



**Cornell University Cooperative Extension** Cornell Vegetable Program

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### **Armyworm Populations Remain a Concern**

by Julie Kikkert, Cornell Vegetable Program

Extension office phones have been ringing and ringing this past week with calls about armyworms. Primarily a pest of grasses, small grains and corn, "armies" of these worms have marched across roads, airport runways, lawns and up houses and other structures in search of more and more food. For vegetable growers,

sweet corn is at most risk since it is also in the grass family. Indeed fields of both fresh market and processing sweet corn have been affected. This past week, we've also heard reports of armyworm feeding on cabbage, potatoes, and tomatoes (see photos). Armyworms moving through lettuce fields have left their frass, thus requiring additional washing of the lettuce.



Armvworm on tomato. Photos: Judson Reid, Cornell

Vegetable growers need to be aware of the potential of armyworms moving into their fields and take action if necessary. Basic information was provided in last week's Veg Edge Weekly. Be aware of high populations in grass, grains and corn fields near your vegetables. Movement may be curtailed by spraying a 20- to 40-foot strip between infested fields and your crops. The word is that armyworms are easily controlled by pyrethroids. That being said, the local supply has been tight because large acreages of field crops have been sprayed. Products have different residuals which may influence your choice. When spraying vegetable crops, check the label for specific crop restrictions, size of armyworm larvae controlled and the pre-harvest interval. Organic options for vegetable crops include Entrust (spinosad) and Bacillus thuringiensis (Bt).

According to Mike Stanyard, Cornell Cooperative Extension Field Crops Educator for the Continued on next page

## *Contents*

#### Crops

Crops: Tidbits & Insights	6 & 7
Garlic: Avoid Over-Fertilizing	4
Onions: Bravo & Movento Tankmix Dilemm	na8
Potato Pests	3
Potato/Tomato: Late Blight Risk	5
Sweet Corn: Trap Network Report, 6/12	2

#### General

Armyworms Populations Remain a Concern New Regional Specialist Wanted Ag Plastic Container Recycling Wanted	1
Dates	8
Sponsors	. 9

NWNY Team, two major enemies of true armyworm, a parasitic fly and a virus are just beginning to be found in NY. Larvae of true armyworm can feed for a month, with the last growth stage feeding voraciously. The fully mature larvae then burrow into the soil and pupate. After about two weeks, adults emerge and the cycle begins all over again. Larvae of the second generation could be present around July 15<sup>th</sup>. Watch for reminders in Veg Edge Weekly about this pest if the population of the second generation becomes high enough for concern in vegetables.

If you haven't seen armyworms consider yourself lucky. Local and national news stations have posted videos on this pest. Here are samples: <a href="http://www.youtube.com/watch?v=bkQMWENmTqQ">http://www.youtube.com/watch?v=J0jlx14yXAQ</a>

### WNY Sweet Corn Pheromone Trap Network Report, 6/12/12

### Abby Seaman, NYS IPM Program

European corn borer numbers are generally down from last week. Baldwinsville numbers are high, but can't comment on the trend because this is the first report from that location. Corn earworm and fall armyworm are being caught in low numbers at a few locations, and western bean cutworm was caught for the first time this season in Eden.

Common armyworm were found feeding in one corner of a sweet corn field, and ECB larvae are also being found. Damage to hay and small grain fields is widespread, and in some cases lawns near small grain fields are being damaged. Squished larvae coat the road in many places. See last week's report for more information on common armyworm. And keep an eye on your seedling stage sweet corn fields that you wouldn't ordinarily be scouting!

#### Scouting and threshold information for the major worm pests of sweet corn in NY. This information is for bare ground fresh market sweet corn:

#### TASSEL EMERGENCE TO SILKING

Fields should be first scouted, for European corn borer (ECB) and fall armyworm (FAW) larvae, at early tassel emergence. Even at a location with high ECB populations, insecticide applications in bare ground fields to whorl stage corn do not result in improved control when compared with one or two well-timed applications at tassel emergence. 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 they will be again protected from sprays. In fields with very uneven development, two applications may be necessary, one when approximately 25-50% if 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. Also look for corn leaf aphids and record the number of plants with more than 20 aphids.

Before any insecticides have been applied, scouting is fast and easy because any sign of feeding is an almost sure sign of live larvae, so it's not necessary to spend time finding the larvae. After the initial insecticide application, feeding damage may be from a larva that has already been killed, so finding the critter is more important for an accurate estimate of the number of infested plants.

