It's time to control pod molds in snap beans. Or, are you dealing with Phytophthora blight instead? Here's what to look for.

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Stemphylium leaf blight (SLB) causes excessive leaf dieback and onions die standing up. Apply preventative fungicides to manage SLB.

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Late blight has been confirmed in NYS in a potato field on Long Island. Read more about how to protect your tomatoes and/or potatoes.

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Is quackgrass taking over your field? Quackgrass is the Weed of the Week. Learn more about how this weed spreads and how to control it.

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VEGEdge

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Volume 10 | Issue 11 | June 25, 2014

Cornell University
Cooperative Extension
Cornell Vegetable Program

Proactive Management of Molds in Snap Beans

Julie Kikkert, CCE Cornell Vegetable Program

Early planted snap beans are coming into flower, which means it's time to control pod molds. Gray mold (GM) develops in dense plant canopies when the weather is warm and moist. White mold (WM) requires both moist soil conditions and leaf wetness (a light dew is enough). Dry soils and high temperatures will inhibit the development of this disease. White mold is most abundant when temperatures range from 55-60°F, but will develop at temperatures as high as 85°F. Scout fields with a history of white mold. Sclerotia in the top 1" of the soil surface will germinate and produce mushroom cups and spores that will subsequently infect the plants. Dense plant canopies also increase the risk of molds.

If the weather is conducive to disease two fungicide applications are recommended: first at about 10-40% bloom (since % bloom increases about 20% per day) and a few days later (100% bloom) according to weather conditions and label limitations. Your first spray will include open blossoms, buds, and blossom initials. Do not wait too long to apply the first spray.

A bean blossom with fuzzy spores of **gray mold** subsequently infected the leaf on which it landed. Fungicide sprays must be applied at blossoming to be effective.
Photo: Julie Kikkert, Cornell Vegetable Program

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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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Help us serve you better by telling us what you think. Email us at *cce-cvp@cornell.edu* or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.

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The next issue of VegEdge will be produced July 2, 2014.

Kira White, Vegetable Manager at Honeyhill Farm (Livonia, NY) discusses her use of beneficial insect promoting habitat during the June Rolling Hills Discussion Group organized by the Cornell Vegetable Program. Attractive habitats provided by flower beds, certain cover crops, and banker plants help draw beneficials to your crop.
Photo: Elizabeth Buck, Cornell Vegetable Program

continued from cover - Proactive Management of Molds in Snap Beans

There are several fungicide options for control of WM and GM in snap beans (see table). Commonly used tank mixes include Topsin M + Rovral; Topsin M + Endura; Topsin M + Bravo or Bravo + Rovral. Regardless of the fungicides selected, good spray coverage is needed. Best results have been obtained using high gallonage (50 gal/A minimum) and high pressure (100 to 200 psi). Fungicide sprays must be directed towards the blossoms for good control.

Fungicides labeled for white and gray mold in snap beans in NY.

Product Name	Active Ingredient	Resistance Group	White Mold	Gray Mold
Bravo	chlorothalonil	M3	No	Yes
Endura 70 WDG	boscalid	7	Yes	Yes
Rovral	iprodione	2	Yes	Yes
Switch 62.5 WG	cyprodinil + fludioxonil	9 and 12	Yes	Yes
Topsin M	thiophanate-methyl	7	Yes	Resistance Issues

If you think your white mold control isn't working, you could be dealing with Phytophthora blight instead. Look for dying leaves and foliage especially in wet spots or where heavy downpours occurred. When Phytophthora blight infects the pods, they become whitish and shriveled. WM, GM and Phytophthora blight often occur in the same field. Please contact one of our team members if you need assistance with identification. Avoid planting snap beans in infested soils. This is the same pathogen that infects cucurbits and solanaceous crops. Snap bean varieties vary in susceptibility.

Phytophthora blight is caused by a soilborne pathogen that is especially infective during rain splash and wet soils. The pathogen kills plant tissues and causes a white powdery blight on the pods. There are no effective fungicides labeled for snap beans. *Photo: Julie Kikkert, CVP*

Focus on Food Safety - Pathogens Causing Foodborne Illness in the US

Craig Kahlke, Lake Ontario Fruit Team, and Betsy Bihn, Cornell

[This is a continuation of the article appearing in the June 18 issue of VegEdge which covered Salmonella and E. coli. ed. A. Parr, CVP.] In this installment, we will examine a few of the pathogens that most frequently cause foodborne illnesses associated with fresh produce. Understanding a little bit about the microorganisms and what they need to survive and multiply is important to understanding how to assess and minimize risks on the farm.

