



Post-emergence herbicides can be effective for weed control in beans, but must be used

properly to avoid crop injury and to obtain good control.

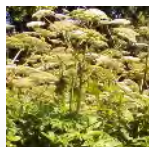
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Is your garlic ready to harvest? Pull a few plants, cut through the head sideways and

see how well developed the cloves are.

PAGE 4



Avoid this weed! Giant hogweed is a federally listed noxious weed with human health

impacts. What should you do if it's on your farm?

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Optimize control of onion thrips through proper planning and knowing when to deviate from the

plan. Learn more about the key conditions/decisions.

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VEGEEdge

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● Volume 10 | ● Issue 14 | ● July 16, 2014

 **Cornell University**
Cooperative Extension
Cornell Vegetable Program

Photo: Julie Kikkert

Tips for Post Emergence Weed Control in Lima, Snap and Dry Beans

Julie Kikkert, CCE Cornell Vegetable Program

Weeds often emerge with or soon after bean planting, requiring a post-emergence control strategy. A well-timed cultivation can go a long way for non-mechanically harvested snap or lima beans as well as some dry beans. Processing snap and lima bean growers generally don't have this option because stones and debris are picked up by the harvesting equipment and can become a contaminant in the product.

Post-emergence herbicides can be an effective tool for weed control, but must be used properly to avoid crop



Pigweed at good size for control.
Photo: Julie Kikkert, Cornell Vegetable Program



This pigweed was too big and escaped the post-emergence herbicide application.
Photo: Julie Kikkert, 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.

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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 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 750 readers.

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The next issue of VegEdge will be produced July 23, 2014.



Melon growing in WNY this week. Photo taken by Darcy Telenko; edited by Angela Parr

injury and to obtain good weed control. Here are some things to keep in mind:

- Weeds are best controlled if they are less than 1 inch tall.
- Scout fields to determine the weeds present. The effectiveness of labeled herbicides on different weed species can be found in the [Lima Bean Herbicide Chart](#) or [Snap and Dry Bean Herbicide Chart](#) found on our website. Be sure to read the footnotes, especially regarding snap bean vs dry bean labeling, rotation concerns, and regarding control of hairy nightshade vs Eastern black nightshade.
- Only use herbicides labeled for a specific crop (not all beans are the same). For example, serious injury can be caused to lima beans if Eptam, Reflex, Assure II/Targa, or postemergence applications of Pursuit are used.
- Time applications to crop stages as listed on the product labels. For example, Reflex applications in snap and dry beans can be made when the first trifoliate leaf is fully expanded, whereas Sandea applications in snap and lima beans should be applied after the crop has reached the 2 to 3 trifoliate stage. If beans are much larger than this they shade the soil and small weeds below the plants and weed control will not be good in the rows.
- Watch the weather. Temperatures of 85°F or above increase the risk of bean injury. A few days of cloudy weather also

makes bean foliage more susceptible to injury from herbicides.

- Use adjuvants as recommended by the herbicide labels. Crop oil can increase the activity on weeds, but may also increase injury on beans.
- Additional information on the use of a given product can be found in the Cornell Vegetable Guidelines and on the specific product labels. Make sure to read all labels thoroughly! 📌



Herbicide damage to snap beans. Make sure to follow the tips in this article to avoid herbicide injury to beans. Photo: Julie Kikkert, CVP

WNY Sweet Corn Trap Network Report

Marion Zeufle, NYS IPM Program

Nineteen sites reporting this week with only two sites reporting European corn borer (ECB)-E and five with ECB-Z. Five sites caught one corn earworm (CEW) each, this is below the level for a recommended spray. Fall armyworm (FAW) catches were up this week with eight sites reporting trap catches and with one site as high as 13. Western bean cutworm (WBC) was caught at five sites this week.

Fall army worm numbers are up this week. When scouting sweet corn look for FAW egg masses on the leaves. Egg masses consist of 50-150 eggs and can be distinguished from ECB by the fine hairs covering the egg mass. Feeding damage is also very different from ECB. FAW will cause ragged feeding damage on leaves with large amounts of frass below the feeding site. The larva has a distinct inverted 'Y' on the front of the head. 📌



Fall armyworm egg mass.



Fall armyworm larva. Note the prominent inverted 'Y' on head.

WNY Pheromone Trap Catches: July 15, 2014

Location	ECB-E	ECB-Z	CEW	FAW	WBC
Baldwinsville (Onondaga)	0	1	0	1	0
Batavia (Genesee)	NA	NA	NA	NA	NA
Bellona (Yates)	0	5	0	3	0
Eden (Erie)	0	0	0	4	0
Farmington (Ontario)	0	0	0	0	0
Hamlin (Monroe)	NA	NA	NA	NA	NA
LeRoy (Genesee)	NA	NA	NA	NA	NA
Lockport (Niagara)	0	4	1	1	NA
Pavilion	0	0	1	13	2
Penn Yan (Yates)	0	0	0	0	0
Seneca Castle (Ontario)	0	0	0	0	0
Spencerport (Monroe)	1	4	1	0	0
Waterport (Orleans)	0	0	1	0	0
Williamson (Wayne)	1	1	0	0	1

ECB - European Corn Borer

CEW - Corn Earworm

FAW - Fall Armyworm

WBC - Western Bean Cutworm

NA - not available

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.

