

Learn how to check for root rot in your crops.

PAGE 1



PAGE 3

Powdery mildew (PM) has been identified in squash that have lush vine growth. Fungicides

discovered can minimize loss.



Garlic production faces a number of diseases. Learn how to get your garlic tested



PAGE 4

of onions.



blight will continue to develop in hot temperatures up to 93°F. Read about our 2015

Stemphylium leaf

research project highlights on SLB



**Cornell University Cooperative Extension Cornell Vegetable Program** 

# Soil Borne Diseases in a Dry Year? Don't Get Caught Off Guard

#### Julie Kikkert, CCE Cornell Vegetable Program

As dry as it has been for most of our region this spring, it is hard to imagine that soil borne diseases would be a concern. However, in the past week I have heard reports of root rot in peas and beans, and Rhizoctonia disease on carrots. Only one of these fields had irrigation applied. In all cases, I believe these fields had high population of the pathogen, and the crop was at a particularly vulnerable stage when adequate moisture to get the disease going was available. For farms that are irrigating all or some of their fields, there may be high risk this year as it can be difficult to time and evenly apply water when using overhead irrigation.

My main message is not to let your guard down. Think about whether a particular field has a history of root diseases and use the appropriate management methods for the crop. Often, the weather patterns can change and we might get into a rainy period. Once root rot has been detected in field, there is usually little that can be done that year. However, make note of such fields and take action to minimize problems in the future.



Rhizoctonia on the stems and crowns of carrots. Photo: Julie Kikkert, CVP



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

The newsletter is a service to our enrollees and is intended for educational purposes, strengthening the relationship between our enrollees, the Cornell Vegetable Program team, and Cornell University.

We're interested in your comments. Contact us at: CCE Cornell Vegetable Program 480 North Main Street, Canandaigua, NY 14224 Email: cce-cvp@cornell.edu

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Cornell University Cooperative Extension Cornell Vegetable Program

# Contents

#### **Contact Us**

	Cornell Vegetable Program	. 12
C	rops	
	Crop Insights	. 08
	Cucurbits Pest Patrol: Powdery Mildew	. 03
	Garlic: Testing for Problems in Garlic	.04
	Garlic Growers: CVP Looking for Scapes with Signs of Potential New Disease	. 04
	Onion: 2015 Research Projects Highlights on Stemphylium Leaf Blight	. 06
	Potato/Tomato: Low Risk of Late Blight	. 05
	Sweet Corn Trap Network Report, 6/28/16	. 09
	Tomato: Hot Conditions Favoring Fusarium and Verticillium Wilt	. 03
G	eneral	
	Soil Borne Diseases in a Dry Year? Don't Get Caught Off Guard	. 01
	Cornell Vegetable Program Welcomes New Intern	. 05
	Fruiting Vegetable Pest Alert: Thrips!	. 09
υ	pcoming Events	
	Muck Donut Hour	. 10
	Soil Health & Cover Crop Workshop	. 10
	Fresh Market Vegetable Field Day: Disease Detection & Weed Management	. 10
	High Tunnel Pest and Disease Management: Organic Control Strategies	. 10
	Vegetable Walk and Cut Flowers	. 10
N	/eather Charts	. 11

The next issue of VegEdge will be produced on July 6, 2016.



#### continued from cover - Soil Borne Diseases in a Dry Year? Don't Get Caught Off Guard

<u>To check for root rot</u>, look at plants whose leaves are yellowing and dig them up with a trowel or shovel. Discoloration and shriveling of stems and roots are the symptoms. Root symptoms are variable but often diagnostic of pathogen(s) involved. Healthy root systems should be plump, have a good color (not dark brown/ black), and contain numerous small fibrous roots. Our team members can help with diagnosis and can collect samples for identification of the pathogens involved.

Best management practices include:

- Avoid fields with a history of severe disease
- Use tolerant varieties
- Use high quality, pathogen-free, and fungicide treated seed when possible
- Well-drained soils, free of compaction
- Rotate out of susceptible crops for four years
- Rotations with grain crops will improve soil structure and reduce disease severity



Fusarium root rot of peas. The brick red tissue inside the stems/roots is characteristic of this disease. *Photo: George Abawi, Cornell* 

# Hot Conditions Favoring Fusarium and Verticillium Wilt

Gretchen Seigworth and Darcy Telenko, CCE Cornell Vegetable Program

Hot temperatures and dry weather can favor both *Fusarium* and *Verticillium* fungal pathogens. Susceptible tomato plants that are starting to set fruit may begin to show signs of infection as plants are stressed under these dry, hot conditions. Root infection by both pathogens produce similar symptoms in tomato plants, but it is good to know which pathogen is causing the disease.