Figure 1 shows the seven major pathogens that cause nearly all of the foodborne illnesses & outbreaks associated with fresh produce in the US. While bacterial causes such as *Salmonella spp.*, and pathogenic *E. coli* do cause the majority of the illnesses, the parasite *Cyclospora cayetanensis* causes over 10% of outbreaks and the virus Hepatitis A can be a threat as well. Though the data outlined in Figure 1 does not include the *Listeria monocytogenes* outbreak associated with cantaloupe, most fresh produce growers are keenly aware of that outbreak as it continues to be featured in the media as the legal ramifications continue to unfold.

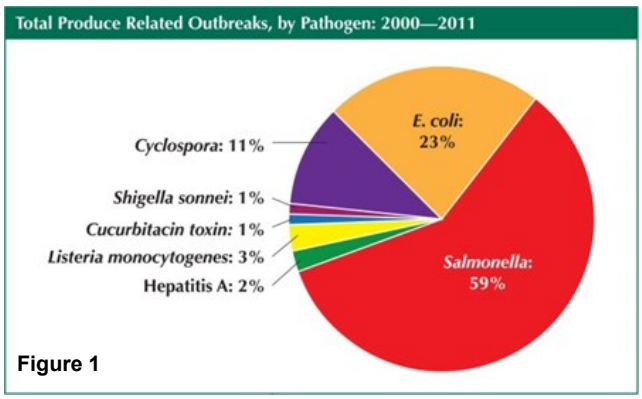

Figure 1

Center for Disease Control, CDC Estimates of Foodborne Illness in the U.S. 2011

Cyclosporiasis is an intestinal illness caused by the microscopic parasite *Cyclospora cayetanensis*. *Cyclospora* is spread by people ingesting something, such as food or water, that was contaminated with feces containing *Cyclospora oocytes*[3]. *Cyclospora* needs time (days to weeks) to become infectious after leaving the body in fecal material. Therefore, it is unusual for *Cyclospora* to pass directly from one person to another. People living or traveling in tropical or subtropical regions of the world may be at increased risk for infection because *Cyclospora* is endemic in these areas[3]. Foodborne outbreaks of cyclosporiasis in the US have been linked to various types of imported fresh produce. The time between consumption and becoming sick is usually about 1 week. *Cyclospora* infects the small intestine (bowel) with many unpleasant symptoms, including things like explosive diarrhea[3]. Fruit and vegetable crops can become contaminated through overhead irrigation with contaminated water sources.

Listeriosis is the illness caused by the bacteria *Listeria monocytogenes*[4]. Like *E. coli*, *Listeria* can be ubiquitous in the environment. *Listeria* contamination is usually associated with processed meats and cheeses made from unpasteurized milk. Immuno-compromised individuals such as children under 5, pregnant women, and those over the age of 65, are particularly susceptible to developing Listeriosis[4]. Usually *Listeria* infection

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Onion Fungicide Spray Program for Big Onions: Stemphylium Leaf Blight is a Game Changer!

Christy Hoepting, CCE Cornell Vegetable Program

As onions begin to bulb they pull resources from the foliage into the bulbs, which naturally causes tip burn and leaf die-back. It appears to be during this stage of growth when we first start to see Purple Blotch (PB) and Stemphylium leaf blight (SLB), as these two leaf diseases prefer older plants and can easily become established on necrotic leaf tissue. Development of SLB and PB are also favored by warm (optimum 77°F) humid conditions and long periods of leaf wetness (16 hours or more). Unlike downy mildew and Botrytis leaf blight, SLB will even continue to develop in hot temperatures up to 93°F, while these other diseases shut down. Thus, PB and SLB are the diseases of summer in onions.

It makes sense to begin a preventative fungicide program for Stemphylium Leaf Blight now, at least for larger onions of 7-10 leaves that are starting to bulb.

In the past, SLB has typically stayed in the necrotic tissue that is dying anyway, such as in necrotic leaf tissue that has been burned by herbicide or caused by downy mildew, and it tended to act as a secondary pathogen which would not exist if these situations had not occurred. In 2013, SLB moved from its usual background position as a secondary disease into the forefront as an aggressive pathogen that caused excessive leaf dieback and onions to die standing up (Fig. 1). Individual lesions quickly develop into elongate boat-shaped lesions very similar to purple blotch lesions (Fig. 2), except they are not purple, but tan or light brown and later black when spores develop (Fig. 3). The elongated spots coalesce into extended patches blighting the leaves and eventually, the onion plant dies standing up.

Although the weather could be partially to blame for the outbreak of SLB in 2013, SLB has been reported to have become a serious disease of onions in Ontario, Canada and in Michigan over the past 4-5 years. It would be wise to assume that SLB will continue to be a major player in New York as well.

Unfortunately when SLB is aggressive, it can be more difficult to control than other foliar diseases of onions. To be effective, fungicides for managing SLB need to be applied preventatively. Attempted rescue treatments fail. In Ontario, Canada, SLB appears for the first time in mid- to late-June. So, it makes sense to begin a preventative fungicide program for SLB now, at least for larger onions of 7-10 leaves that are starting to bulb.