Harvesting Garlic - Timing is Key!

Crystal Stewart, CCE ENY Commercial Horticulture; Weekly Vegetable Update, 7/10/14

Everyone knows the balancing act that is garlic harvesting—too early and the cloves are small and don't store well, too late and the head pops, making it unmarketable and more susceptible to diseases. So, as we near harvest, how should a grower decide if the garlic is ready? The best answer is to pull a few plants, cut through the head sideways (so you cut through all the cloves), and see how well developed the cloves are. You can use the leaves as a guide to decide when to do this (lowest third or half of the leaves yellowing and dying is a good mark to start with), but looking at the cloves is the best way to know if the garlic is ready. Cloves should fill the wrappers—if they seem a little loose, the garlic has a little ways to grow. A little of the very outer wrapper may have started to decay at this point. That is okay—it's a normal part of the maturation process. The key is to harvest before the bulbs pop, which can happen relatively quickly, especially if we have another wet year. If you don't think you will be able to get out and harvest for a period of time, it's better to harvest bulbs a little too early than a little too late.

Cutting the tops in the field: If you find that you do not have space to bring whole plants into the drying area and maintain good air circulation, cutting the tops off the garlic is a good solution. Cutting the tops has the added benefit of leaving significant amounts of moisture in the fields rather than bringing all that lush, green growth into the drying area. Tops can be cut as close to ground level as you can get if using a sickle bar mower, or you can cut them by hand at 1.5" to 6" long. Our trials have shown that there is no increase in disease incidence even when cutting the garlic down to its final length as you bring it into the drying area.



Knowing when to harvest garlic can be tricky. Use the leaves as a first indicator, but also feel and look at the bulb. You want the bulb to be very firm in its skins, and when you cut it in half perpendicular to the scape you want to see a small gap around the scape. The garlic on the top isn't quite ready; the garlic on the bottom is.

Photos: Crystal Stewart, ENY Commercial Horticulture

Field grading: Hopefully you have been removing sick and damaged plants each time you weeded the garlic, so there won't be many left. Harvest is one last chance to clean up your crop before you bring it into tight quarters where disease can spread like wild-fire. Remove any garlic that doesn't look great and set it aside rather than bringing it in and finding it later. You might also consider selecting your seed garlic at the same time. Save out the best garlic as your own seed to maximize next year's crop. You also don't need to clean your own seed of dirt or remove roots, which will save you labor if you set it aside now.

To wash or not to wash? Generally, you want to clean your garlic in the most gentle way possible. Most of the time this can be done dry. You can gently rub most of the dirt off of the garlic while harvesting, then remove a little more as you transfer from the wagon to your drying area. The one exception to this rule might be if you have to harvest garlic from muddy soils. In that case, washing may

be warranted, but do it right away while the dirt is still mud on the bulbs, not after it has dried on them. You want to avoid wetting and drying the garlic over and over. Regardless of method, do not bang heads to remove dirt, gently remove excess by hand. The more garlic is banged during the process, the more it will bruise and the worse it will store.

Move your garlic from the field into the drying area relatively quickly—most people harvest during the morning and have garlic in the barn, high-tunnel, or shed by mid-day. Garlic can be dried in a variety of ways, as long as a few fundamental ideas are followed. First, you want to have good air-flow over the garlic to move moisture away. This means not having garlic packed too tightly into the drying area. Each layer of garlic should have good air movement, whether hanging in rafters or sitting on benches. If there are parts of the drying area that are stagnant and wet, you need to remove some top growth and throw it away, reduce density of plants in the area, or increase air movement. Next, you want to choose an area that gets hot, but not too hot. Garlic will dry well at 110 degrees, but we try not to go much above that because at 120 degrees waxy breakdown, a physiological disorder, starts to occur. This temperature can be reached in a barn, shed, or high tunnel. Make sure you have the temperature in your drying area well controlled, so that you do not overshoot that target. 🍷

WEED of the WEEK

GIANT HOGWEED

Darcy Telenko, Cornell Vegetable Program

Giant Hogweed (*Heracleum mantegazzianum*) is a federally listed **noxious weed** with both human health and ecological impacts.

DO NOT TOUCH THIS PLANT!

The sap of giant hogweed, in combination with moisture and sunlight, can cause severe skin and eye irritation, painful blistering, permanent scarring and blindness (phytophotodermatitis). Contact with the sap can occur either through brushing bristles on the stem or breaking stem and leaves. Immediately wash affected area with soap and water and keep area away from sunlight for 48 hours. This plant poses a serious health threat, see your physician if you think you have been burned by giant hogweed.

Giant hogweed is a biennial or perennial herb in the carrot family (Apiaceae). The life cycle includes 2-4 years of a rosette of leaves which the roots overwinter until the plant flowers. The plant will bolt and flower mid-summer once the rosette accumulates enough energy reserves. It can grow to 14 feet or more with hollow, ridged stems that grow 2-4 inches in diameter with dark reddish-purple blotches. Giant hogweed leaves are lobed, deeply incised, and can grow up to a 40-inches long and 31-inches wide. It has numerous small white flowers clustered in a large flat-topped umbel up to 2.5 feet in diameter. The fruit containing seed of giant hogweed is dry, flattened, oval and about 3/8 inches long and tan in color with brown lines.