The threshold for corn leaf aphid at tassel emergence is 50% of plants with more than 20 aphids.

#### SILKING THROUGH ONE WEEK BEFORE HARVEST

Once a field is silking, the worm threshold drops to 5% infested plants.

WNY Pheromone Trap Catches: June 12, 2012						
	ECB	ECB				
Location	-E	-Z	CEW	FAW	WBC	
Baldwinsville (Onondaga)	25	0	6	1	NA	
Batavia (Genesee)	0	0	1	0	NA	
Bellona (Yates)	NA	NA	NA	NA	NA	
Eden (Erie)	0	0	3	0	2	
Farmington (Ontario)	1	0	0	0	NA	
Hamlin (Monroe)	NA	NA	NA	NA	NA	
LeRoy (Genesee)	NA	NA	NA	NA	NA	
Lockport (Niagara)	0	0	0	0	NA	
Penn Yan (Yates)	3	2	0	0	NA	
Spencerport (Monroe)	0	0	0	0	NA	
Waterport (Orleans)	0	2	0	0	NA	
Williamson (Wayne)	NA	NA	NA	NA	NA	
ECB - European corn borer WBC - western bean cutworm						

CEW - corn earworm FAW - fall armyworm

WBC - western bean cutworm NA - not available

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 this table.

Average corn earworm catch				
Per Day Per Five Days Per Week Days Between Spra				
<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. ■

### New Regional Ag Economic Development Specialist Wanted

Extension Support Specialist II Regional Agriculture Economic Development Specialist Cornell Cooperative Extension College of Agriculture and Life Sciences (CALS) Cornell University

The Extension Support Specialist II will be affiliated with the Cornell Vegetable Program, and work collaboratively with the Lake Ontario Fruit Program, Finger Lakes Grape Program and Lake Erie Grape Program in providing producers, industries and consumers with the knowledge and educational resources necessary to assess production, management, procurement and/or distribution practices that will enhance quality, quantity, and profitability, thus enhancing the growth of the fruit and vegetable industries in western New York. This position will regularly plan, implement and evaluate educational programs that address producer and consumer-identified needs and opportunities and develop and enhance partnerships and collaboration with industry producers and growers. The objective of this position is to promote agricultural economic development that will increase investment and jobs in agriculture and food systems to enhance the viability of farms in western New York through expansion, value added production, diversification and distribution. Emphasis will be in fruit and vegetables, not to preclude livestock or dairy products.

### Position will be located at CCE Yates County in Penn Yan NY serving the Finger Lakes and Western NY region

2-year appointment can be extended depending on successful performance and the continuation of available program funding.

Details of the position can be found at the following link: https://cornellu.taleo.net/careersection/jobdetail.ftl? job=298229&lang=en&sns\_id=mailto#.T9dguih9UF8.mailto

### Potato Pests

*C. MacNeil. CVP:* Everything from <u>Colorado potato beetle</u> (<u>CPB</u>) adults, egg masses, and small, medium and large larvae are present. <u>European corn borer (ECB)</u> moth catches have been increasing. First brood ECBs can be a problem on very early emerging potatoes, when little corn is available for egglaying, or in areas with a history of ECB infestation. Insecticide applications are only effective for about 5 days after egg hatch, before the borers enter the potato stem. See the Sweet Corn Pheromone Trap Report in this issue, page 2.

Single product insecticides with imidacloprid as an active ingredient (Admire Pro, generics) are effective against CPB, <u>potato leafhopper (PLH)</u> and aphids, but <u>not</u> ECB. A related insecticide, with thiamethoxam, Assail is also effective against CPB, PLH and aphids, but will also kill ECB eggs, though not larvae.

Efficacy of Newer Products Against Common Potato Pests Brian Nault, Cornell

Product <sup>1</sup>	CPB <sup>2</sup>	Leaf- hopper	Aphids	Eur. corn borer
Cruiser Maxx <sup>2</sup>	X	X	X	
Coragen	X			x
Voliam Xpress <sup>1</sup>	x	X	X	x
Endigo ZC <sup>1,2</sup>	x	x	x	x
Blackhawk	x			x
Radiant SC	х			X

 $1-Combination \ of two insecticides \ in different Resistant Management Classes \\ 2-Chloronicotinyl insecticides - CPB \ resistance \ may \ be \ present$ 



Colorado potato beetle.