Figure 1. Onions "dying standing up" as a result of Stemphylium leaf blight disease. *Photo: Christy Hoepting, Cornell Vegetable Program*

SLB is a game changer!

The "onion fungicide cheat sheet" shows how in Cornell trials, Bravo 1.5 pts + Scala 9 fl oz consistently provided best control of both BLB and PB, which is why it has been a commonly recommended onion fungicide program for these diseases. Unfortunately, in the 2013 trial, where SLB occurred, this treatment was only mediocre at controlling SLB, which ultimately reduced the overall performance of this treatment, despite it providing excellent BLB and PB control. Thus, SLB is a game changer.

The 2013 fungicide trial revealed some fungicides with tremendous potential for controlling SLB, but unfortunately, these products are still in the pipeline for registration in New York. Of the registered fungicides available in New York for use in onions, Inspire Super and Pristine provided the best control. Trials in Ontario, Canada also found these fungicides to provide very good control of SLB, along with Quadris Top. In the New York trial, Quadris Top was only medicocre. Unfortunately, none of these choices performed the best for controlling all three diseases. In fact, the only disease that Inspire Super provided adequate control for was SLB. However, since SLB is potentially the most aggressive and devastating of the three diseases, it is recommended to prioritize its control. Thus, **Pristine, Inspire Super** or **Quadris Top** should be included in the tank mix every week. Then, round out the spray tank with other fungicides to control BLB and PB as needed. For example, Bravo 1.5 pt + Scala 9 fl oz for BLB & PB + Inspire Super for SLB, or Quadris Top for SLB/PB & DM + Rovral for some PB and a little BLB.

The next challenge is to **follow the rotation restrictions** for resistance management for Inspire Super (cannot be rotated with Quadris Top, no more than 2 sequential apps before using another chemical class), Pristine (cannot be rotated with Quadris Top, no more than 2 sequential apps before using another chemical class) and Quadris Top (cannot be rotated with Pristine or Inspire Super, only 1 app before rotating to different chemical class) – see cheat sheet. Basically, Inspire Super can be rotated with Pristine all season for up to 4 and 6 total number of apps each, respectively. The only way to use Quadris Top would be to take a

week off from both Inspire Super and Pristine. Visit the CVP website for onion fungicide trial reports and summaries: http://cvp.cce.cornell.edu/submission.php?id=68&crumb=crops|crops|onions|crop*20

Figure 2. Characteristic boat-shaped target spot purple lesions of Purple Blotch on otherwise green leaf tissue. *Photo: Christy Hoepting, CVP*

Figure 3. Extended lesions of Stemphylium leaf blight showing black sporulation. *Photo: Christy Hoepting, CVP*

Cornell Onion Fungicide "Cheat-Sheet" for New York. Compiled by Christy Hoepting, CCE Cornell Vegetable Program, June 2014

Trade name	Active ingredient	FRAC[1] code	Relative Disease Control Rating*				Rotation restrictions	Maximum allowable per season	
			BLB	PB	SLB	DM		Total	No. of max rate apps
Bravo & generics	chlorothalonil	M5	B	P-Fail	Fail	Fail	none	20 pts	6
Penncozeb & generics	mancozeb	M3	M-Fail	P-Fail	Fail	M-G	none	32 lbs	10
Rovral & generics	iprodione	E3	M	M-G	Fail	Fail	none	7.5 pts	5
Scala	pyrimethanil	9	M-P	B	M-P	Fail	none	54 fl oz	3
Bravo 1.5 pt + Scala 9 fl oz	chlorothalonil pyrimethanil	M5 9	B	B	M	Fail	none		6
Pristine	boscolid + pyraclostrobin	7 11	VG-P**	M	G	P	No more than 2 sequential apps before rotating to non-7 or 11 group fungicides	111 fl oz	6
Quadris Top	azoxystrobin + difenoconazole	11 3	M	M-Fail**	M-P B***	M	No more than 1 application before rotating to non-11 or 3 group fungicides	46 fl oz	4
Inspire Super	difenoconazole + cyprodinil	3 9	P-Fail	Fail	G	Fail	No more than 2 sequential apps before rotating to non-3 or 9 group fungicides	80 fl oz	4

***BLB:** Botrytis Leaf Blight; **PB:** Purple Blotch; **SLB:** Stemphylium Leaf Blight; **DM:** Downy mildew. Relative disease control ratings are based on fungicide trials, 2006-2013 (Hoepting *et. al*). SLB only trialed once in 2013. **B:** best (or one of the best) of all fungicides tested; **VG:** very good; **G:** good; **M:** mediocre/middle of the pack; **P:** poor; **Fail:** failed to control disease, not different than untreated control. **inconsistent results showing range of results across trials. ***Quadris Top has been a top performer in trials in Ontario, Canada.
FRAC: Fungicide Resistance Action Committee Chemical class code.
For more information on relative performance of fungicides for management of leaf diseases in onions, visit the Cornel Vegetable Program website http://cvp.cce.cornell.edu/.

causes influenza-like symptoms including a fever, but the time from ingestion of the contaminated food to onset of the illness can be anywhere from 3-70 days!