Giant hogweed can be mistaken for a number of native, noninvasive species including cow parsnip (*Heracleum lanatum*), Angelica (*Angelica atropurpurea*), poison hemlock (*Conium maculatum*), and wild parsnip (*Pastinaca sativa*) which also causes phytophotodermatitis. See the following website which contains information on how to identify giant hogweed and distinguish it from the other species. <http://www.dec.ny.gov/animals/72766.html>

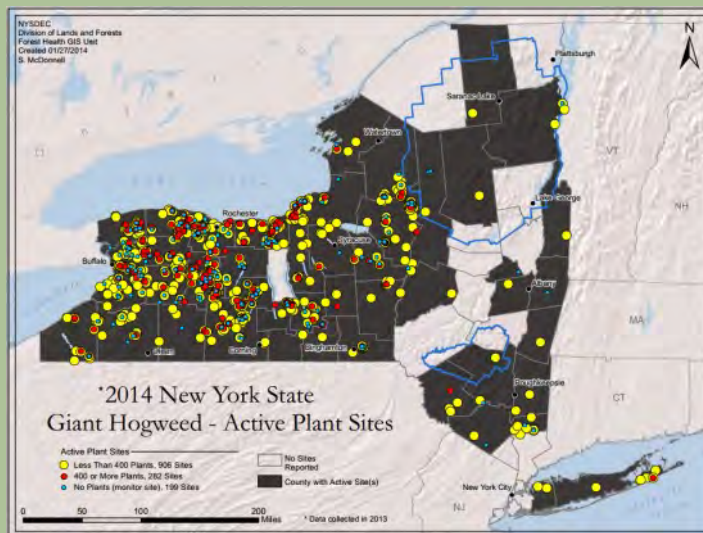


Giant hogweed flowering. Photo: Darcy Telenko, CVP

WHAT TO DO IF YOU SEE GIANT HOGWEED:

1. Try to make a positive identification.
2. Take photos (entire plant, stem, leaves, flower, and seed). High resolution needed to confirm identification.
3. Email DEC : ghogweed@gm.dec.state.ny.us or call the Giant Hogweed Hotline: 1-845-256-3111 as the first step to managing a suspected infestation.
4. If it is giant hogweed and it is on your property, DEC will contact you and may visit to assess the site and discuss management options, as resources allow.
Do not mow, cut, or weed-whack as they increase the chance of contact with the plant's sap.

For further information see the following website <http://www.dec.ny.gov/animals/39809.html>.



NYSDEC, Div. of Lands and Forests, Forest Health GIS Unit. S. McDonnell, 1/27/14.

Strategic Management of Onion Thrips in Onions

Christy Hoepting, CCE Cornell Vegetable Program

Onion thrips (OT) are a very important pest of onions. Their feeding reduces the photosynthetic capacity of the onion plant, which can reduce yield and bulb size by 30% or more. We are extremely fortunate in New York to have an Entomologist at Cornell, Brian Nault, who conducts extensive field research on onion thrips annually. Additionally, his research-based recommendations are vigorously field tested through my Extension scouting program so that we can make very specific and strategic recommendations to optimize control of onion thrips. There is tremendous opportunity to achieve excellent control of onion thrips and to reduce the number of insecticide sprays per season. Scouting your fields and knowing the thrips pressure in your fields is key to making informed decisions every week – see article in June 18 issue on scouting for onion thrips.

What You Need to Know About Using Insecticides to Control Onion Thrips:

- Do not make more than two sequential applications of an insecticide before switching to another insecticide with a different mode of action.** This is for resistance management to not expose a single generation to more than one chemical class. Movento and Agri-Mek have label restrictions that only allow them to be used two times per season. There are two exceptions to these rules:
 - If it takes more than 3 weeks or more for the population to reach spray threshold after the first spray, instead of making a second application of the same material, switch to a different chemical class.
 - If 7 days after the first spray, the population continues to increase and excessively exceeds the spray threshold, switch to another chemical class
- Movento, Agri-Mek and Radiant must be used with a penetrating surfactant** for optimum performance of these systemic and translaminar materials. Use of these materials without a penetrating surfactant can reduce efficacy by as much as 50%.
- When Movento, Agri-Mek and Radiant are tank mixed with Bravo Weatherstik (or generic version of chlorothalonil), efficacy of insecticide is reduced by 12 to 35%.** See article on this tank mix dilemma in July 9 issue.

Following is a strategic plan for managing onion thrips in onions, which includes a strategic order of applying the different insecticides, as well as how to make critical deviations from this order based on pest pressure, relative performance of different products and time to harvest (Table 1.).

Table 1. Strategic plan for managing onion thrips in onions with insecticides.

