YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 15

Cornell Cooperative Extension Cornell Vegetable Program

Why Are My Pea Plants Dying?

Julie Kikkert, CCE Cornell Vegetable Program

Are your pea plants yellow and wilting or are they just plain dead? You can probably blame too much rain this spring. Peas are one of the least tolerant crops to waterlogged soils, with changes in their cellular structure being observed within hours of sitting in water. These plants are "gasping" for oxygen which is important in cell division, growth, and the uptake and transport of nutrients.

If the peas didn't die outright from waterlogging, the damage can inhibit future root growth, subjecting the plants to injury during hot, dry periods because the root systems are not developed enough to support the top growth. Furthermore, saturated soils and damaged roots favor the development of diseases. Plants weakened by other stresses such as soil compaction or herbicide damage are more susceptible to root rot pathogens, making the cause of crop decline difficult to pinpoint.

Several pathogens alone or in combination can cause root rot symptoms in peas. Fusarium cortical rot (*Fusarium solani f. sp. pisi*) has been the most prevalent disease of peas in Western NY in recent years, followed by Fusarium wilt and near wilt (*F. oxysporum f. sp. pisi*) (*G. Abawi, Cornell*). These pathogens only infect peas and you will only see these diseases if peas



Issue 13
July 10, 2019

Photo: C. Vore

Peas with severe root rot. Photo: J. Kikkert, CVP

have been grown in a field before. These fungi can survive for a very long time in soil. Root and stem rots can also be caused by *Rhizoctonia* and *Pythium* spp., which can affect a number of other vegetable crops as well. If that isn't enough, pea roots can also be infected with *Thielaviopsis* and *Aphanomyces* spp.



VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension partnership between Cornell University and CCE Associations in 14 counties.

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

Web address: cvp.cce.cornell.edu

Contributing Writers Elizabeth Buck Robert Hadad Christy Hoepting Margie Lund Julie Kikkert Judson Reid

Publishing Specialist/Distribution/Sponsors Angela Ochterski

VegEdge is published 25 times per year, parallel to the production schedule of Western New York growers. Enrollees in the Cornell Vegetable Program receive a complimentary electronic subscription to the newsletter. Print copies are available for an additional fee. You must be enrolled in the Cornell Vegetable Program to subscribe to the newsletter. For information enrolling in our program, visit about cvp.cce.cornell.edu. Cornell Cooperative Extension staff, Cornell faculty, and other states' Extension personnel may request to receive a complimentary electronic subscription to VegEdge by emailing Angela Ochterski at aep63@cornell.edu. Total readership varies but averages 700 readers.

Information provided is general and educational in nature. Employees and staff of the Cornell Vegetable Program, Cornell Cooperative Extension, and Cornell University do not endorse or recommend any specific product or service.

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are possible. Some materials may no longer be available and some uses may no longer be legal. All pesticides distributed, sold or applied in NYS must be registered with the NYS Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide usage in NYS should be directed to the appropriate Cornell Cooperative Extension (CCE) specialist or your regional DEC office.

CCE and its employees assume no liability for the effectiveness or results of any chemicals for pesticide usage. No endorsement of products or companies is made or implied. **READ THE LABEL BEFORE APPLYING ANY PESTICIDE.**

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.



Contents

Contact Us

Cornell Vegetable Program	

Crops

CROP Insights – Our Observations from the Field and Recommendations	04
Why Are My Pea Plants Dying?	01
Late Blight Risk	03
NY Sweet Corn Trap Network Report, 7/9/19	03

Upcoming Events

v	Neather Charts	. 07
	SAVE THE DATES for upcoming meetings	06
	Women in Agriculture Discussion Group: Small Fruit & Veg Production	06
	Vegetable Pest & Cultural Management Field Meeting for Auction Growers	06

The next issue of VegEdge newsletter will be produced July 17, 2019.

continued from cover - Why Are My Pea Plants Dying?

<u>To check for root rot</u>, look at plants whose oldest 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. For instance, if you scrape away at the lower stems and roots, and find a brick red color, it is an indication of Near Wilt. Healthy root systems should be plump, have a good color (not dark brown/black), and contain numerous small fibrous roots.

Best Practices to Keep Pea Roots Healthy

✓ Use high quality, pathogen-free, and fungicide treated seed.

- ✓ Well-drained soils, free of compaction
- ✓ Plant peas only once every four years in a field
- ✓ Avoid fields with a history of severe root rot
- Rotations with grain crops will improve soil structure and reduce disease severity.
- Use tolerant varieties.