Sadly, the deadliest foodborne outbreak in the US in nearly 100 years occurred when cantaloupe were contaminated with *Listeria* in 2011[4]. This case will be discussed in more detail in the next part of the series. Since *Listeria* is often associated with wet, cool environments, it is recommended that standing water be eliminated from packing areas and that all packing equipment be cleaned and sanitized (when possible) and allowed to dry at the end of each day. This helps to prevent *Listeria* from persisting in the farm environment and removes opportunities for it to grow.

Hepatitis A is caused by hepatitis A virus (HAV). It is transferred from person to person through the fecal-oral route (yes, you read that correctly, someone eats someone else's poop), either by direct contact with the infected person or by ingestion of food or water contaminated by the infected person[5]. Symptoms include fatigue, nausea, vomiting, and jaundice (yellowing of the skin and eyes) with onset occurring 15-50 days after exposure to contamination. In the US, foodborne illness outbreaks caused by hepatitis A are often linked to food handlers who contaminate the food through poor personal hygiene[5]. This is why worker training and providing well stocked toilet and hand washing facilities are so important to produce safety. Workers who practice proper hand washing are less likely to spread contamination should they be infected with HAV. This is particularly important because individuals can spread HAV in their feces before they know they are sick.

More detailed information about each of these pathogens, as well as others, can be found on the Center for Disease Control's (CDC) website at http://www.cdc.gov/. Simply enter the pathogen in the search field in the top right corner of the home page to find extensive information about each one.

References

3. Centers for Disease Control and Prevention, http://www.cdc.gov/parasites/cyclosporiasis/, accessed 4-24-14.
4. Centers for Disease Control and Prevention, http://www.cdc.gov/listeria/, accessed 4-24-14.
5. Centers for Disease Control and Prevention, http://www.cdc.gov/hepatitis/, accessed 4-24-14.

BEETS

Cercospora leaf spot has already been observed on table beets in the field this season. Make sure to keep an eye on this disease. Resistance to strobilurin fungicides (Quadris) has been seen in New York. The treatment threshold is an average of one leasion per leaf (see Cornell Veg Guidelines for available fungicides). The fungus can survive from year to year in infested crop residue or seeds. Important weed hosts include lambsquarters and pigweed. Periods of rain, heavy dew and fog favor infection. Cultural practices to avoid infection:

- Plant high quality seed free of *C. beticola*
- Three-year or longer rotation to non-hosts
- Deeply bury crop residue soon after harvest
- Avoid overhead irrigation
- Control weed hosts
- Decrease planting densities to encourage air movement in the canopy

CARROTS

Aster leaf hoppers are out. They can spread Aster Yellows disease if they are infected, which causes hairy root symptoms on carrots. Some damping off has been seen in carrot seedlings. Scouting should also continue for carrot leaf diseases.

DRY BEANS

Planting delays were common the middle of last week due to heavy rain in some areas, but has made good progress since. The Cornell dry bean variety and breeding line trial was just planted. Beans are generally emerging to cotyledon stage but note that potato leafhopper (PLH) has arrived and is present in early potatoes and in alfalfa at low levels. The Cruiser seed treatment will provide good control this early. If your seed wasn't treated watch for PLH in the next couple of weeks. Western bean cutworm (WBC) survey traps have been set out in 8 growers' dry bean fields spread across WNY/FL Region. WNY Crop Management and CCE-Wyoming Co. are cooperating. We will be reporting here on trap catches and risk. *Thanks to the NYS Dry Bean Industry for their support for this project!*

ONIONS

The big news is the explosion of Botrytis leaf blight over the past week, especially in Elba with counts skyrocketing from well below zero to 3 to 7 lesions per leaf. The spray threshold is 1.0 lesion per leaf – see last week's *VegEdge* for BLB scouting info. The explosion occurred mostly in Elba, but BLB also increased in the other muck growing regions of Potter and Wayne County as well. BLB levels increased slightly, but did not "explode" in fields that had been treated with Bravo (or other generic). ***It is recommended that all onions with 4 leaves or more be sprayed for BLB in Elba and BLB scouted for in all other areas and sprayed when disease level reaches the spray threshold.*** Bravo 3 pts is recommended for the first spray(s) of the season to direct seeded onions as long as an insecticide for managing onion thrips are not yet needed. Unfortunately, Cornell studies have shown that when Radiant, Agri-Mek and Movento were combined with Chloronil 720 (same active as Bravo), thrips control was significantly reduced by 12 to 35%. Because of this tank-mix incompatibility, there is little opportunity to use Bravo later in the season, at least not in the same tank mix with the insecticides for thrips control. For transplanted onions, especially those that have started bulbing, it is recommended to consider using a spray program that provides preventative control of Stemphylium leaf blight – see article. Onion thrips increased only very slightly over the past week.