Spray No.	Insecticide	Threshold & Timing	Conditions/Decisions
1	Movento 5 fl oz	1 OT per leaf	<ul style="list-style-type: none"> Apply first because it does not control adults and to potentially benefit from the “Momentum of Movento” – see July 2nd issue of VEW If the thrips population is reduced to a low level (e.g. below 1 thrips per leaf) after the first Movento spray and does not reach threshold again until 3 weeks later, skip the second application of Movento and skip to the next insecticide in sequence. This will avoid more than one generation of thrips being exposed to Movento. Even if after 3 weeks, thrips are still less than 1 OT per leaf, make an insecticide application, but from a different chemical class.
2	Movento 5 fl oz	1 OT per leaf	<ul style="list-style-type: none"> If after using Movento there are only 2 to 3 weeks remaining before onions are pulled, eliminate the Agri-Mek sprays and skip to Radiant.
3	Agri-Mek SC 3.2 fl oz or Agri-Mek 0.15EC 14 fl oz	1 OT per leaf	<ul style="list-style-type: none"> If thrips pressure is greater than 3.0 per leaf prior to the first Agri-Mek spray, skip to Radiant.
4	Agri-Mek SC 3.2 fl oz or Agri-Mek 0.15EC 14 fl oz	7 days after 1 st Agri-Mek spray	<ul style="list-style-type: none"> If after the first spray of Agri-Mek, thrips are greater than 3.0 thrips per leaf, skip to Radiant. If control of thrips using Movento and Agri-Mek (first four sprays) has provided control up to 2 or 3 weeks before onions will be pulled, eliminate the Lannate applications and skip to Radiant.
5	Lannate 3 pts	1 OT per leaf	<ul style="list-style-type: none"> If thrips pressure is greater than 1.0 thrips per leaf, do not use Lannate, skip to Radiant.
6	Lannate 3 pts	7 days after 1 st Lannate spray	<ul style="list-style-type: none"> If after the second Lannate spray, thrips pressure has increased or is greater than 1.0 thrips per leaf, skip to Radiant.
7	Radiant 6-8 fl oz	3 OT per leaf	<ul style="list-style-type: none"> Save for when OT pressure is expected to be highest Use when thrips pressure exceeds 3.0 thrips per leaf. Use 8 fl oz when thrips pressure exceeds 5.0 thrips per leaf If Agri-Mek was skipped and after a single app of Radiant pressure is less than 3.0 thrips per leaf and there are less than 30 days to harvest, return to Agri-Mek in sequence. If Lannate was skipped and after a single app of Radiant, thrips pressure is 1.0 thrips per leaf or less, return to Lannate in sequence.
8	Radiant 6-8 fl oz	3 OT per leaf	<ul style="list-style-type: none"> Do not apply more than 30 fl oz per season (= 5 app at 6 fl oz) and no more than 2 sequential applications before switching to a different chemical class. ●

Late Blight Risk

Carol MacNeil, CCE Cornell Vegetable Program

Late blight (LB) is spreading on Long Island, in Pennsylvania, and is now reported in southwest ME and northern IN. There is a second, unconfirmed report of LB from Western NY.

The LB Decision Support System (DSS) recommends a 5-6 day spray interval at almost all of the weather station sites. The table does not reflect that this week, however, at many sites. This is because we are only reporting blight units (BU). The full DSS also provides information on fungicide weathering with fungicide (loss) units (FU). In many cases recently the FUs reached the trigger for a spray while the BUs did not. Rain weathered the fungicide, reducing the protection against LB. The length of the wetting periods/hours of continuous high relative humidity, however, were not sufficient for LB development. Either inadequate fungicide coverage OR blight favorable weather can trigger a spray recommendation. If either fungicide units or blight units reach the threshold a spray is recommended in the DSS. You need fungicide coverage in case the weather suddenly changes and LB sporulation occurs. Note that wetter, more humid microclimates on your farm (low spots, near tree rows, where fog forms, etc.), compared to the weather station site, could have resulted in the accumulation of more blight units or fungicide units, sufficient to trigger a spray, even sooner.

If you think you might have LB contact Carol MacNeil at 585-313-8796, John Gibbons at 585-394-3977 x405, or another Cornell Vegetable Program staff member, so we can submit a sample to have the LB strain determined, and thus the sensitivity to fungicides. 🍅

Late Blight Risk Chart, 7/15/14

Location ¹	Blight Units ² 7/09-7/15	Blight Units ³ 7/16-7/18	Location ¹	Blight Units ² 7/09-7/15	Blight Units ³ 7/16-7/18
Albion	NA	NA	Lodi	32	16
Appleton	23	15	Medina	37	18
Baldwinsville	20	17	Penn Yan	40	16
Buffalo	17	10	Ransomville	37	10
Ceres	40	14	Rochester	34	17
Elba	42	16	Romulus	38	17
Farmington	35	16	Silver Creek	35	15
Gainesville	NA	NA	Sodus	27	18
Geneva	26	16	Versailles	27	14
Kendall	NA	NA	Williamson	21	17

¹ Weather stations. For more sites, and varietal susceptibility to LB: <http://nwa.cornell.edu>

² Passed Week Simcast Blight Units (BUs)

³ Three days predicted Simcast Blight Units (BUs)



CABBAGE & COLE CROPS

Unfortunately, several cases of club root have showed up over the past couple of weeks. And, unfortunately, nothing can be done after the fact other than to be mindful of not spreading around infested soil. See cover article in last week's issue for preventative management strategies for club root. The relatively wet spring and summer have been very favorable for this extremely persistent disease. Although insect pest pressure has been generally low, all three worms are now present including imported cabbage worm, diamondback moth and cabbage looper. This is also the time of year when swede midge damage first becomes noticeable at sights that have generally low populations – more on swede midge next week.