Organic CPB management, Sandy Menasha, CCE, Long Island: Timing is critical. No materials will work well or even fair on large larvae so growers need to be out scouting to time applications with egg hatch. Entrust will provide good control. If high label rates are needed resistance may be developing. Azera is a newly registered product which combines the active ingredients azadirachtin and pyrethrin. In Maryland trials, this product provided good control. We are testing it in replicated trials at the Research & Extension Center. Other practices include hand picking where appropriate, bug vacuums, flaming and trench trapping.

See the 2012 Cornell Veg Guidelines, Potato Insect Management, at: <u>http://www.nysaes.cals.cornell.edu/</u> <u>recommends/24frameset.html</u> and the Organic Production Guide – Potato, Insect Management, pg. 52 at: <u>http://</u> <u>nysipm.cornell.edu/organic\_guide/</u> ■

### Agricultural Plastic Container Recycling

#### Elizabeth Bentley-Huber, SWCD, Genesee County

FREE Agricultural Plastic Container Recycling has been set up for June and Octobe. Pre-registration is required. Call and advise us of the approximate number and size of containers you will have for recycling. Collection dates and locations are based on the anticipated amount collected. Large plastic bags to store clean containers are available for free. Only non-refillable plastic containers from 1 gallon to 55 gallon barrels made from high-density polyethylene (HDPE) embossed with recycling symbol #2 on the bottom are accept-able. Larger containers, such as 250 gal. totes are accepted but must have all metal re-moved and be cut into 2' x 2' strips. 5 gal. buckets must have metal handles removed. Multi-gallon containers must have caps and booklet removed. All containers MUST be clean, empty and pressure rinsed or triple rinsed and dry. Any container that is not clean will be returned to the owner. We can accept <u>no agricultural film.</u>

Contact:

Elizabeth Bentley-Huber, Genesee Co. SWCD, ay (585) 343-2362, or

Tucker Kautz, Monroe Co. SWCD, at (585) 473-2120 x108.

Coordinated by Genesee County Soil & Water Conservation District Agricultural Environmental Management Committee (AEM) and USAg Recycling, Inc. & Ag Container Recycling Council (ACRC) ■

### Wanted - Growers Who Need Small Coolers

### Craig Kahlke, Lake Ontario Fruit Team

Through a state government grant called a Consolidated Funding Application (CFA), growers who want to build small inexpensive walk-in coolers or "sheds" can get up to 50% of the cost covered. The Coolbot™ is an inexpensive (~ \$300) piece of equipment that allows normal window air-conditioning units to be converted into coolers with capabilities to keep an insulated cooler at 32F. The table below shows the size AC unit needed to match cooler size.

Cooler Size (Feet)	A/C Unit Size (BTU's)
6 X 8	10,000
8 X 8	12,000
8 X 10	15,000
8 X 12	18,000
10 X 12	21,000
10 X 14	25,000

The approximate cost of the entire project, including the Coolbot<sup>™</sup>, the AC unit, and the materials and labor to build an insulated cooler are \$4,000-5,000. With this grant funding, this means that you can build a small cooler for only \$2,000-2,500, way cheaper than a conventional cooler.

The ability to extend quality, shelf-life, and marketing window of your produce will be greatly improved by having a cooler on-site. For more information on the Coolbot<sup>™</sup>, see their website at <u>http://www.storeitcold.com</u>. Included on the website are several links to plans for building a well-insulated cooler.

Other questions of interest are:

Do you have a cooler but need money to fix it? How much?

Would you be looking for used walk-in units and how much would you invest in this?

We need to quickly gage grower interest in this grant funding and get letters of support to move forward. Fruit growers should please contact Craig Kahlke of the LOF Fruit Team at 585-735-5448, or email at <u>cjk37@cornell.edu</u>. Vegetable growers please contact Robert Hadad at 585-739-4065 or email him at <u>rgh26@cornell.edu</u>.

### Avoid Over-Fertilizing Garlic

*C. Hoepting, CVP:* This is the time of year that garlic plants exhibit leaf dieback or tipburn, as the plants are beginning to pull nutrients from the leaves into the bulb. This is normal. Garlic will not respond with improved yield to applications of nitrogen after the summer solstice. These late applications of nitrogen could delay the normal maturity of garlic and may even aggravate some diseases. If you notice that some plants have more than usual outer leaf dieback and yellowing, you should dig up these plants and inspect them for Fusarium diseases and garlic bloat nematode – see article in May 16 issue.