Mark your calendar – Thursday, August 7, 2014 for the Annual Elba Muck Onion Twilight Meeting, Elba, NY, 5:30-8:30 PM

POTATOES

While potatoes are closing rows in a few fields they have yet to emerge in the latest fields. Colorado potato beetle (CPB) adults, eggs, small to large larvae are all present on volunteers and in untreated fields. Potato leafhopper (PLH) adults have been observed at low levels in very early potatoes and in alfalfa. Potatoes have very little tolerance for PLH feeding, which releases toxins into the leaf veins causing "hopperburn." Foliage tips turn yellow, then necrotic, and leaves curl. Adult PLH hop quickly from plant to plant when foliage is disturbed. They are very light green, wedge-shaped insects, only 1/8 inch long. The easiest way to determine the population in your potatoes is to swing a 15 inch diameter sweep net quickly through the top of the foliage. Sweep the foliage in ten spots in the field. Any insects caught will be in the bottom of the net. Carefully invert the bottom of the net into a plastic bag so you can examine the contents. PLH feeding can severely stunt potatoes. The treatment threshold is an average of just 1 adult PLH per sweep with the net. Chuck Bornt, CCE Eastern NY Vegetable Specialist suggests that growers check tractor radiator and air intake screens for adult PLH during cultivation and hilling for an early warning to their presence. Systemic insecticide seed treatments and in-furrow treatments should control

PLH early in the season. For fields not treated at planting note that many insecticides are effective against PLH. See the 2014 Cornell Vegetable Guidelines Potato Insect Management section for more information.

PROCESSING CROPS

Heavy rain overnight and today will make for muddy conditions for pea and spinach harvest. The risk for slugs is also higher. Many growers will have to wait to return to fields for needed herbicide applications. Peas and beans are especially susceptible to waterlogging and associated root rots. Daisy was observed in some pea fields and is a contamination concern because the flower buds are similar in size to peas. The time to control this weed is in fallow fields in the fall. For specific comments on pests, see other crop specific sections.

SNAP BEANS

Time to control molds and European corn borer is during blossoming (see cover article). Potato leaf hoppers have been observed on alfalfa at low levels in the state. They tend to move into beans when alfalfa is being cut. Processing beans are generally protected by Cruiser seed treatments. If your beans don't have Cruiser, then foliar sprays may be needed (see the Cornell Vegetable guidelines).

SWEET CORN

Seeing a little more damage on the tassels from ECB in numerous locations. Larval activity stronger than what we saw last season. Since there were some CEW moths caught several weeks ago, scout the emerging silks for eggs as well as for any small ECB larvae on the ears.

With the scattered heavy rains that hit many areas, weed management may have to be stepped up so as not to lose the corn in a jungle. Effective spray control happens when the weeds are small and smart cultivation is most efficient when the weeds are in the white thread stage or just emerging.

VINE CROPS

Striped cucumber beetles have come out of the woodwork over the past week hitting many fields pretty hard. Growers must keep ahead of this pest to avoid bacterial wilt as well as the heavy feeding damage the beetles can cause.

Seed corn maggot has still been causing issues with injuring roots and stems. Other root feeding insects, possibly wireworms, have also been actively feeding on newly transplanted cukes, summer squash, and pumpkins. Before planting winter squash, pumpkins, or succession plantings of summer squash/zucchini, plow down any remaining crop residue and/or use treated seed to help protect against root feeding insects.

Two-spotted spider mite.
Photo: Cornell Fruit Diagnostic Website

Mite damage on watermelon.
Photo: G. Brust, Univ. of Delaware

In areas where it has been drier, watermelon have already run into problems with two-spotted spider mites. The mite damages the leaves through sucking. The leaves first appear yellowing/chlorotic. Sometimes it looks like the leaves have rusty hues, particularly out in the field. Cantaloupe also are quite susceptible to them as well. So are strawberries. If you are growing these crops on the farm, scout thoroughly. The mites will be found on the undersides of the leaves and can spread rapidly. Heavy rains will knock them back but will not keep them down too long. Hot dry dusty weather is preferable for them and they will come in from dirt roads and lane ways. Several applications of products will be necessary to keep them at bay. Application of beneficial predatory mites should begin at the first signs of two spotted mite infection. Beneficial mites can be purchased from state and regional insectaries.

Available Farm Workers!

Don Peterson, CCE Monroe County

Cornell Cooperative Extension of Monroe County has recently begun to play an active role in assisting our refugee community in the Rochester area secure employment on our area farms. Rochester receives many refugees each year from several countries, especially from south Asia. Many have an agrarian background and are seeking either seasonal or permanent positions. All refugees can legally work in the US, and an employment contractor can alleviate much of the time-consuming compliance paperwork and recordkeeping.