Cabbage looper can be hard to kill when they get large, and should ideally be killed when they are small. CL larvae are light green with a prominent white strip along each side of the body. CL can be distinguished from other worm pests by its characteristic “looping” habit when it moves (even when they are only 3 mm long!) and reach 1.5 inches long when mature (Fig. 1). Early CL damage resembles that of diamondback moth (DBM) feeding on the undersides of the lower leaves. Larger larvae make ragged holes in the leaves (Fig. 2) and generally feed on the base of the head. Pres-

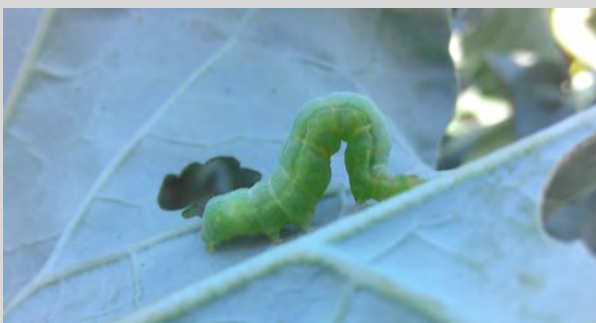


Figure 1. Characteristic looping of cabbage looper in broccoli.
Photo: Christy Hoepting, Cornell Vegetable Program



Figure 2. Top view of leaf with cabbage looper feeding causing ragged holes (yellow circles) and window-paning feeding (red circle) caused by small cabbage looper or diamondback moth larvae.
Photo: Christy Hoepting, Cornell Vegetable Program

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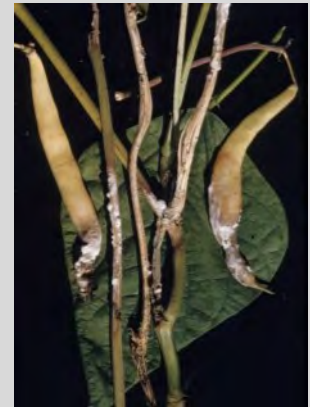
ence of larvae and frass in heads of fresh market cabbage, broccoli and cauliflower can render them unmarketable. A large CL causes 5 times more damage than DBM. To control large CL, high rates of pyrethroids (Baythroid, Brigade, Mustang Max, Pounce and other permethrin formulations, Danitol, Hero, Asana and Warrior) may be needed. Also, Radiant, Synapse/Belt, Coragen, Voliam Xpress and Avaunt provide excellent control of large CL.

DRY BEANS

The earliest beans are in flower, 3-4 trifoliates are common in many fields, and 1 trifoliolate is present in late fields. The frequent rains help bring on flushes of weeds. Late beans are still at the stage where a post-emergence herbicide may be considered. Scout your fields to determine the weed species present, since no single post-emergence material gets them all. Note that the maximum season rate of Reflex is 1.25 pts/acre. In general, non-ionic surfactants are the recommended adjuvants, but with Basagran alone, crop oil can be used with caution for greater effectiveness. See the cover article in this issue: *Tips for Post Emergence Weed Control in Lima, Snap and Dry Beans*.

Scout for potato leafhoppers (PLH) if you did not have the Cruiser treatment on your seed. PLH and tarnished plant bugs are being seen in fields.

If your beans will soon be flowering consider applying a fungicide for white mold (WM). If the top 1-2 inches of soil has remained moist for 6-10 days, if the field had WM, or frequent bean, soybean or vegetable crops in the last 2-4 years, if the foliage is lush, and if your beans are approaching flowering, they are at significant risk of WM infection. Hard, black sclerotia overwinter in the soil. From them tiny mushroom-shaped apothecia develop. They release huge numbers of spores that can infect flowers or injured foliage if moisture from rain or dew is present. It's critical that the first fungicide spray for WM be made early since infected flowers spread infection to nearby parts of the plant. Topsin (or other labeled thiophanate-methyl fungicide) has performed very well in Cornell trials against WM in beans. The first spray should be applied at 10-30% bloom and the second spray 7-10 days later. (10% bloom is when 10% of plants have their first open blossom.) If only one spray will be used apply the high label rate just when 100% of plants have their first open blossom. Other labeled materials are in the 2014 Cornell Veg Guidelines Bean Disease section at: <http://veg-guidelines.cce.cornell.edu/13frameset.html> Note that if soils are dry sclerotia may produce fungal strands that can directly infect leaves or stems lying on the soil surface.



