low and fungicide sprays are not needed this week in Elba. Sodus and Potter received over 6 inches of rain during the month of May causing reduced stands, crop losses and prevented planting in some fields. Prior to the last heavy rain event, high winds exceeding 30 mph also thinned out stands. <u>Botrytis leaf blight (BLB)</u> is starting to show up in 2-leaf onions in Sodus and some transplanted onions at the 4-leaf stage have reached the threshold of 1 BLB lesion per leaf and should be sprayed this week with Bravo 3 pt. Some fields have a flush of broadleaf weeds at the cotyledon to 4-leaf stage (less than 2 inches). Goal 2XL/GoalTender, Buctril and Chateau are labeled for post-emergent weed control in onions – see article, page 9.

PROCESSING CROPS

Planting of all crops has been delayed due to wet conditions, but a recent break in the weather has provided additional opportunity for planting. Crops that are in the ground are finally starting to grow with the warm up over the Memorial Day weekend. Beyond planting, the focus for most crops is weed management. Updated herbicide charts for peas, beets, and snap beans are available



Cereal leaf beetle adult. Photo: NYS IPM

continued - CROP insights

on the CVP website. Cereal leaf beetle is being reported on small grain crops and may appear in nearby sweet corn fields. The 1/4th inch long larvae look almost like small black slugs and the adults are 3/16th inch long with metallic bluish-black head and wing covers. This insect generally does not cause significant damage to corn.

SWEET CORN

Much of the corn under plastic is coming out and looking somewhat decent. The cooler temperatures had slowed uptake of N leaving a lime green appearance in the leaves but this should clear up very shortly. Corn flea beetles numbers seem to be low or nonexistent in most fields. No signs of European Corn Borer moths in the region so far.

From Marion Zeufle, Cornell NYS IPM: Only four sites reporting this week and all four caught zero moths. Two additional sites have been added to the trap network this year, Pavilion and Seneca Castle.

The first spring flight of ECB-E moths is expected when accumulated growing degree days reaches 374 (base 50). The accumulated degree days for the 24 trap network sites range from 187 to 324, so flights can be expected within the next 1-2 weeks depending on where the site is located.

European Corn Borer Larvae (from the Vegetable Crops NYS IPM Fact Sheet 9/83):

Eggs - Moths lay eggs on the underside of the upper corn plant leaves near the midrib. A few days after being laid, eggs become cream-colored and dull. Later they turn orange-tan and finally the black heads of the unhatched larvae show through the transparent egg membrane. Eggs hatch in 4-9 days, depending on temperature.

Larvae - The European corn borer larva (borer) is flesh-colored, ranging from light gray to faint pink with small round, dark brown spots on each segment. The larva has a brown head and indistinct reddish stripes running the length of its body. Mature larvae are about ¾ to 1 inch in size.

Within hours after hatching, the tiny borers crawl to protected places on the plant where they feed. Young larvae feed on leaf tissue of both corn and beans for 5-7 days before boring into stalks or stems and, if available, the pods of bean plants. The corn borer larva passes through five stages (instars) of development. Mature larvae of the two generation strain, after feeding in June and July, pupate in late July and moths emerge in August. Offspring from these adults go intodiapause (resting stage) and overwinter as larvae.

Damage - The corn borer attacks all parts of the corn stalk and the ear. Larvae also infest green, wax, lima, and soybeans, green peppers, potatoes, apples, small grains, millet, buck-



VINE CROPS

Early summer squash and zucchini are beginning to get large after a real slow start. Direct seeded stands have had variable germination while early transplants have struggled with the widely fluctuating temperatures. Young plants are hungry for N and exhibiting a paler green color than normal but this should clear up with the warmer sunny days.

No sign yet of the striped cucumber beetles. For cucumbers and squash under cover, if Admire had been used on transplants, by the time you uncover them, the protectiveness of the product may be wearing off. Don't be caught short when the beetles do show up.