Training sessions involving food safety and general on-farm safety are now being planned at CCE Monroe County. Translators are also available to assist in specific job site training. There are also many options available for transportation.

If you are interested in learning more about employing and/or potentially housing a reliable workforce this season, please contact Don Peterson, CCE Monroe County at 585-461-1000, ext. 239, or by email at dap275@cornell.edu

Late Blight Risk - Confirmed in NYS!

Carol MacNeil, CCE Cornell Vegetable Program

The USABlight website sent out an Alert this past weekend that late blight (LB) had been confirmed in a potato field on Long Island. For the earliest notification of LB confirmations in your area go to: http://www.usablight.org/ sign up for a User Account, then sign up for Alerts. Long Island reached 18 LB severity values (SV) about 4 weeks ago. (The CVP area reached 18 SVs at a few weather stations 3 weeks ago.) The LI grower had been applying a protectant fungicide. Meg McGrath, Cornell, reports that very few scattered lesions were seen in a small area in the center of the field. Although a handful of weather stations in our region have not yet reached the threshold of 18 SVs most stations have. See the accompanying chart. In addition, the weather stations do not reflect wetter microclimates such as near tree rows, in fog-prone areas, in wet spots, etc. It is recommended that all field tomatoes and all potatoes over 4 inches tall begin a regular 5 – 7 day spray interval with a protectant fungicide such as chlorothalonil, mancozeb, or copper. Next week this section of *VegEdge* will switch to reporting LB Decision Support System (DSS) Simcast blight units (BU) to provide some indication of the spray interval needed. Under extreme weather conditions a 5 day spray interval is not sufficient to prevent LB, so the DSS no longer has a minimum 5 day interval. Growers should always follow the fungicide label, however, alternating fungicides if necessary.

Photo 1. Late blight lesions on potato leaves.
Photo: C. MacNeil, CVP

Photo 2. Potato stems with late blight sporulation.
Photo: D. Reynolds, Allegany Co.

Start regularly scouting your fields for LB. Inspect lower leaves and stems, also new growth since the last spray. LB lesions may be small to large, irregular dark spots which spread across leaf veins (Photo 1). The margin of the lesion may appear light green. The fine, white "fuzz" of sporulation (LB spores) may be seen after at least ten hours of high humidity (Photo 2). On a warm, sunny day lesions dry up and appear tan with a light green margin (Photo 3). Destroy any potato foliage that's emerged from cull piles. Two feet of soil is really needed to effectively cover potato culls!

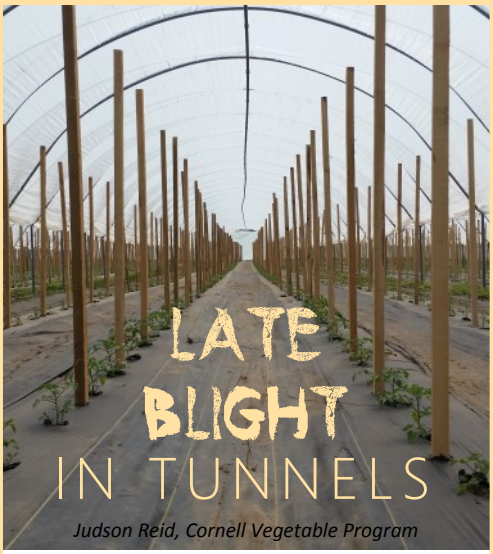
Photo 3. Late blight on tomato leaf, sunny mid-day.
Photo: M. McGrath, Cornell

See Abby Seaman's, NYS IPM Program, Cornell, *Late Blight Management Update*, for news and a list of resources, photos, regarding LB. Subscribe at the bottom right of the page. Go to: http://lateblight.nysipm.cornell.edu/2014/06/24/62414-first-late-blight-report-in-ny/ If you think you might have LB contact Carol MacNeil at 585-313-8796, John Gibbons at 585-394-3977 x405, or other Cornell Vegetable Program staff, so we can submit a sample to have the LB strain determined, and thus the sensitivity to fungicides.

Late Blight Severity Values* 6/24/14

* Severity value accumulations start 5/15/2014
** For more sites: http://newa.cornell.edu/ Crop Pages, Potato, Blitecast
*** Airport stations, with RH increased to estimate field conditions

Location**	Week	Total	Location	Week	Total
Albion	4	21	Lodi	3	39
Appleton	2	14	Medina	3	15
Baldwinsville	3	14	Penn Yan***	3	42
Buffalo***	5	27	Ransomville	2	5
Bergen	2	4	Romulus	2	23
Ceres	1	17	Rochester***	3	21
Elba	6	24	Silver Creek	6	35
Farmington	0	10	Sodus	1	6
Gainesville	0	26	Versailles	1	9
Geneva	0	19	Williamson	2	9
Kendall	NA	NA	Wolcott	NA	NA



Thanks to excellent sleuthing by Pathologist Meg McGrath, Late Blight was confirmed last week on Long Island (see article by Carol MacNeil). Meg notes that every year since 2009 Late Blight has been discovered in the months of May or June. This is a historical shift in epidemiology of the pathogen in the Northeast. As its name indicates *P. infestans* previously was considered a disease of late season crops. No longer.