White mold on dry beans.
Photo: B. Gugino, PSU

ONIONS

The crop continues to look very good! With respect to pest pressure, there was not much change from last week. Botrytis leaf blight levels remain similar to the previous week and onion thrips pressure increased only slightly with several direct seeded fields still remaining below the spray threshold of 1.0 thrips per leaf. **At this time, all direct seeded fields should be scouted for onion thrips and sprayed if they have reached the threshold.** Movento with a penetrating surfactant is recommended for the first spray of the season in all onions. Most transplanted fields have had their first two applications of Movento with all reports of this insecticide working very well. In all known cases to date, two applications of Movento 7-10 days apart have successfully dropped thrips numbers to below 1.0 thrips per leaf for at least one week and up to 3 weeks in one known case. See article in July 2 issue for more information on using Movento for onion thrips control. There have also been some cases of early transplanted onions that are now nearing harvest that never reached the spray threshold and will be successfully grown without a single insecticide spray! The top performing insecticides for managing onion thrips in onions are Movento and Radiant, both of which have strict restrictions on the total number of applications that can be made. Cornell has developed a strategic management program that utilizes these products to their maximum benefit. Implementing an effective thrips management program requires some strategic thinking that is powered by scouting information – see article, page 6.

At this time, Botrytis Leaf Blight (BLB), Purple Blotch (PB) and Stemphylium leaf blight (SLB) are all active in onions that have started bulbing. In addition, the forecasted weather of night time lows in the 50s and daytime highs in the low 70s, is favorable for downy mildew (DM). Therefore, **a fungicide program for all four leaf diseases (BLB, PB, SLB and DM) is recommended at this time.** Typically, downy mildew is not a threat until August when cooler night time temperatures result in long periods of dew, or unless it has been detected in the area. For example, in 2013, it first occurred in early July and continued to be active for several weeks, thus, protectant fungicides were recommended throughout most of the growing season. Since current weather is more typical of August/September weather, it is best to protect against this potentially devastating disease. Mancozeb, phosphorous acid products (e.g. Phostrol, Rampart, etc.) and Quadris can be used as preventative measures against DM. They won't stop the disease in its tracks, but they will slow its development. Once DM occurs, Ridomil Gold is added to the spray program. The "Cornell Onion Fungicide Cheat Sheet" is also available on the CVP website (http://cvp.cce.cornell.edu/submission.php?id=231&crumb=crops|crops|onions|crop*20).

PEPPERS

Soil borne pathogens, Pythium and Phytophthora, have caused a number of pepper plants to collapse in the small seedling stage and with the wet weather water-splashing can cause lesions to form on leaves. In these locations careful attention must be given to cultural practices, especially in fields with a history of the diseases, recommendations include: 1. Three-year crop rotation with crops other than tomato, eggplant and cucurbits. 2. Avoid poorly drained fields for susceptible crops. 3. Plant crop on raised beds to provide better soil drainage and maintain uniform soil moisture using trickle irrigation to prevent blossom end rot (overhead irrigation and rainfall will encourage disease spread). Refer to current Cornell Rec-



Bacterial spot of pepper.
Photos: Darcy Telenko, CVP

ommendations for Commercial Vegetable Production for list of available fungicides to control various disease phases.

Bacteria spots have been found in cucumber, squash, and pepper. Copper compounds will offer the best management option when detected in these vegetables. *From: Managing Bacterial Leaf Spot in Pepper, by Margaret Tuttle McGrath and Jude Boucher. Vegetable MD Online, Cornell University:* A chemical control program is recommended for susceptible varieties that show symptoms, and should begin in the early stages of disease development. Examine the plants every week. It is worthwhile to remove infected plants if they are found early, before there has been the opportunity for spread. If infected plants are found while scouting, apply bactericides (copper fungicides are toxic to bacteria) on a 7 to 10-day schedule; use the shorter interval when rain, high humidity and warm temperatures occur. Stretch the interval by one day for each night that temperatures fall below 61°F.

POTATO

The rains have resulted in lush foliage in many fields, but stressed plants from excess soil moisture in some others. Early potatoes for market are being harvested. If you have had problems with black dot (BD), causing grown to gray, small to very large spots on tubers (which can be mistaken for silver scurf (SS)), a couple of applications of a strobilurin fungicide combination (Quadris Opti, etc.), Revus Top, or Quash in mid-season can help. BD starts with foliar infection, causing very small, dark lesions on leaves, around the time early blight first shows up. This infection can spread to the stems. Spores from the BD lesions wash down to the soil where they can infect the tubers. Infection is characterized by many almost microscopic “black dots” of fungal growth on potato tissue.