Post-Emergent Herbicides for Broadleaf Weed Control in Onions

Christy Hoepting, CCE Cornell Vegetable Program

Goal 2XL and Goaltender (a.i. oxyfluorfen): Goal 2XL 2 to 4 fl oz or Goaltender 1-2 fl oz may be applied to onions that have at least 3 leaves for control of broadleaf weeds. Goal is weaker on mustards, smartweed and common groundsil. Multiple applications not exceeding a total of 2 pt (Goal 2XL) and 1 pt (GoalTender) per season is allowed (PHI = 45 days). For best results, apply when weeds are at the 2 - 4 leaf stage. Crop injury (i.e. necrotic lesions, twisting, pig-tailing and stunting) is more likely to occur when Goal is applied after cool wet weather or when the plants are under stress. Comparatively, Goaltender is safer on onions and in tank-mixes than Goal 2XL.

Buctril and other generics such as Maestro and Broclean (a.i. bromoxynil): Buctril is labeled for the 2-5 leaf stage with the 4-leaf stage being the most tolerant to injury. It is very good at controlling ragweed, smartweed, common groundsil and some species of mustards including Shepherd's purse and yellow rocket, but not marsh yellowcress. It is moderate to weak on pigweed. The labeled rates (8 to 12 fl oz) can be used during sunny and dry weather, which is conducive to building up a thick waxy cuticle that helps protect the onion leaves from the contact burner activity of Buctril. When onion leaves are very tender, lower than label rates are recommended (4 to 7 fl oz). Buctril can be tank-mixed with Goal when the onions have thick waxy cuticles: For example, 4 fl oz Buctril + 1 fl oz Goal 2XL, or 6 fl oz Buctril + 2 fl oz Goal, 4 fl oz Buctril + 4 fl oz Goal or 8 fl oz Buctril + 2 fl oz Goal. Wait until foliage and soil surface are dry before applying. Use 50-70 gal per acre of water. Adjust your tank-mixes according to the weeds you are targeting. For example, if smartweed is more of a problem than pig-



Cooperative Extension

FCB-F moth

Photo: Purdue University







weed, favor the Buctril. Make sure you know how to identify the difference between smartweed and pigweed seedlings (Fig. 1). Buctril at the labeled rates also provides some pre-emergent activity.

Chateau SW and WDG and new generic Warfox (a.i. flumioxazin): Chateau is labeled for pre-emergent weed control, but also has post-emergent activity at the same rates. It is labeled in transplanted onions between the 2 and 6 leaf stages and in direct seeded onions between the 3 and 6 leaf stages. It is generally very good on controlling broadleaf weeds and provides slightly better control of PA smartweed and marsh yellowcress than Buctril or Goal, provided the weeds are less than 1 inch tall. Chateau has exceptional activity against pigweed. Apply no more than 2 oz per acre in a single application and no more than 3 oz per crop per season with a minimum of 14 days between applications. There is also a <u>micro-rate application</u> that allows 0.5 to 1.0 oz to be applied between the 2 and 6 leaf stages on a 7-day interval. The only thing allowed in the tank with Chateau is Prowl H₂O; no adjuvants or other herbicides of any kind as tank mixes can get very hot! *In Cornell studies*, best control of postemergent weeds was achieved with 2.0 oz followed by 1.0 oz 1 week later.

Chateau is available in two formulations, WDG and SW. For the WDG formulation, use on onions is available only as a supplemental label

(http://128.253.223.36/ppds/516323.pdf), while onions are on the primary SW label. For a summary of Cornell Chateau research results in onions – see article, page 5.





Figure 1. Early seedling stages of red root pigweed at 4-leaf stage (a) and Pennsylvania smartweed at the first true leaf stage (b). Both have slender oblong cotyledons with red undersides, PA smartweed has a single 1st leaf and PW has paired 1st leaves. PW has a notch at the tip of the leaf blades of the true leaves Photos: South Dakota State University

UPCOMING EVENTS

Muck Donut Hour

June 3, 2014 | 8:30 - 9:30 AM Elba muck, corner of Transit and Spoilbank, Elba 14058

Meet with Cornell Vegetable Program Specialist Christy Hoepting every Tuesday morning to ask questions and share your observations.