Verticillium and Fusarium wilts both cause yellowing and browning of leaf tissues and severe infections can lead to wilting and stunting. The lower leaves will turn yellow, sometimes on one side of the plant or one side of a branch, which is followed by leaf and stem browning and wilting. Verticillium and Fusarium are soil-borne pathogens that can survive on infested tissue from four to five years in the soil without a susceptible host. The main difference between diseases caused by *Verticillium* and *Fusarium* is that *Verticillium* infection tends to show up at a much slower pace than the wilt caused by *Fusarium*. *Verticillium* can take weeks from infection of root tissue to wilt symptoms appearing in upper portions of the plant, whereas *Fusarium* can take days from initial infection to wilt under favorable environmental conditions. If you have any suspect tomato plants, it is good to send in a sample to a plant disease diagnostic lab to confirm pathogenicity.



Yellowing and browning of leaf tissue in tomato. Both Verticillium and Fusarium can cause the lower leaves of tomato plants to turn yellow. Photo: G. Seigworth, CVP

Unfortunately, control methods for *Fusarium* and *Verticillium* wilt are limited once a plant is infected. Rogueing infected plants will help reduce inoculum in future seasons. One of the best defense methods is to use resistant plant varieties when available. To reduce impact of these soil-borne diseases in future seasons it is important to use certified seed and clean transplant media, make sure planting equipment is cleaned of all soil when moving from infested fields into non-infested areas, build raised beds in areas with poor drainage, and implement good crop rotation.

https://extension.umd.edu/growit/fusarium-wilt-tomato-vegetables http://vegetablemdonline.ppath.cornell.edu/factsheets/Tomato Verticillium.htm

# Pest Patrol: Powdery Mildew on Cucurbits

Jodi Callwood and Darcy Telenko, CCE Cornell Vegetable Program

Powdery mildew has been identified in squash that have lush vine growth. Dry weather combined with small pockets of water (from drip irrigation) can create a humid climate, perfect conditions for powdery mildew. Powdery mildew is a fungus in the order Erysiphales, that can infect a wide range of vegetables. The fungus appears white and seems to speckle the plant like sprinkled powder on a surface. Closer examination reveals small hair like extensions from each fungal spot. Powdery mildew is caused by airborne spores that favor a humid climate and thrives on areas of the plant that are wet for a prolonged period of time. Most powdery infections will occur on stems and leaves closest to the soil where moisture is highly concentrated. At first the white specks will be small but over time will spread through the plant and if left untreated which can drastically reduce crop yield.

Resistant (tolerant) cultivars are available in cucumber, melon, squash and pumpkin. Fungicides programs sprayed on a seven-day interval as soon as powdery mildew is discovered in a field can minimize losses from this disease. (See June 8 VegEdge for fungicide options).





Severe powdery mildew infestation on zucchini – leaves have started to turn yellow, brown and die (above). Initial powdery mildew spots forming on zucchini in lower canopy (left). Photos: D. Telenko, CVP

# **Testing for Problems in Garlic**

Crystal Stewart, CCE Eastern NY Commercial Horticulture Program

[Now that we have hit the longest day of the year, garlic growers are hoping for their plants to produce big high quality bulbs. After all the work of getting the seed planted in the fall, worrying about the cloves over winter, fertilizing and weeding in the spring, the first few weeks of summer means bulb formation and sizing up. It has become apparent that garlic production faces more problems than what is seemed like 5-10 years ago. We seemingly are seeing a rise in fusarium and other diseases. Garlic bloat nematode is still around with several infestations confirmed in the last two weeks. A collaboration between the Eastern NY Hort team with Crystal Stewart, the CVP with Christy Hoepting and Robert Hadad, and Cornell Plant Pathology with Frank Hay, has started working on a grantfunded project that will run for the next several years. Below is an article describing the fusarium part of the project. Unfortunately, she will also describe a new to NY disease of garlic that we need to be vigilant looking out for. ed. R. Hadad, CVP]

Bloat Nematode: You can have your garlic tested for bloat nematode, and if you are seeing symptoms which are suspicious (primarily the absence of many roots, while those that remain are healthy) I would recommend it even if you have tested clean in the past. Remember, when selecting 10 bulbs from a field you are getting an idea of whether your garlic is clean, not a definitive answer. It's better to keep testing and stay as informed as possible than to ignore potential problems and have them become unmanageable. The submission form is located at: http://

rvpadmin.cce.cornell.edu/uploads/ doc\_325.pdf. The cost is \$40 per sample.