Large Colorado potato beetle (CPB) larvae are present in some fields at low levels. One field had a relatively high population of summer CPB adults that were doing a lot of feeding. The threshold triggering a spray for adult CPB is an average population of 25 adults per 50 vines. Lush potato vines can tolerate some defoliation. If a high population is primarily on the edges of the field consider spraying just the edges. If resistance to Neonicotinoid insecticides (imidacloprid, thiamethoxam or acetamiprid active ingredients) is present there are few alternatives against adult CPB. Avaunt + the synergist piperonyl butoxide (PBO) has performed well in research trials in WI. Adults do not die quickly, but they stop feeding and do not defoliate the plants (*Russ Groves, U of WI*). This combination will not control potato leafhoppers PLH or aphids. Coragen (chlorantraniliprole) will control all stages of CPB. The label prohibits application within 100 feet of water, including drainage ditches, however, as well as aerial application. It specifies use against only one CPB generation per year. Coragen will not control PLH or aphids. If PLHs are at threshold (1 adult/sweep with a net, or 15 nymphs/50 compound leaves), as well as CPB, then Voliam Xpress (chlorantraniliprole plus a pyrethroid) is suggested. If a Neonicotinoid (imidacloprid or thiamethoxam active ingredients) was not used at planting, and if resistance isn't present, that class of insecticides is effective for CPB adults and large larvae. It will also control PLH and aphids. It should only be used against one CPB generation per year. There are many other choices for control of CPB small to medium larvae. See *Managing Colorado Potato Beetle Insecticide Resistance* in the June 11 VegEdge. See also the 2014 Cornell Veg Guidelines Potato Insect Management section at: <http://veg-guidelines.cce.cornell.edu/24frameset.html>

TOMATO

Early blight symptoms have been found in a number of locations on tomato. Early blight is caused by the fungus *Alternaria tomatophila*/A. solani. Lesions first appear as small, brownish black target spots on older foliage. The earlier the maturity of the variety the more susceptible it is to early blight. A. tomatophila survives in soil and infested crop and weed residues and may be seed-borne and/or carried by wind, water, insects or any movement through a field (worker and farm equipment). This fungus is most active during mild to warm temperatures and wet weather. Protectant fungicides like mancozeb and chlorothalonil are a good starting point, but must be reapplied every 7-10 days to provide protect to new growth. The QoI class of fungicides are highly active against *Alternaria*, but resistant isolates from tomato occur in NY, therefore the use of azoxystrobin in combination with a protectant such as Quadris Opti (group 11 +M5) or Quadris Top (group 11+3), do not apply more than on 1 sequential application of this product or other FRAC group 11 before alternating with a fungicide with a different mode of action (MOA). Other fungicide options include Endura 70 WDG (group 7), copper compounds, *Switch 62.5 WG(groups 9+12,), Inspire Super (groups 3+9), Tanos 50 DF + protectant (group 11), *Reason 500 SC (Group 11), ManKocide (groups M3+M1), Revus Top (group 40+3), Cabrio EG (group 11), Pevicur Flex+protectant (group 28), Scala SC + protectant (group 9), Flint (group 11), Ziram 76 DF or OLP (group M3), Gavel 75 DF (groups 22+M3). Use TOM-CAST system to help setup a fungicide program. <http://nwa.cornell.edu/index.php?page=tomato-diseases-tomcast>. *not for use in Nassau or Suffolk Counties.

VINE CROPS

We are seeing an assortment of fungal leaf diseases show up on cantaloupe, watermelon, winter squash, and cucumbers. There is also bacterial spot being found. Mostly the occurrence is mainly due to weather and rain splashing soil. Most of the incidents are not severe. *Alternaria*, angular leaf spot, and anthracnose are the main culprits. Leaf wetness is not helping with the cool nights allowing for long periods of dew to be present. The most serious of the diseases showing up this past week has been powdery mildew. We still haven't yet seen downy mildew show up, it is spreading in Michigan. If you haven't done so already, it is imperative to start putting on those preventative sprays making sure that enough pressure and can get the material on the upper and underside of leaves. Keep up a regular schedule as needed. In the case of cucumbers, watch for the pre-harvest interval period.

Cucumber beetles and two-spotted mites have been spreading and becoming very active in many locations. The spider mites feed on the undersides of the leaves causing a rusty looking appearance on the upper leaves. Webbing might be seen on the undersides as well. The mites are often found on strawberry plantings and will move into melons, eggplant, or even sweet corn. Dry dusty weather will favor infestations. They can also be blown in from other areas.

With the lousy weather experienced early in the season, many plantings of squash were planted in wet soils that have caked up or where compaction has firmed up hardpans. What we are seeing are plants with shallow root systems trying to carry a fruit load during hot dry weather and becoming stressed. In other areas, the shallow root systems are getting water-logged because too much water is trapped by the hardpans. Plants are not dark green but more yellowish green. Adding more fertilizer to drip lines can help in some cases. Subsoiling between rows can also help fracture hardpans allowing better drainage in wet soils.

UPCOMING EVENTS

Muck Donut Hour

8:30 - 9:30 AM

July 22 | July 29 | August 5 | August 12

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.

DEC to Conduct Worker Protection Standard (WPS) Mock Inspections

July 22, 2014 | 1:00 PM - 3:00 PM

DeMarree Fruit Farms, 7654 Townline Rd, Williamson



July 23, 2014 | 10:00 AM - 12:00 PM

NYS Agriculture Experiment Station, Jordan Hall, W. North St, Geneva

Learn first hand what you need to do to comply with the Worker Protection Standard. DEC pesticide recertification credits will be offered - arrive early for roster sign in. FREE, no preregistration required.