### Late Blight Risk

*C. MacNeil, CVP*: No new <u>late blight (LB)</u> found on Long Island in the past three weeks, and nothing so far in upstate NY, though we're about due. LB confirmed ten days ago in two south central PA counties was caused by US-23. LB in a third PA county is pending. Other states with LB in tomatoes or potatoes are NJ, VA, NC, FL and CA. LB severity value (SV) accumulations in the CVP region during the past week were variable, depending on rainfall. Generally a 5 – 7 day fungicide spray interval would be advised. It's time to increase the rate of product, especially if your crop is nearing hilling.

From Mea McGrath. Cornell: All growers need to inspect their potato and tomato crops for LB symptoms. Images of symptoms are posted at <a href="http://www.hort.cornell.edu/lateblight">http://www.hort.cornell.edu/lateblight</a> Report and submit any suspect symptoms (fresh foliage) in a zip lock bag to a member of the Cornell Vegetable Program, or contact Carol MacNeil at 585-313-8796 or crm6@cornell.edu It is critical to know about all occurrences because with an understanding of risk, LB can be effectively managed in a region. It is important to have samples from ALL outbreaks so that the genotype of the pathogen can be determined. With this information we will know the sensitivity to Ridomil fungicides, mating type, and relative aggressiveness on potato and tomato. Maintain a protectant fungicide program (Bravo recommended). It is especially important to apply before rain to protect crops during conditions favorable for disease development.

### Action Steps when Late Blight Confirmed in a Crop While Plants Actively Growing.

- 1. Apply fungicide.
  - #1: Previcur Flex + low rate Bravo.
  - #2: Apply 5 days later: Revus Top. Also apply Super Tin to potato if tractor has a closed cab (a requirement of use). Or Ridomil only if the LB strain in the crop is determined to be sensitive.
- 2. Destroy any localized hot spots. See below for details.
- 3. Continue applying fungicides and monitoring disease devel opment. Initially there may be an increase in symptoms after the first application as a result of infections that were pre sent but not yet visible before the application.

Note: If additional outbreaks are found caused by a different strain that is resistant to Ridomil, management recommendations will change because Ridomil is completely ineffective against resistant strains. A resistant strain (US-8) was dominant in the US before 2009.

Destroying localized hot spots. This is more likely to occur in a potato field where the source of the pathogen is infested tuber (s). Promptly destroy all symptomatic plants plus a border of surrounding plants to eliminate this source of inoculum. Methods to destroy affected plants include spraying a fast-acting herbicide, using a propane flamer, disking or physically removing the plants. The herbicides diquat and paraquat are good choices for applying with a hand sprayer. Gramoxone is effective but dangerous; there is no antidote in the event of acci-

Late	Blight	Severity	Values*	6/12/12
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Location**	Week	Total	Location	Week	Total
Albion	2	17	Lafayette	9	40
Appleton	1	5	Lodi	0	8
Baldwinsville	2	14	Penn Yan***	4	40
Buffalo***	3	22	Ransomville	1	13
Ceres	2	26	Rochester***	2	29
Elba	NA	NA	Sodus	1	NA
Farmington	3	24	Syracuse***	6	36
Gainesville	3	45	Versailles	NA	NA
Geneva	0	12	Williamson	1	18

\*\* For more sites: <u>http://newa.cornell.edu/</u> Crop Pages, Potato, Blitecast \*\*\* Airports, with RH increased to estimate field conditions

dental exposure. When disking is used, the crop should first be sprayed with fungicide because of the potential to move spores on equipment, especially while driving out of the field, and the equipment should be pressure washed afterwards. Affected plants can be pulled up and covered in place with a tarp. It is best to pull plants in the middle of a sunny day after the leaves have dried when there will be fewer spores and those dislodged in the process will likely be exposed to UV radiation, which can be lethal. Other options include burying the affected plants deeply in the ground.

Other fungicides with targeted activity against LB, when used on a preventive basis include: Previcur Flex is an especially good choice now while plants are actively growing because it has good systemic activity. Other fungicides to consider include Revus or Revus Top, Ranman, and Presidio. Ridomil is a good choice when LB has started to develop in a crop because it has some eradicant activity as well as excellent systemic activity, in addition to being a highly effective chemical.