Fusarium: For the next two years we have funding to test fusarium in garlic extensively, and to conduct some trials on different management strategies. This means that for the next two years you will be able to submit garlic for fusarium testing for free. We are asking everyone to fill out a survey with some grower information when you submit, and we'll ask you to fill it out again at the end of the project to see what changes you made. The goal is that by the end of this project we will understand where fusarium is coming from (seed versus soil), whether there is much variation among the fusaria present, and which management strategies work the best to control the disease. Your samples are very much appreciated! The submission form is available at

#### http://enych.cce.cornell.edu/crop.php? id=14

New Garlic Problem: Earlier in June I sent a garlic sample to the diagnostic lab hoping that I was wrong. The sample was covered in small black sclerotia, the size of poppy seeds, and white fungal hyphae crept up the stem. The results, unfortunately, matched the field diagnosis: White Rot. Within a couple days additional calls came from up and down the Hudson Valley as well as one in Western NY with similar suspicions. These samples have also gone to the lab for verification, but it looks like the latest pest to move back into the state is this nasty fungus.

White Rot, *Sclerotium cepivorum*, decimated the onion industry in New York in the 1930's before being eradicated through careful management. More recently, in 2003, it infected 10,000 acres of garlic in California, leading to the abandonment of some garlic fields and adoption of strict containment rules. White rot has been confirmed in Northeastern states over the last decade as well, with New York being one of the last to discover the disease.

The primary reason that White Rot is such a concern is because the sclerotia, or reproductive structures, can remain dormant in the soil for up to 40 years, attacking any allium crop planted into the soil under favorable conditions. This spring was ideal for infection due to the period of cool, moist weather we had. Optimal temperature for infection is 60-65°F, but infection can occur anywhere from 50-75°F. Once garlic has white rot, it generally declines rapidly. Leaves will yellow and the plant will wilt, not unlike a severe fusarium infection. However, unlike with fusarium, white rot infected bulbs are covered in black sclerotia and white fungus. To add to confusion, another disease can look similar. Botrytis also causes black sclerotia and white fungal growth. However, botrytis sclerotia are quite large often larger than a pencil eraser.

We're still working on long-term management strategies, but the most important steps to take now are vigilance when culling (look at the plants you are pulling for symptoms like you see in this article, and if they are present, call us to take a sample and have the disease verified) and, if you see anything suspicious, reduction of movement of inoculum. The main ways diseases get moved around are by dumping culls (compost, field edges, etc) and my moving soil on equipment. Throw away your culls, and wash equipment that may have come in contact with suspicious garlic or the soil it is growing in.

Everything from cultivation equipment to harvest bins should be cleaned. We will keep learning about this disease and will keep sending out information, particularly to help you make decisions about what to sell and buy. For now, remember that the west coast has learned to manage the disease, and we will too.

# **Attention Garlic Growers**

Robert Hadad, CCE Cornell Vegetable Program

We are on the lookout for some issues with garlic. Probably by now most of you have already removed scapes from the plant. Maybe you might have missed some? Any scapes that have an orange lesion that has caused the scape to be mis-



**shapened or bend irregularly**, please pull the scape off, bag it, and send it to: Robert Hadad, 230 Hilltop Ln. Spencerport, NY 14559.

We are trying to determine if this is a new disease of garlic and how widespread it is. If you think you saw this but have removed the scapes, flag the plant to remember to view the bulb at harvest time. Thanks for your help!

# **Cornell Vegetable Program Welcomes New Intern**

Please join us in welcoming Jodi Callwood to the Cornell Vegetable Program. Jodi is an intern with iPiPE CAP (Integrated Pest Information Platform for Extension and Education, Cooperative Agricultural Project) and she will be housed in the extension office located at 21 South Grove Street, East Aurora, NY along with Extension Vegetable Specialist, Darcy Telenko. We have asked Jodi to introduce herself: "I am a rising senior at Walla Walla University in Washington State, pursuing a B.S. in Bioengineering with minors in Mathematics and Chemistry. When I graduate I hope to pursue an advanced degree in Plant Breeding concentrating in genetics, hopefully at Cornell University. As a child I spent my summers with my grandmother on her small farm on the Caribbean island of Antigua where I developed an appreciation for agriculture. My parents immigrated from the Caribbean to Maryland on the boarder of Washington D.C. where I developed a fascination with exotic plants from my visit to the National Arboretum. I am the founder and president of the Walla Walla University branch of the Society for Biological Engineering,



Jodi Callwood

president of the Society of Women Engineers, and vice president of the All bytes club. I am thrilled to have the opportunity to work with the Cornell Vegetable Program and look forward to learning about vegetable production in Western NY!"