Vegetable Pest and Cultural Management Field Meetings

July 23 - Daniel Esh's Farm, 5839 Rt 96, Romulus 14541 | 7:00 PM - 9:00 PM

July 25 - Ray Hoover's Farm, 4341 Rt 14A, Rock Stream 14878 | 6:00 PM - 8:00 PM

July 31 - Orleans County

August 6 - Danny Miller's Farm, 11331 Hodnett Rd, Fillmore 14735 | 6:00 PM - 8:00 PM



This course (offered on several dates and at several different locations) will demonstrate pest management in fresh market vegetables in both field and greenhouse (high tunnel) vegetables; primarily for those growing for wholesale auction. A hands-on demonstration of weed, insect and disease identification in vegetables including management options such as inter-row cover crops, grafting and where appropriate, spray options will be used to educate growers. Judson Reid, Senior Extension Associate with the Cornell Vegetable Program will instruct participants and facilitate peer-based learning. Cooperating farms will be selected as the season progresses. Details on each topic will focus on field observations at these farms. DEC recertification credits have been requested. FREE! For a full agenda, [visit the CVP website](#) or call Judson at 585-313-8912.

Vegetable Disease Management - In Field Management Scenarios

August 4, 2014 | 6:00 PM - 7:30 PM

Eden Valley



Join us for field tours to talk about best crop production practices for managing and controlling vegetable diseases. There will be hands on demonstrations on identifying pests and scouting. Info will be provided for conventional and organic growers. 1.5 DEC recertification credits will be available. FREE! For the full agenda and more details, [visit the CVP website](#) or contact Darcy Telenko at 716-697-4965 or dep10@cornell.edu.

2014 Elba Muck Onion Twilight Meeting

August 7, 2014 | 5:30 PM - 8:30 PM

Mortellaro & Sons, 6550 Transit Rd, Elba 14058 (starting at Mortellaro's Red Shop in the Elba Muck Land)



An in-field meeting with an update on onion research. Main topics will include onion thrips management, onion fungicide demonstration featuring Stemphylium leaf blight, and demonstration of managing perennial sowthistle. 2.0 DEC recertification credits will be available. Contact Christy Hoepting at 585-721-6953 or cah59@cornell.edu for more details.

Improving Crop Production, Soil Health & the Environment

August 19, 2014 | 3:00 PM - 8:30 PM

Donn Branton's Farm, 6536 E Main Rd/Rte 5, Stafford 14143



Five innovative grower speakers, a nationally recognized soil health expert, and local staff will show and describe the benefits of improving the soil health on your farm. There will be equipment and displays to see. DEC and CCA credits will be available. Cost: \$5 (pre-registered) or \$10 at the door. For more information, to see the [complete agenda](#), and [mail-in pre-registration form](#), visit the CVP website at <http://cvp.cce.cornell.edu/event.php?id=237>. Questions? Contact Dennis Kirby, Orleans SWCD, at dennis.kirby@ny.nacdn.net or 585-589-5959. Organized by USDA-NRCS, County SWCD, Cornell Cooperative Extension, and WNY Crop Management.

Bejo Seeds Open House and Demonstration Trials 2014

August 26-27, 2014 | 10:00 AM - 6:00 PM

4188 Pre Emption Rd, Geneva 14456

View a wide variety of vegetable crops at Bejo's Research & Demonstration Farm. FREE! Lunch served August 26. RSVP to 315-789-4155.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 7/08 - 7/14/14

Location	Rainfall (inch)		Temp (°F)	
	Week	Month July	Max	Min
Albion	NA	NA	NA	NA
Appleton, South	0.70	2.00	84	47
Baldwinsville	0.75	1.41	86	51
Buffalo*	1.77	2.85	82	56
Ceres	1.77	3.11	84	52
Elba	0.62	1.71	79	47
Farmington	NA	NA	84	48
Gainesville	1.31	2.60	81	46
Geneva	1.35	1.58	85	51
Kendall	NA	NA	NA	NA
Lodi	0.48	1.66	87	54
Penn Yan*	0.65	1.11	86	54
Ransomville	0.48	0.76	83	47
Rochester*	1.47	2.37	83	54
Romulus	NA	NA	86	53
Silver Creek	1.34	2.60	NA	55
Sodus	1.51	2.26	85	46
Versailles	NA	NA	82	51
Williamson	1.21	1.91	83	47
Wolcott	NA	NA	NA	NA

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 — July 14, 2014

Location	2014	2013	2012
Albion	NA	NA	NA
Appleton, North	946	1008	1181
Baldwinsville	1219	1216	1338
Buffalo	1148	1206	1391
Ceres	1017	1011	1082
Elba	908	1071	1122
Farmington	1123	1113	1225
Gainesville	904	NA	1168
Geneva	1148	1173	1330
Kendall	NA	NA	NA
Lodi	1264	1335	NA
Penn Yan	1220	1204	1350
Ransomville	1028	947	1265
Rochester	1225	1257	1368
Romulus	1171	1186	NA
Silver Creek	NA	1239	1281
Sodus	1074	1042	1182
Versailles	1094	1193	1256
Williamson	1016	1170	1287
Wolcott	NA	NA	NA

* Airport stations

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

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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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