Less effective fungicides for late blight: FRAC Group 11 fungicides (Headline, Quadris, Reason, etc) and Group 33 (phosphorous acid) fungicides.

Fungicides that can be used for LB in <u>high tunnels and</u> <u>greenhouses</u> include Curzate, Revus, Revus Top, and several mancozeb and copper fungicides.

<u>Organic fungicides</u> (non-copper products recommended to be used with copper): Copper - the most effective material for organic management of LB; Actinovate AG, *Streptomyces lydicu;* Regalia - Extract of *Reynoutria sachalinensis;* Serenade Max. *Bacillus subtilis* QST 713 strain. ■

# CROPS Tidbits & Insights

#### **CABBAGE & COLE CROPS**

High numbers of <u>Imported Cabbage Worms (ICW)</u> were found in Orange County last week. If you see the yellow cabbage butterflies flying about, you should check your plants for eggs and larvae. Look for tiny larvae feeding on the undersides of the leaves where they hatched. ICW larvae are bright green and fuzzy. Look for ICW eggs, which are bullet-shaped, stand on end and go from off-white when newly laid to dark yellow when they are ready to hatch. They are laid singly mostly on the undersides of leaves, especially on plants along field edges. Sprays are needed when 20% of the plants are infested. Generally, ICW are relatively easy to kill with any of the insecticides labeled on cole crops.

#### EGGPLANT

Eggplant growth has been good so far this season with warm temperatures and regular moisture. As with all our produce crops in 2012, we are seeing higher levels of insect pests. In scouting this week flea beetles and aphids were discovered on eggplants. Flea beetles are the black, shiny insects that jump when disturbed and leave tiny holes in the foliage (see picture). They lay their eggs in the soil, or on infested plants. The small worms hatch out and feed on the roots, pupating into the jumpy adults in 1-2 weeks. Their damage can be reduced with crop rotation and the use of floating row covers in spring. These row covers can be left on until flowers appear. Cornell Guidelines suggest spraying plants over 6" in height, when scouting reveals a population of greater than 8 flea beetles per plant. Once this threshold has been reached there are many options. Organic sprays with a flea beetle label include Molt-X (azidirachtin) and Pyganic (pyrethrin). Conventional options are too many to list completely, but we like to narrow our suggestions to those products with broad registrations and short pre-harvest intervals. Baythroid (beta-cyfluthrin) has a 0-day PHI and Mustang-MAX (zeta-cypermethrin) has a 1-day PHI. These recommendations will also help with aphid infestations on eggplant (see picture). Further aphid sprays could include commercial formulations of the fungus Beauveria bassiana as Mycotrol (OMRI listed) or Botanigard. Will Armyworm go to eggplant? We see no reason why they wouldn't, although it is not likely a preferred host. See last week's story on Armyworm for more info or the cover article of this issue.



Flea beetle on eggplant. Photo: Judson Reid, Cornell Vegetable Program



Aphid on eggplant. Photo: Judson Reid, Cornell Vegetable Program

#### GREENS

Lettuce has seen some damage from slugs in a few locations where rain has been heavier. Leaf hoppers have been heavier in some locations and some plants are exhibiting symptoms of aster yellows which is a virus transmitted by leaf hoppers. Plants stop growing, are stunted, twisting of younger leaves, and yellowing.

Flea beetles remain a problem in some spots and have really hurt young plantings/seedings of mustards and brassicas.

#### ONIONS

Transplanted onions of the early variety, Highlander, started bulbing this week. In Elba, <u>Botrytis leaf blight (BLB)</u> continued to increase at a very good pace (2 to 6 fold in the fields we scouted), and to a lesser extent in Wayne County. *All onions at the 4 leaf stage and larger should be treated with fungicides*, with Bravo 3 pts or Bravo 1.5 pt + Scala being the best performers for BLB in Cornell fungicide trials. <u>Onion thrips (OT)</u> have also increased over the past week with more transplanted fields reaching the spray threshold. All transplanted fields should be scouted for OT and Movento plus a penetrating surfactant is recommended first in the spray sequence when OT reach 1 per leaf. This is about 10 thrips per plant in onions with 10 leaves. Unfortunately, Bravo and Movento in the same tank mix are not an ideal combination – see dilemma article, page 8.