## Low Risk of Late Blight

Carol MacNeil, CCE Cornell Vegetable Program

Few <u>late blight (LB) severity values (SV)</u> accumulated this past dry week. Few stations have reached the 18 SV which trigger the first LB fungicide spray. There are exceptions. The Gainesville and Wellsville forecasts recommend weekly fungicide sprays. In the case of Gainesville it's due to the accumulation of <u>blight units (BU)</u>. At Wellsville it's due to <u>fungicide (loss) units</u> from weathering, and not from BU. There are no new LB confirmations in the Eastern US.

For the current <u>early blight (EB)</u> risk on potatoes see Crop Insights - Potatoes in this issue of VegEdge. Fungicide sprays are recommended on earlier emerging potatoes. Tomato growers may refer to the <u>TomCast EB forecast</u> at: <u>http://</u> <u>newa.cornell.edu/index.php?page=tomato-diseases-tomcast</u>

#### Late Blight Severity Values\* 6/28/16

Location*	Total	Forecast 6/29-7/01	Location	Total	Forecast 6/29-7/01
Appleton N	1	0	Lodi	6	1
Baldwinsville	4	1	Lyndonville	0	0
Bergen	0	0	Medina	1	1
Buffalo	11	0	Niagara Falls	4	0
Ceres	13	0	Penn Yan	11	0
Elba	4	0	Rochester	10	0
Fairville	3	0	Sodus	5	1
Farmington	3	0	Versailles	3	0
Gainesville	44	1	Wellsville	28	0
Geneva	2	0	Williamson	5	1
Kendall	0	0	Wolcott	4	1

\* Severity value accumulations start 5/12/2016 0





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# Important Highlights from 2015 Research Projects on Stemphylium Leaf Blight of Onions

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 (Fig. 1). It appears to be during this stage of growth when we first start to see Stemphylium leaf blight (SLB) and Purple Blotch (PB), 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.



**Figure 1.** As onions begin to bulb and draw resources from the leaves, outer leaf dieback and tipburn occur naturally. This is the time that we first begin to see the leasions of Stemphylium leaf blight. The necrotic tissue of this plant remains healthy (visually). *Photo: C. Hoepting, CVP* 

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. Ever since 2013, SLB has appeared to have moved from its usual background position as a secondary disease into the forefront as an aggressive pathogen that caused excessive leaf dieback. In severe cases, excessive leaf dieback resulted in premature plant mortality. Individual SLB lesions quickly develop into elongate boat-shaped lesions that are tan or light brown or purple and later black when spores develop. SLB and PB lesions may occur on the same plant and spores of each may occur on the same lesion; it is impossible to distinguish the two diseases visually.

# Stemphylium Leaf Blight Everywhere in 2015!

In 2015, Cornell Plant Pathologist, Dr. Sarah Pethybridge conducted a survey to determine the prevalence of SLB in New York. Samples were collected from 846 symptomatic onion leaves from 22 conventionally grown muck onion fields and from 283 symptomatic onion leaves from 10 upland "lowinput" fields several of which were organic. Samples were collected from conventional muck grown onion fields in Elba, Oswego Co., Sodus, Potter and Orange Co and from upland farms in Elba, Batavia, Phelps, Penn Yan, Hector, Allegany and Plattsburg. Results indicated that SLB is everywhere with the disease occurring in 100% of the fields sampled no matter whether they were conventionallygrown where fungicides were applied or on upland farms with either no or very little fungicide use (Table 1). Additionally, all different symptom types including tan target spot lesions on necrotic tissue, purple/reddish lesions on green tissue and less descript spots with black sporulation all tested positive for SLB (Fig. 2). The finding that there was no significant difference in the isolation frequency of SLB between conventional and low input fields, while the isolation frequency of Purple Blotch, generic Alternaria and downy mildew were significantly lower in conventional fields where fungicides were used (Table 1) is an indication that the fungicides used in conventional systems are not effectively controlling SLB.