High tunnels are an excellent tool to reduce many foliar diseases of tomatoes, including late blight. The leaf wetness needed to develop infections is generally excluded. Tunnels that experience a dew period, from shading or poor ventilation, are vulnerable to late blight. As most growers do not use preventative fungicide sprays in tunnels, they can be even more susceptible.

When considering appropriate materials for tunnel use, remember many field fungicides are prohibited. For example Ranman (Cyazofamid), is an appropriate choice for field rotations with 0-D PHI; however studying the label we read: "Do not use for disease control on fruiting vegetables (other than tomato transplants) or cucurbit vegetables grown for fruit production in greenhouses." Quadris products have similar language as does Chlorothalonil. In NYS this prohibition includes high tunnels. Materials without a greenhouse prohibition and short pre-harvest interval include Revus Top (Mandipropamid and Difenoconazole; 1-D PHI). Organic operations, should consider OMRI listed copper materials such as Cueva.

Better than any spray program is to maintain dry foliage. Avoid overwatering, ventilate and make the right choices when choosing a site to minimize shade.

WNY Sweet Corn Trap Network Report

Marion Zeufle, NYS IPM Program

Fifteen sites reporting this week. European corn borer (ECB-E) was caught at two sites and ECB-Z was caught at five sites. Corn earworm (CEW) was caught at 6 of the reporting sites. Two of the six sites reporting CEW were over threshold, indicating a need for a spray, please see the chart at the bottom of this page to determine the correct spray interval for your field. Fall armyworm (FAW) was caught at only one site. Most sites now have western bean cutworm (WBC) traps set, but no moths were caught.

WNY Pheromone Trap Catches: June 24, 2014

Location	ECB-E	ECB-Z	CEW	FAW	WBC
Baldwinsville (Onondaga)	0	0	0	0	0
Batavia (Genesee)	0	0	1	0	0
Bellona (Yates)	NA	NA	NA	NA	NA
Eden (Erie)	0	5	3	1	0
Farmington (Ontario)	0	0	2	0	0
Hamlin (Monroe)	NA	NA	NA	NA	NA
LeRoy (Genesee)	NA	NA	NA	NA	NA
Lockport (Niagara)	0	5	0	0	0
Penn Yan (Yates)	1	4	1	0	NA
Seneca Castle (Ontario)	27	9	1	0	0
Spencerport (Monroe)	0	3	0	0	0
Waterport (Orleans)	NA	NA	NA	0	NA
Williamson (Wayne)	0	0	0	0	0

ECB - European Corn Borer
CEW - Corn Earworm
FAW - Fall Armyworm
WBC - Western Bean Cutworm
NA - not available

Scouting of bare ground sweet corn should begin when the tassel starts to emerge. When scouting focus on the emerging tassel. Separate the leaves and look down into the tassel for any signs of feeding, frass or larvae. The threshold for ECB and FAW is 15% infested plants at tassel emergence. I scouted a field in early tassel today that was just over the 15% threshold. To help you scout your fields please view the new video titled How to Scout Fresh Market Sweet Corn. This video will show you how and when to scout sweet corn using the Sweet corn scouting form (pdf).

ECB larva on tassel.

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

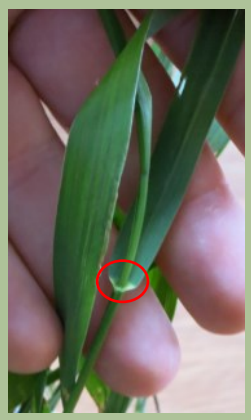
Add one day to the recommended spray interval if daily maximum temperatures are less than 80°F for the previous 2-3 days.

Weed of the Week

QUACKGRASS

Darcy Telenko, CCE Cornell Vegetable Program

Quackgrass (*Elytrigia repens* (L.)Nevski) is a cool- season perennial that is wide-spread in New York. It is a rhizome (underground stem) forming grass. Reproduction will occur from both seed and rhizomes. Seeds contribute to long distance spread while rhizomes aid in localized spread and survival within a field. The first leaf blade of quackgrass is narrow and long. Stems and upper leaves are hairy, but the undersides of the leaves are smooth. The presence of auricles in the collar regions is a distinctive identification feature of quackgrass (see photo). The auricles are narrow, slender and clasping the stem. The ligule is membranous and very short and the sheaths are rounded and smooth, but those near the base of the plant may be hairy. The seedhead is a long, rounded spike with spiklets, containing 4 -6 seeds, arranged in 2 rows along the axis.