Late Blight Risk

John Gibbons, CCE Cornell Vegetable Program

The report this week in Simcast now indicates that many of the weather stations have reached or are very close to reaching the 30 blight units (BU) needed to trigger a spray for late blight (LB). If the weather station closest to you has not yet reached 30 blight units (BU) and the forecast indicates that it will in the next 2-3 days, a spray is still recommended. Note that this 30 BU threshold is for fully susceptible varieties, and assumes the use of fungicides such as chlorothalonil. Warning! Forecast BUs can change day by day, just like the weather! Four weather stations did not get to the threshold of 30 BU's. They were Elba, Geneva, Knowlesville, and Lyndonville. The chart assumes that chlorothalonil at the high rate was applied 7/2. Information for other weather stations can be found at the following address: http://newa.cornell.edu/ index.php?page=potato-diseases

New Late Blight Risk Chart, 7/09/19

Location ¹	Blight Units ¹ 7/03-7/09	Blight Units ² 7/10-7/12	Location ¹	Blight Units ¹ 7/03-7/09	Blight Units ² 7/10-7/12
Albion	16	13	Hammondsport	29	13
Arkport	35	19	Kendall	17	16
Baldwinsville	29	20	Knowlesville	8	13
Bergen	13	15	Lyndonville	8	14
Buffalo	20	14	Medina	29	18
Burt	27	5	Niagara Falls	35	13
Ceres	47	20	Penn Yan	28	18
Elba	8	13	Rochester	26	10
Fairville	22	15	Sodus	27	20
Farmington	29	15	Versailles	42	20
Fulton	35	20	Wellsville	49	20
Geneva	15	10	Williamson 16		10

¹ Past week Simcast Blight Units (BU)

² Three day predicted Simcast Blight Units (BUs)

There have been no new light blight reports nationally. The only positive sites remain in north Florida. We will continue to monitor late blight finds across the country. You can monitor late blight reports by going to the late blight website: https://usablight.org/?q=map

NY Sweet Corn Trap Network Report, 7/9/19

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

Location	ECB-E	ECB-Z	CEW	FAW	WBC	DD to Date
Batavia (Genesee)	0	0	0	0	0	801
Bellona (Yates)	0	0	0	0	0	815
Eden (Erie)	NA	NA	NA	NA	NA	805
Farmington (Ontario)	0	0	0	0	0	812
Geneva (Ontario)	0	0	0	1	0	806
Hamlin (Monroe)	NA	NA	NA	NA	NA	740
Kennedy (Chautauqua)	NA	NA	NA	NA	NA	768
Lyndonville (Orleans)	0	0	8	0	0	714
Penn Yan (Yates)	0	0	0	2	0	778
Portville (Cattaraugus)	NA	NA	NA	NA	NA	717
Ransomville (Niagara)	0	0	1	0	0	767
Seneca Castle (Ontario)	0	0	1	0	0	775
Williamson (Wayne)	0	0	0	0	4	653
ECB - European Corn Borer WBC - Western Bean Cutworm						

WNY Pheromone Trap Catches, 7/9/19

CEW - Corn Earworm FAW - Fall Armyworm NA not available

Degree Day (mod. base 50F) accumulation

Average corn earworm catch and recommended spray interval

DD -

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.

Statewide, twenty-one sites reporting this week. European corn borer (ECB)-E was caught at three sites and ECB-Z was caught at two sites. Corn earworm (CEW) was trapped at six sites, with three sites high enough to be on a 4, 5, or 6 day spray schedule (see chart to the left). Fall armyworm (FAW) was caught at three sites and Western bean cutworm (WBC) were caught at two sites this week.

Even though ECB trap catch numbers remain low, feeding damage has been observed in the field. If corn is in the tassel emergence stage use a threshold of 15%. When scouting look for ECB, FAW and WBC egg masses on the leaves. FAW 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 (see pictures below).







Fall armyworm egg mass.

Fall armyworm damage.

Fall armyworm larva. Inverted 'Y'





Seeing multiple cases of Alternaria on cole crops. - CV





Seeing increasingly more clutches of Squash Bug eggs. Be vigilant in scouting - they love to lay on the undersides of leaves. - CV



Downy mildew on recently transplanted cabbage has been confirmed. – CV



Confirmed downy mildew on basil. – *CV*



Early blight on tomato. - CV



Powdery mildew has been spotted in Ontario County. – CV Photos: Caitlin Vore, CCE Cornell Vegetable Program

GENERAL

Japanese beetles are popping up in some locations. This insect can be hit or miss when it comes to being a problem. There won't be a problem on one farm while the neighboring farm will have tons of them. The beetles can feed on a wide host of crops and ornamentals. I have seen real damage on sweet corn silks in some years . – *RH*

BRASSICAS

Aphids are showing up here and there in young cabbage, cauliflower, and Romanesco. Be on top of this pest before the populations explode . - RH