Anthracnose of onion was detected for the first time in New York during

					,
Fungi and associated leaf	Prevalence by	Field Type (%) <sup>1</sup>	Isolation Frequency Per Field (%) <sup>2</sup>		
from symptomatic leaf tissue	Low Input (10 fields)	Conventional (22 Fields)	Low Input (283 leaves)	Conventional (846 leaves)	P value (α=0.05)
Stemphylium vesicarium Stemphylium leaf blight	100	100	85.5	86.4	NS <sup>3</sup>
Pleospora allii Over-wintering form of SLB	80	95.5	34.3	58.1	0.022
Alternaria porri Purple Blotch	50	0.0	14.5	0.0	0.022
Alternaria alternate Generic relative of PB	80	59.1	49.5	6.0	0.001
Peronospora destructor Downy mildew	60	4.5	11.1	0.1	0.031
Botrytis spp. Botrytis Leaf Blight & other Botrystis (e.g. neck rot)	30	9.1	2.1	0.5	NS
Colletotrichum spp. Anthracnose	30	4.5	4.8	1.7	NS

**Table 1.** Prevalence and isolation frequency of fungi found associated with foliar disease of onion in low input upland and conventional muck fields in NYS in 2015 (Pethybridge *et al.*).

<sup>1</sup> **Prevalence:** Number of fields where a species was detected compared to the total number of fields sampled × 100.

<sup>2</sup> Isolation frequency: Number of diseased leaves from which a species was isolated compared to the total number of leaves incubated × 100.

<sup>3</sup> NS: Not significantly different (p<0.05) using independent sample *t*-test assuming unequal sample variances (α=0.05).

this survey; more on this in a future article.

**Control SLB with fungicides belonging** to FRAC group 3 and 7 - plan your spray program now! Our 2015 SLB fungicide evaluation trial showed that fungicides belonging to FRAC group 3 and 7 provided best control of SLB with 5 out of the top 7 fungicide treatment belonging to FRAC group 7 and 2 of the top 5 belonging to FRAC group 7 (Fig. 3). Merivon (FRAC 7 & 11), Luna Tranquility (7 & 9), Inspire Super (3 & 9) and Quadris Top (3 & 11) were the top performing fungicides (Fig. 3). It will be recommended to include a fungicide with FRAC 3 or 7 in every tank mix for control of SLB. No more than two consecutive applications may be made before switching to a different FRAC group, and generally no more than four applications per FRAC group may be made per season. This will allow for four applications of FRAC 3 and four applications of FRAC 7 fungicides for a total of 8 weeks of protection with the best performing fungicides. The challenge will be to design a spray program that does not violate the rotation restrictions for resistance management. A simple program could be to rotate Luna Tranquility (7 & 9) with Quadris Top (3 & 11). I will also be providing more information on this in future issues of VegEdge.

FRAC Group 11 fungicides Quadris and Cabrio failed to control SLB. In the 2015 SLB trial, FRAC group 11 fungicides when used alone as Quadris and Cabrio failed to control SLB and were not significantly different than the untreated control (Fig. 3). Over the winter Pethybridge and Hay tested the sensitivity of 24 isolates collected from muck onion fields to Quadris and found that only 8 (= 33%) were sensitive while 11 (= 46%) were insensitive and the remaining 5 (=21%) had an intermediate sensitivity. Comparatively, of the nine isolates tested from upland low input fields, 6 (= 67%) were sensitive to Quadris while only one (= 11%) was insensitive and 2 (=22%) had an intermediate sensitivity. The isolate taken from the fungicide trial was also

found to be insensitive. Although these results are strong leads suggesting that SLB is developing resistance to FRAC 11 fungicides, it is not 100% proof. More studies are planned to confirm and understand the development of resistance of SLB to FRAC 11 fungicides.



Figure 2. In 2015 survey, all different symptom types including tan target spot lesions on necrotic tissue (A), purple/reddish lesions on green tissue (B), and less descript target spots with black sporulation (C) all tested positive for Stemphylium leaf blight.



**Figure 3.** Results of 2015 fungicide evaluation for control of Stemphlium leaf blight in onion: field trial conducted in Elba muck on yellow direct seeded onion (c.v. Safrane) (Hoepting). Green rating is an indication of plant health and correlated to disease incidence and severity; plants with less SLB have healthier and greener foliage. Top performing fungicides for control of SLB belonged to FRAC groups 3 and 7, while FRAC groups are indicated above the bars in purple. Columns followed by the same letter are not significantly different, Fisher's Protected LSD test, p>0.05.



#### **CUCURBITS**

There's a new report for cucumber downy mildew in Caroline County Maryland. The current downy mild forecast shows **HIGH Risk** for cucurbits in eastern NC and southeast VA. **Moderate Risk** in the south (Florida, Georgia, South Carolina). Low Risk for cucurbits in southern Florida and eastern Maryland, New Jersey, Delaware and Southern Texas. Minimal Risk to cucurbits elsewhere, including NY. We will keep an eye on this forecast as the disease is slowly moving north. If you suspect downy mildew please contact us to verify it.