<u>Yellow nutsedge</u> appears to be growing very well this season. For growers battling this pesky weed, it is critical to prevent it from producing "nutlets", which are very long-term survival tubers. Just like bulbing in onions, production of nutlets is triggered by decreasing day length, which occurs after the longest day of the year – June 21<sup>st</sup>. In general, between-row cultivation will not control emerged nutsedge well, but only move the plants down the row with the cultivator and spread it in the field. Goal and Chateau can burn it back until it can be hand weeded. If you have areas where NS has won the battle against onions (i.e. you can't see the onions poking through the NS, see photo), then you may want to kill the NS at the expense of sacrificing the onions. Robin Bellinder, Weed Scientist, Cornell, says that in her experience, halosulfuron (trade names Sandea and Permit) provides the best POST-emergent control of NS. Apply at the highest label rate (1 oz). Be aware that spray drift can injure onions and if heavy rainfall (i.e.  $\ge 1$  inch) occurs within



Nutsedge larger than onions. Photo: Christy Hoepting, Cornell Vegetable Program

# CROPS Tidbits & Insights (continued)

about 4 days, halosulfuron could leach to adjacent 1-2 rows and damage healthy onions. Plan on applying Dual Magnum in the fall for fields going into onions next year that have NS issues.

#### POTATOES

Some potatoes are just emerging and others have already been hilled. It's important to hill and apply sidedress N when the potatoes are no more than 8" tall. This reduces the number of roots that are cut during the process and avoids applying N so late that it delays maturity. Limit total N applications to those recommended, by variety, in the 2012 Cornell Veg Guidelines.

See article on Potato Pests, page 3.

#### **PROCESSING CROPS**

After the hot, dry conditions on Sunday and Monday, the cool front with accompanying rain was a welcome relief for most. Some areas received quite a soaking on Tuesday, which will suspend planting of beets, snap beans, sweet corn and other crops for a few days.

*Beets* – The crop is generally doing well this year and growers are finishing up planting. Weed control with cultivation and herbicides is of primary concern at this time. Cercospora leaf spot is present in WNY and Dr. Abawi, Cornell recommends a fungicide application when an average of one lesion per plant is found. Quadris, Cabrio, Gem and copper are labeled for this disease. See more information in the 2012 Cornell Vegetable Guidelines.

*Carrots* – Planting conditions were much improved over last year, however, recent heat and dry soils in many areas have some carrot plantings slow to emerge. This is creating issues with weed control as growers wait for carrots to have enough size to spray without crop injury.

*Peas* – Processors were working to get harvest started this week. Most fields I observed this week looked very good. Root rot was present in one field. Weed management remains top priority in young fields. Later planted fields are at higher risk for annual grass and night-shades, so remain vigilant with scouting and post-emergence herbicide applications as needed.

*Lima beans* – Some interesting information *from G. Johnson, Univ. of Delaware, Weekly Crop Update*: Cypress is very susceptible to pod drop due to heat. May planted lima beans, both at our research station and on growers farms in 2011 had very poor yields in the summer due to severe pod drop, even though some fields were well irrigated. This illustrates the problem with May and early June planted lima beans: they most often have a lower yield potential than late June and early July plantings because they flower and set pods during summer conditions when day and night temperatures are high. Day temperatures greater than 90°F cause stomates to close early during the day to limit water loss, reducing lima bean photosynthesis. This results in fewer pods being carried by the plant. Night temperatures in the 70s or higher will also adversely affect yields because higher levels of carbohydrates are consumed in night respiration, limiting the plants ability to set and retain pods. Plants will reflower when cooler conditions recur, but this may lead to split sets.

Snap beans – Planting has progressed on schedule. No concerns at this time. From the Univ. of Delaware Weekly Crop Update: We recently learned that succulent beans will be removed from the acephate label – this applies to all labeled formulations. At this point, we have been told that existing stocks that include the green/succulent bean usage can be sold and/or distributed under the previously approved labeling until March 14, 2013, unless EPA imposes further restrictions.

Sweet corn – Stands look good throughout the region. Continue to scout for armyworms.

#### SWEET CORN

A few unlucky sites have seen some armyworm damage. If they get in during the whorl stage it is hard to treat them effectively until tassels emerge. Unlike corn borers, the army worms are messy feeders and really tear up corn leaves as they get into the whorls.