CUCUMBER AND MELONS

Cucumber beetle populations seem to be dropping off. Melons are slow in growth but starting to see some vining out and the first female flowers . – *RH*

LETTUCE AND GREENS

As lettuce heads reach harvestable size, bottom rots are starting to take a toll. Weather conditions are to blame for providing an ideal environment for these rots. Clear out weeds to increase air movement. If rows of lettuce plants are tight, might be a good idea to thin out some of the smaller heads (sell as baby greens) to let air and dryness reduce the conducive environment. – *RH*

continued – CROP Insights

ONIONS

Onions look so good right now! (Fig. 1). The crop is off to the races with clean foliage and are bulbing nicely. Weed control is generally in check. We've had some great success stories with Chateau burning back and killing yellow nutsedge post-emergent this year (Fig. 2).

Aside from historic hot spots, **onion thrips are just starting to arrive in Elba, but remain practically non-existent in Wayne and Oswego.** However, the optimum timing of Movento insecticide for thrips control is before bulbing, so many direct seeded fields are being treated this week and next timed to crop stage way ahead of reaching the spray threshold of 0.6 thrips per leaf. Typically, a double application of Movento will provide at least one week and hopefully 2-3 weeks of residual activity. Brian Nault's research and grower's experience has generally indicated that a double application of Movento is more effective than a single application. The second app may be made 7-10 days



Figure 1. Onion crop looks gorgeous right now. *Photo: C. Hoepting*

after the first, but should be made before bulbs get larger than 1 inch. Do not tank mix Movento with Bravo as the Bravo will reduce the effectiveness of Movento by up to 33%.

Figure 2. Chateau 2 oz was applied with Prowl H2O, which did a great job frying back yellow nutsedge in direct seeded onions. This same app also killed pigweed 2-3" dead in 3 days flat. This treatment followed a previous application of Chateau at 2-leaf. *Photo: C. Hoepting*

Botrytis leaf blight (BLB) pressure has been steady over the past three weeks. It often fizzles out

to a degree during the heat of July, but at the moment, growers are still treating for it. In the past, Scala 9 fl oz + Rovral 1 pt was a great substitute for Bravo in a tank mix with Movento as it provided very good control of both BLB and Stemphylium leaf blight (SLB). Unfortunately, Scala 9 fl oz + Rovral 1 pt did very poorly in controlling both BLB and SLB in CVP field fungicide trial in Oswego in 2018. SLB fungicide resistance to Scala was also recently confirmed via laboratory fungicide sensitivity testing (Frank Hay). **Thus, Scala + Rovral is no longer recommended for either BLB or SLB.**

When onions start to bulb is typically when we first start to see lesions from SLB show up, and this year is no exception. Fungicide options for BLB and SLB control that are compatible with Movento include Luna Tranquility, Merivon, Inspire Super, Quadris Top, Viathon and Tilt. Of these, the first three have the best activity on BLB. To improve BLB control of the last three, they may be doubled up, such as Quadris Top + Tilt. For more info on the relative performance of onion fungicides for SLB and BLB, see the article in the June 26 issue of VegEdge.

New this week was detection of two tiny spots of downy mildew (DM) infection in Elba muck. As DM is favored by cool temperatures and long periods of dew, it typically fizzles out during the heat of July in cases when it is detected this early. However, since we have found this potentially devastating disease to be active, it is a good idea to include a protectant for DM in the tank mix most importantly in fields/ areas with a history of DM and in plantings that have thick canopies that take longer to dry out from dew. Mancozeb is an affordable protectant, but FRAC 11 and 33 fungicides that are components of SLB fungicides Merivon, Quadris Top and Viathon may also serve as DM protectants. For more information on DM, see the June 12 issue of Veg Edge.

Finally, the **2019 version of the <u>Cornell Onion Fungicide Cheat Sheet for Leaf Diseases</u> is now available online at the CVP website. It has been updated to include changes in relative performance for disease control and SLB fungicide resistance, and includes all fungicides tested in Cornell trials for BLB, SLB and DM. – CH**

PROCESSING VEGETABLES

<u>Downy mildew</u> has been confirmed in a field of processing peas in New York, and is also being reported in Wisconsin. The disease is caused by a fungus-like microorganism, *Peronospora viciae* and is favored by extended cool, wet weather. Leaf symptoms appear as a grayish white growth on the undersurface of the leaf, with an opposite yellow area on the upper leaf surface. Stems may be distorted and leaves may drop off. Pods may become affected and appear off-color or with brown blotches and the seeds may fail to form properly, with mold growing inside the pods. Varieties differ in their tolerance to the disease. The pathogen can overwinter on infected debris in the soil, and a crop rotation of 3 years is recommended.