Cucumber beetle is still showing up in pockets, keep a close eye out.

#### DRY BEANS

Dry bean planting has been very good this year, however soils are quite dry in many areas.

The earliest beans have their second trifoliate leaf pushing. No <u>Western bean cutworm (WBC)</u> moths were caught in traps in dry bean fields this week.

#### GARLIC

Fusarium in garlic plants are quite noticeable even with the dry conditions. The plants are stunted, foliage drying down, and bulb or crown showing rot symptoms. See the article from Crystal Stewart in this issue of *VegEdge*. After sending in a sample to us, cull all other fusarium infected plants by burial away from production fields or burning. Long term cover crop usage and/or diversification with crop rotation is needed and to keep alliums out of the same plots for at least 3-4 years.

#### ONIONS

The crop continues to look very good despite very dry conditions. Onion thrips pressure continues to increase and at this time most transplanted fields have had their second application of Movento and we are seeing it hold the population down. Similarly, some of the direct seeded fields that reached the spray threshold earlier are in the same situation. Other direct seeded fields just reached the spray threshold this week and will be getting their first application of Movento, while others still remain below the spray threshold. As always, scouting your fields in order to know your thrips pressure allows you to make informed spray decisions. If Movento is keeping the thrips below spray threshold of 1.0 thrips per leaf, you do not need to spray again just yet. With such a hot and dry start to the onion growing season setting the stage for a favorable onion thrips pressure, relying on the "Momentum of Movento" has proven to be key to not burning through the spray program before the thrips season is over.

Botrytis leaf blight is still practically nonexistent and not worth spraying in my opinion. As we are now into summertime and onions are bulbing, leaf dieback and tipburn begins to occur naturally and this is when we start to see Stemphylium leaf blight. I have only found maybe two lesions so far, and this disease also seems to be quashed in this dry windy weather. We again made more progress towards understanding this new diseases and how to manage it in last year's research projects, some of which is featured in the article on page 6. It is not known exactly when the critical time for managing this disease is, although trials are planned in 2016 to get a better handle on this. I have been hesitant to start spraying for it, because conditions have been so poor for disease, but the first spray should be going on soon, at least on onions at 7-8 leaf stage that have started bulbing, see article and there will be more articles to follow.

Note that National Onion Association summer meeting is being held in Niagara Falls with a tour to the Elba muck on Friday, July 15. It has been 25 years since the NOA has been to Elba!

#### POTATOES

Later planted potato fields continue to emerge, while the earliest fields are flowering. Growers are busy hilling. <u>Colorado potato beetle</u> (<u>CPB</u>) adults, eggs, and small to large larvae are present in untreated fields. If you have had a history of <u>European corn borer (ECB)</u> early in the season note that we have reached the degree days associated with the treatment period for the larvae. See the April *VegEdge* for a table of potato insecticides with ECB activity, or go to: <u>http://cvp.cce.cornell.edu/submission.php?</u>

<u>id=354&crumb=crops|crops|potatoes|crop\*24</u>. Fewer moths have been caught in pheromone traps in recent years. While fungicide sprays for <u>late blight (LB)</u> are only recommended in a few locations (*see Late Blight Risk article in this issue*), sprays for <u>early blight (EB)</u> are recommended on all potatoes that emerged on or before May 20. Non-rotated, higher risk fields that emerged on or before June 1 should also be sprayed. For other emergence dates see the EB <u>Physiological Day (P-Day)</u> forecast at: <u>http://newa.cornell.edu/index.php?</u> <u>page=potato-early-blight</u>

Flowering potato plants are those most likely to show wilting of stems if the seed was infected with <u>bacterial blackleg Dickeya (BBD)</u>. If stem wilting is common in one of your fields contact Carol MacNeil at <u>crm6@cornell.edu</u> or 585-313-8796. Reba, Superior and Norwis seed from Maine has had a history of this problem. <u>Common blackleg</u> from seed of any variety or source can also show such symptoms but the disease, while also seed-borne, is less likely and it should be much less severe.

In 2016 potato fields from more varieties of Maine and New Brunswick, Canada, seed have been found to be infected with <u>bacterial black-leg Dickeya</u>, *Dickeya dianthicola*, in the Mid-Atlantic region of the US. *From the online Rutgers Plant and Pest Advisory - Vegetable Crops*, *NJ*, *6/29/16:* 



Source Cucurbit ipmPIPE, NC State Climate Office (<u>http://cdm.ipmpipe.org/current-forecast</u>).