Muck Donut Hour

June 10, 2014 | 8:30 - 9:30 AM Elba muck, corner of Transit and Spoilbank, Elba 14058

Meet with Cornell Vegetable Program Specialist Christy Hoepting every Tuesday morning to ask questions and share your observations.

Weed Control - June Walk & Talk Discussion Group

June 11, 2014 | 6:30 PM On the River Farm, 7579 St Rt 19, Belfast 14711

1.5 DEC credits are available in categories 1a, 10, 21, and 23. A crop walk focused on how cultural practices can help reduce weed pressure, and discussion on enhancing in-season control of difficult weeds. FREE! For more details, contact Elizabeth Buck at 607-425-3494 or emb273@cornell.edu.

Muck Donut Hour

June 17, 2014 | 8:30 - 9:30 AM Elba muck, corner of Transit and Spoilbank, Elba 14058



Meet with Cornell Vegetable Program Specialist Christy Hoepting every Tuesday morning to ask questions and share your observations.

Beneficial Insects and Habitats - June Rolling Hills Discussion Group June 17, 2014 | 6:00 - 7:30 PM Honeyhill Farm, 6241 Price Rd, Livonia 14487



1.5 DEC credits are available in categories 1a, 10 and 23. Abby Seaman and Marion Zuefle, of the NYS IPM Program, will teach which beneficial insects are used to control certain pests. Come learn about their lifecycles, predation strategies, and potential to be used on your farm! Kira White, Vegetable Manager at Honeyhill Farm, will share the farm's use of benefical insect promoting habitat. FREE! A potluck dinner will follow the meeting. For more details, contact Elizabeth Buck at 607-425-3494 or emb273@cornell.edu or Robert Hadad at 585-739-4065 or rgh26@cornell.edu.





Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 5/20 - 5/26

	Rainfall (inch)		Temp (°F)		
Location	Week	Month	Мах	Min	
		Мау			
Albion	0.01	2.33	80	49	
Appleton, North	0.03	1.94	81	49	
Baldwinsville	0.18	3.50	84	42	
Buffalo*	0.22	2.64	72	48	
Ceres	1.16	4.89	79	36	
Elba	0.01	2.20	76	45	
Farmington	0.27	3.17	79	48	
Gainesville	0.16	2.64	77	42	
Geneva	0.14	3.64	84	51	
Kendall	NA	NA	NA	NA	
Lodi	0.02	0.85	80	49	
Penn Yan*	0.84	6.71	82	50	
Ransomville	0.15	1.83	80	45	
Rochester*	0.42	3.18	82	46	
Romulus	0.01	1.14	82	46	
Silver Creek	0.83	4.20	76	47	
Sodus	0.73	6.59	83	43	
Versailles	NA	NA	78	42	
Williamson	0.33	3.04	80	48	
Wolcott	NA	NA	NA	NA	

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 — May 26, 2014

Location	2014	2013	2012
Albion	240	313	320
Appleton, North	171	221	266
Baldwinsville	300	316	376
Buffalo	238	374	383
Ceres	231	251	304
Elba	192	288	355
Farmington	283	298	336
Gainesville	202	314	324
Geneva	290	325	361
Kendall	NA	319	NA
Lodi	309	329	375
Penn Yan	300	328	370
Ransomville	207	276	318
Rochester	304	370	381
Romulus	289	326	NA
Silver Creek	215	334	333
Sodus	267	276	315
Versailles	237	365	354
Williamson	211	292	325
Wolcott	NA	292	NA

* Airport stations

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





Cornell University Cooperative Extension Cornell Vegetable Program

480 North Main Street Canandaigua, NY 14424





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.

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Cornell University Cooperative Extension Cornell Vegetable Program

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.