Clasping auricle in collar of leaf.
Photo: Darcy Telenko, CVP

Quackgrass can germinate as early as the end of March and can continue growth into the fall after crops have been harvested. Management of quackgrass requires a multi-faceted approach that includes tillage, mowing, competitive cover crops, and herbicides. Repeated tillage during hot, dry summer weather will expose roots and rhizomes to the environment and continually force new germination of the plant depleting below-ground reserves. This reduce winter survival of dormant buds and help control future quackgrass infestation. Herbicides that show good pre-emergence activity against quackgrass in vegetable production include AAtrex, Kerb or Matrix. Post-emergence herbicides with good to excellent activity include AAtrex+ oil, AssureII/Targa, Gramoxone (top-kill), Matrix, and Select.

Auricle and membranous ligule. *Photo from G. R. Miller and D. E. Strand. 1991. Annual Grass & Perennial Weed Identification. North Central Regional Extension Publication 92. Crop Pest Management Series. AG-MI-1352-S.*

UPCOMING EVENTS

Muck Donut Hour

8:30 - 9:30 AM
July 1 | July 8 | July 15 | 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.

July Walk & Talk Discussion Group

July 9, 2014 | TBA

We're still arranging the details. For more info, contact Elizabeth Buck at 607-425-3494 or emb273@cornell.edu.

July Rolling Hills Discussion Group & Crop Walk

July 15, 2014 | 5:30 PM
Clearview Farm, 243 Faas Road, Palmyra 14522

Kurt Forman of Clearview Farm and the Cornell Vegetable Program staff will lead this crop walk and discussion. A potluck dinner will follow. For more info, contact Elizabeth Buck at 607-425-3494 or emb273@cornell.edu.

New York Vegetable & Field Crops Weed Science Field Day

July 16, 2014

8:00 - 11:30 AM - Vegetables
12:00 - 1:30 PM - NYSABA BBQ Lunch
1:30 - 5:00 PM - Field Crops
Robert Musgrave Research Farm, 1256 Poplar Ridge Rd, connects Rts 90 and 34B, Aurora

CCA and DEC Credits have been requested for both sessions. For more info, see last week's issue of *VegEdge* or contact Maxine Welcome: mw45@cornell.edu or 607-255-5439 (Veg), or Russ Hahn: rrh4@cornell.edu or 607-255-1759 (Field Crops).

Vegetable Pest and Cultural Management Field Meetings

6:00 PM - 8:00 PM
July 23 - Seneca County | July 25 - Yates County | July 31 - Orleans County
August 6 - Allegany County

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.

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 and to see the complete agenda, visit the CVP website at http://cvp.cce.cornell.edu/event.php?id=237. Pre-registration form coming soon. Questions? Contact Dennis Kirby, Orleans SWCD, at dennis.kirby@ny.nacdnet.net or 585-589-5959. Organized by USDA-NRCS, County SWCD, Cornell Cooperative Extension, and WNY Crop Management.

Sponsored by Cummings & Bricker, Empire Tractor, Lakeland Equipment, Monroe Tractor, Carolina Eastern – Crocker, Seedway, BCA Ag Technologies and WNY Crop Management.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 6/17 - 6/23/14

Location	Rainfall (inch)		Temp (°F)	
	Week	Month June	Max	Min
Albion	NA	NA	NA	NA
Appleton, North	0.90	2.37	87	49
Baldwinsville	0.36	1.56	88	49
Buffalo*	0.16	2.84	87	50
Ceres	0.94	3.38	85	44
Elba	0.79	3.77	85	46
Farmington	1.02	2.15	88	45
Gainesville	0.33	1.58	83	42
Geneva	0.65	1.79	85	47
Kendall	NA	NA	NA	NA
Lodi	1.01	3.13	87	46
Penn Yan*	0.87	2.30	87	49
Ransomville	0.51	1.79	86	47
Rochester*	0.39	1.06	88	49
Romulus	NA	NA	87	47
Silver Creek	0.19	0.79	88	47
Sodus	0.53	1.65	86	44
Versailles	0.07	NA	87	44
Williamson	0.92	2.11	86	44
Wolcott	NA	NA	NA	NA

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 — June 23, 2014

Location	2014	2013	2012
Albion	NA	700	802
Appleton, North	516	569	731
Baldwinsville	748	710	874
Buffalo	685	781	881
Ceres	615	595	695
Elba	531	641	857
Farmington	691	653	787
Gainesville	536	NA	745
Geneva	708	711	851
Kendall	NA	NA	NA
Lodi	733	780	834
Penn Yan	751	751	865
Ransomville	606	619	800
Rochester	759	796	884
Romulus	712	738	NA
Silver Creek	628	727	811
Sodus	649	611	758
Versailles	660	746	813
Williamson	580	681	824
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.

Cornell University
Cooperative Extension
Cornell Vegetable Program

480 North Main Street
Canandaigua, NY 14424

VEGEdge

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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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