#### TOMATOES

Armyworms will attack tomatoes (see cover article).

Update On Late Blight from Plant Pathologist Meg McGrath: Since tomatoes are very susceptible to late blight, everyone growing tomatoes needs to be aware of any outbreaks in potatoes and needs to be thoroughly inspecting their crops and applying protective fungicides. Look for brown, typically large, spots on leaves and stems. Pay closest attention to plants in more humid areas (such as sections of the field that are low, partly shaded during the day, or where air movement is not good) and also plants at the highest point in the field. Symptoms were first found at the peak of a slightly dome-shaped field on Long Island in 2011, likely pathogen spores moving in the wind over the field. Images at http://www.hort.cornell.edu/lateblight. (See the LB Risk article, page 5.)

#### VINE CROPS

Harvests have begun for summer and zucchini squash. Plants are starting to really pump out the fruit. There are reports from scattered locations of yellowing (chlorosis) of older leaves on some of the zucchini plantings. Periodically over the years we have seen this on real early squash. It might relate to exposure to cold temperatures back several weeks prior (which we certainly had this season). At that point young leaves that were exposed to the cold are the ones now showing symptoms. This likely is the result of a micronutrient deficiency that damaged chlorophyll. Experience has shown that the plants tend to outgrow this with maybe only a slight slow down in production. It may be symptomatic for certain varieties of squash as well. If you are seeing this symptom, please make note of the variety and let me know. (rgh26@cornell.edu).

### Onions: The Bravo & Movento Tankmix Dilemma

*C. Hoepting, CVP:* Rainfall over the past two weeks has pushed development of Botrytis leaf blight (BLB) and we are recommending all onions 4 leaves and larger to be sprayed with fungicides for protection against BLB. In between the rainfall events, temperatures have soared into the high 80s and 90s, which are favorable for development of onion thrips (OT) and now several transplanted fields have reached threshold (1 Ot per leaf) for the first insecticide spray. Consequently, these fields will need both a fungicide and an insecticide spray this week.

#### The dilemma: Bravo is best for BLB and Movento is best for OT, but tank mixing them isn't best

My number one recommendation for BLB early in the season is Bravo, because in my fungicide trials (6 trials in 2006-2008 and 2011), it consistentlywas one of the top performing fungicides for reducing the number of BLB lesions per plant. The other frontrunner for BLB in these trials was Scala 9 fl oz + Bravo 1.5 pt. To control OT, we strategically recommend using Movento for the first two sprays. Cornell studies have also found that when Movento, Agri-Mek and Radiant were tank mixed with Chloronil 720 (generic version of Bravo), which contains a spreader sticker, thrips control was significantly reduced by 12 to 35%. So, the dilemma is that although we want to use Bravo and Movento in the same tank mix, it will be at the expense of Movento's ability to achieve optimal thrips control. This dilemma will occur throughout the season as we will want to apply Bravo with one of these insecticides.

#### What to do?

A) Substitute Bravo with another fungicide: This is a reasonable option, although challenging, because Bravo is such a backbone to our fungicide spray program in onions, especially for BLB. Several fungicides are labeled for BLB. In my trials, Endura, Switch and Rovral placed second behind the frontrunners, Bravo and Bravo + Scala for BLB control. In these trials, mancozeb and Ouadris were weak on BLB, and therefore not good substitutes for Bravo. Scala alone and Pristine provided mediocre control, which was not as good as Bravo alone or Scala + Bravo. In 2011, the newly labeled Inspire Super when used alone gave inconsistent results, but did pretty good when tank mixed with Bravo. Based on these results, I do not recommend using inspire Super without Bravo for control of BLB, and so this is also not a good substitute for Bravo. When purple blotch is the main disease of concern, Scala and Quadris Top can be easily tank mixed with Movento, Agri-Mek and Radiant without any reduction in efficacy of either insecticide or fungicide. If Bravo must be used in a tank mix with one of these insecticides, use it at a low rate in combination with Scala.