#### continued - CROP Insights

In addition to *Dickeya dianthicola* being found in 'Reba', 'Snowden', and 'Norwis' on 3 farms in New Jersey this year, the pathogen has also been detected in fields with seed originating from Maine on 5 farms on Long Island in 'Reba', 'Vivialdi', 'Superior', 'Norwis', and 'Waneta'. The pathogen has also been detected in DE, PA, MD, and VA this summer on seed from Maine and New Brunswick, Canada (NJ and VA). Maine potatoes are currently shipped to over 20 states across the country (CA, CT, FL, ID, IN, KY, MD, MA, MS, NH, NJ, NY, NC, OH, PA, RI, TN, VT, VA, WA, WV, and WI). *Dickeya dianthicola* has been detected in the US in the past, and because of this, APHIS just recently announced that the pathogen has been designated as a <u>non-reportable/non-actionable pathogen</u> despite its potential to cause 100% crop loss. A link to the USDA/APHIS website for information on *Dickeya dianthicola* detection and control can be found at: <u>https://</u>www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/pests-and-disease/sa\_nematode/sa\_potato/ ct\_dickeya.

#### SWEET CORN

Early plastic sweet corn ears are developing and we might see the first harvest in a few weeks. Bare ground sweet corn is tasseling.

# Fruiting Vegetable Pest Alert: Thrips!

We are quite familiar with thrips in cabbage and onions but thrips can also damage peppers and cucumbers. Thrips attack pepper and cucumber plants early in the season when the flowers first appear. Thrips enter the flowers and will feed on the newly formed fruit. As the fruit gets bigger over the next few days and weeks, the feeding damage that scarred over stretches. These scars become elongated and often a tan to copper color. There is nothing wrong with the fruit except for the blemishes however, wholesale buyers usually reject fruit with this type of damage. The Cornell Vegetable Guidelines lists several products to manage thrips. The important point is to be able to direct sprays down to where the flowers are. Be sure to follow directions and spray when bees and other pollinators are not present. Keeping transplants away from bedding plant or hanging plant production in the greenhouse can help reduce the chance of infection however thrips can be found in many fields during the growing season.



Cucumber damaged by thrips. Photo: www.omafra.gov. on.ca



Photo: www.omafra.go on.ca Pepper fruit

#### damaged by thrips. Photo: entnemdept.ufl. edu

### WNY Sweet Corn Trap Network Report, 6/28/16

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

Seventeen sites reporting this week. European corn borer (ECB)-E was caught at two sites and ECB-Z at three sites. Two sites caught corn earworm (CEW) with the Eden site high enough to require a 6 day spray schedule (see table at bottom of post). Fall armyworm (FAW) was caught at only one site this week and Western bean cutworm (WBC) was caught at two sites this week.

Fields are in both the tassel emergence and silking stage. The thresholds when scouting differ for these two stages of corn. For tassel emergence corn the threshold is 15% infested plants. For silking corn the threshold drops to 5% infested plants. To help you scout your fields please view the video titled <u>How to Scout Fresh Market Sweet Corn</u> at http:// sweetcorn.nysipm.cornell.edu/how-to-scout-fresh-marketsweet-corn/. This video will show you how and when to scout sweet corn using the <u>Sweet corn scouting form (pdf)</u> found at http://nysipm.cornell.edu/sites/ nysipm.cornell.edu/files/shared/documents/sweet-cornscout-form.pdf.

We are averaging 740 degree days for the trapping sites. This is about 100 degree days cooler as compared to last year at this time. The first flight of ECB is tapering off and we are entering the treatment period according to the table below from University of Wisconsin. The second generation of ECB-E will begin to emerge at about 1400 modified base 50 degree days.

#### WNY Pheromone Trap Catches: June 28, 2016

	ECB	ECB				D.D.
Location	-E	-Z	CEW	FAW	WBC	to Date
Baldwinsville (Onondaga)	0	0	0	0	0	785
Batavia (Genesee)	0	1	1	0	0	554
Belfast	NA	NA	NA	NA	NA	702
Bellona (Yates)	NA	NA	NA	NA	NA	866
Eden (Erie)	1	0	2	0	0	763
Farmington (Ontario)	0	0	0	0	0	724
Hamlin (Monroe)	NA	NA	NA	NA	NA	712
LeRoy (Genesee)	NA	NA	NA	NA	NA	698
Pavilion	0	0	0	0	1	567
Penn Yan (Yates)	0	0	0	0	0	818
Ransomville (Niagara)	0	0	0	0	0	813
Seneca Castle (Ontario)	0	0	0	0	0	766
Spencerport (Monroe)	0	0	0	0	0	830
Waterport (Orleans)	NA	NA	NA	NA	NA	737
Williamson (Wayne)	0	0	0	0	0	674
ECB - European Corn Borer CEW - Corn Farworm	WBC - NA -	- Western Bean Cutworm				

FAW - Fall Armyworm

DD - Degree Day (modified base 50F) accumulation

Average corn earworm catch						
Per Day	Per Five Days	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  $80^\circ F$  for the previous 2-3 days.