- Increase the rate of penetrating B) surfactant: Movento has systemic activity and it is critical that it be applied with a penetrating surfactant to ensure that it gets into the plant where it can do its job. Cornell studies have shown that the addition of a penetrating surfactant to Movento improved control of onion thrips by 50% or more. Fortunately, in 3 out of 4 Cornell trials, using the high rate of penetrating surfactant (e.g. 0.5% instead of 0.1 or 0.25% v/v – check labels for rates) restored the high level of thrips control provided by Movento, Agri-Mek and Radiant.
- C) Apply fungicides and insecticides in separate passes: This would be the ideal situation. In some cases, this may be reasonable. For example, if only a couple of fields of transplants need to be sprayed with Bravo and Movento, versus the whole farm. If tank mixing is most practical, which will likely be the case for the majority of sprays, you should use option A when

thrips are the No. 1 enemy, and option B when BLB is the No. 1 enemy. For example, in a field where BLB is raging and OT are just coming in (as is the case in some fields in Elba this week), I would not substitute Bravo, but use a high rate of penetrating surfactant with Movento. Alternatively, if thrips are on the verge of exploding and conditions are forecast to favor thrips (hot and sunny), you should pull Bravo from the tank mix. ■

### Dates...

**Every Tuesday - Muck Donut Hour** Meet with Cornell Vegetable Program Specialist Christy Hoepting on the corner of Transit and Spoilbank in the Elba muck every Tuesday from 8:30 - 9:30 am.

July 17 - Vegetable Weed Day 8:00-11:30 am, H.C. Thompson Research Farm, Freeville, NY (10 miles northeast of Ithaca, Fall Creek Rd, Rt 366 extension). DEC and CCA credits have been requested. **Preregistration deadline: July 13.** Registration \$8.00 includes: coffee (beverage), doughnuts, and informational trial packet. Contact Maxine Welcome to pre-register: Phone 607-255-5439; mw45@cornell.edu.

July 17 - Field Crop Weed Control 2:00-5:00pm, Robert B. Musgrave Research Farm, Aurora, NY (Poplar Ridge Rd, connects 90 and 34B). Contact Maxine Welcome to preregister: Phone 607-255-5439; mw45@cornell.edu.

### Weather Charts

#### J. Gibbons, CVP:

#### Weekly Weather Summary: 6/05 - 6/11

	Rainfall (inch)		Tem	p (°F)
Location	Week	Month	Мах	Min
Albion	0.73	1.97	89	44
Appleton, North	0.54	1.22	83	47
Baldwinsville	0.34	1.34	88	47
Buffalo*	0.30	2.28	88	48
Ceres	0.12	1.60	91	44
Elba	NA	NA	NA	NA
Farmington	0.52	1.66	89	44
Gainesville	0.08	1.14	86	43
Geneva	0.34	0.79	88	49
Lafayette	0.28	1.05	87	44
Lodi	0.15	NA	88	46
Penn Yan*	0.91	1.48	87	48
Ransomville	0.17	1.06	89	45
Rochester*	0.60	2.68	90	47
Sodus	NA	NA	87	44
Syracuse*	0.23	1.13	90	47
Versailles	0.32	1.63	86	42
Williamson	0.43	1.73	90	48

#### Accumulated Growing Degree Days (AGDD) Base 50°F: Jan. 1 — June 11, 2012

Location	2012	2011	2010
Albion	641	494	600
Appleton, North	520	339	461
Baldwinsville	724	673	NA
Buffalo	753	531	604
Ceres	588	545	NA
Elba	NA	429	615
Farmington	663	529	608
Gainesville	677	531	579
Geneva	717	601	668
Lafayette	692	604	573
Lodi	614	630	702
Penn Yan	741	611	663
Ransomville	638	485	598
Rochester	762	557	658
Sodus	623	509	NA
Syracuse	762	714	664
Versailles	698	NA	NA
Williamson	639	503	639

\* 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 Serving Allegany, Cattaraugus, Erie, Genesee, Monroe, Niagara, Onondaga, Ontario, Orleans, Seneca, Wayne and Yates Counties

*Veg Edge Weekly* is a seasonal weekly publication of the **Cornell Vegetable Program** providing information about crop development, pest activity and management, pesticide updates, local weather conditions, meetings and resources.

*Veg Edge* is published 28 times annually, monthly from October-May and weekly from May-September. If you have any questions about this publication, contact Julie Kikkert at 585-394-3977 x404 or <u>jrk2@cornell.edu</u>. Visit the Cornell Vegetable Program website at <u>http://cvp.cce.cornell.edu/</u> for information on our research, upcoming events and enrolling in our program.

Cornell Cooperative Extension provides equal program and employment opportunities.

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