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

#### **Muck Donut Hour**

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



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

#### Soil Health & Cover Crop Workshop

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



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

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

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



July 6, 2016 | 9:00 AM - 3:30 PM

CVP Fresh Market Demo Site at Partridge's on the Farm Market, 4924 Ellicott St Rd (Rt 63), Batavia, NY 14020

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

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

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

#### High Tunnel Pest and Disease Management: Organic Control Strategies

August 2, 2016 | 4:30 PM - 7:30 PM

Fellenz Family Farm, 1919 Lester Rd, Phelps, NY 14532

How can you manage your tunnel to limit losses due to pests and disease? This field day will start with identification of common high tunnel pests and diseases and effective organic control strategies, including spraying. Andy Fellenz, with support from NE-SARE, has developed and will demonstrate a boom-style high tunnel sprayer, as well as discuss the proper use of backpack and other relatively low pressure, low flow single-tip sprayers. Variety selection, rotation, cultural practices and spraying all have a place in the overall farm strategy. Fellenz Family Farm received its certification for growing organic vegetables and fruits in Phelps, NY in 2005, and has been growing in high tunnels for more than 10 years.

Cost: FREE! Email Angela Parr at <u>aep63@cornell.edu</u> to register or call 585-394-3977 x426. This event is sponsored by NE-SARE through a Farmer Grant. The Cornell Vegetable Program is cooperating with Fellenz Family Farm to bring you this event.

#### **Vegetable Walk and Cut Flowers**

August 15, 2016 | 5:30 PM Werner's Farm, 8427 West Henrietta Rd, Rush, NY 14543

A discussion and field walk for cut flower growers. Topics will be production considerations, and disease and insect management. The vegetable field walk will be conducted by Cornell Vegetable Program Specialists Judson Reid and Robert Hadad and will cover identification and management of insects, diseases, and weeds. FREE! Contact Robert Hadad for more information at 585-739-4065.



# **Weather Charts**

John Gibbons, CCE Cornell Vegetable Program

#### Weekly Weather Summary: 6/21 – 6/27/16

	Rainfall (inch)		Temp (°F)		
Location	Week	Month June	Мах	Min	
Albion	0.13	0.64	92	50	
Appleton, North	0.44	1.41	90	47	
Baldwinsville	0.56	2.45	91	50	
Buffalo*	0.29	1.31	89	51	
Butler	0.67	2.18	89	49	
Ceres	0.38	2.41	87	45	
Elba	0.25	0.85	88	44	
Farmington	0.22	0.87	90	45	
Gainesville	0.02	0.87	86	42	
Geneva	0.14	0.57	90	48	
Lodi	0.40	0.80	90	47	
Niagara Falls*	0.20	0.80	91	52	
Penn Yan*	0.28	0.79	89	49	
Rochester*	0.12	0.87	93	50	
Romulus	0.34	0.69	88	46	
Silver Creek	NA	NA	87	46	
Sodus	0.30	2.80	91	45	
Versailles	0.22	1.30	89	45	
Williamson	0.04	2.89	91	46	

#### Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 – June 27, 2016

Location	2016	2015	2014
Albion	768	853	756
Appleton, North	635	672	600
Baldwinsville	763	880	840
Buffalo	813	877	780
Butler	757	897	815
Ceres	601	769	698
Elba	542	681	608
Farmington	700	834	776
Gainesville	550	687	611
Geneva	742	853	794
Lodi	822	961	878
Niagara Falls	858	802	735
Penn Yan	786	922	839
Rochester	802	936	852
Romulus	729	867	800
Silver Creek	711	788	713
Sodus	642	758	730
Versailles	713	821	747
Williamson	655	769	716

\* Airport stations

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





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Cornell University Cooperative Extension Cornell Vegetable Program

480 North Main Street Canandaigua, NY 14424





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

#### VEGETABLE SPECIALISTS

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

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

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

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

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

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

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

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Cornell University Cooperative Extension Cornell Vegetable Program

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