Root rot and general decline of peas is widespread now that we are into hot weather (see article on page 1).

<u>Beets</u> have put on good growth in the past two weeks and are generally growing out of the bacterial leaf spot. We are actively scouting for Cercospora leaf spot and will alert everyone when it is confirmed. The risk models that we are testing have us at the low to moderate risk this week.

<u>Potato leaf hoppers</u> are very active in alfalfa fields at this time and beans should be scouted for this pest, especially organic beans. Conventional beans treated with Cruiser are generally protected through the critical time up until bloom, but should still be scouted for nymph feeding. – *JK*

SQUASH AND PUMPKINS

Be on the lookout for powdery mildew. This may be a bad year for it so stay ahead of it in order to keep a decent leaf canopy on your crop. -RH

TOMATO AND PEPPER

Bacterial speck is present on a number of plantings to varying degrees. Early blight is the biggest problem mainly from rain splash. Keep up with a tight spray schedule to save the leaf canopy to prevent sunscald. – *RH*



Vegetable Pest and Cultural Management Field Meeting for Auction Growers July 19, 2019 (Friday) | 7:00 - 9:00 PM



Noah Hoover farm, 3095 Himrod Rd, Himrod, NY 14842 (Yates County)

This course 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 CCE Cornell Vegetable Program along with CCE staff will instruct participants and facilitate peer-based learning. Planned topics:

- Weed Control in Row Crop Vegetables Why and How
- Tomato and Potato Disease Updates
- Cucurbits Grafting for Vigor and Yield, Downy and Powdery Mildew Management, Insect Pest Management
- Food Safety News
- Q&A and other farm-specific crop observations

1.75 DEC recertification credits (categories 10, 1a, 23) and 1.25 (category 24) will be offered. FREE to attend! For more info, contact Judson Reid at 585-313-8912.

Women in Agriculture Discussion Group: Small Fruit & Veg Production plus Insect Control July 15, 2019 (Monday) | 6:30 - 8:30 PM Thorpe's Organic Family Farm, 12866 Route 78, East Aurora, NY 14052

Each monthly Women in Ag discussion group meeting will feature an established, innovative Farm-her leading the group on a tour of her operation and sharing her expertise on business management and production. Several guest speakers, as well as Cornell Vegetable Program staff, will be brought in to act as resource people for developing solutions to common production challenges. Participants are encouraged to attend multiple meetings to see varied farm-her operations.

The July 15 meeting will cover small fruit and vegetable production plus insect control led by Elizabeth Buck, CCE Cornell Vegetable Program, and Abby Seaman, NYS IPM Program. The meeting will be hosted by Gayle and Naomi Thorpe (<u>Thorpe's</u> <u>Organic Family Farm</u>). Gayle and Naomi will share their experiences managing a diversified organic farming operation and family farm transitions.

View the full <u>Women in Ag discussion group schedule</u> on our website at cvp.cce.cornell.edu. For more info, including the most recent meeting and speaker schedule, or to join the discussion group, <u>contact Elizabeth Buck</u> at 585-406-3419.

SAVE THE DATES! More Details Coming Soon...

August 12, 2019 (Monday) - Potato and Dry Beans Twilight Meeting (Steuben Co.)

August 12, 2019 (Monday) - Women in Ag Discussion Group Meeting, East Aurora (Erie Co.)

August 13, 2019 (Tuesday) – Chautauqua Auction Meeting, Panama (Chautauqua Co.)

August 14, 2019 (Wednesday) – Genesee Auction Meeting, East Otto (Cattaraugus Co.)

August 15, 2019 (Thursday) – Organic Onion Field Day, 3:00-5:00pm, NYSAES, Geneva (Ontario Co.)

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 7/02 - 7/08/19

	Rainfall (inch)		Temp (°F)	
Location**	Week	Month June	Мах	Min
Albion	0.80	0.80	92	53
Arkport	0.98	0.98	90	50
Bergen	0.16	0.16	90	49
Brocton	0.73	0.73	84	54
Buffalo*	0.61	0.61	88	57
Burt	1.51	1.51	87	51
Ceres	1.82	1.82	87	55
Elba	0.20	0.20	89	50
Fairville	0.72	0.72	92	50
Farmington	0.85	0.85	90	50
Fulton*	0.25	0.25	90	49
Geneva	0.98	0.98	89	57
Hammondsport	0.28	0.28	87	56
Hanover	0.50	0.50	86	55
Lodi	1.57	1.57	87	56
Niagara Falls*	0.28	0.28	90	55
Penn Yan*	1.23	1.23	88	57
Rochester*	1.94	1.94	90	53
Sodus	0.62	0.62	89	49
South Bristol	0.26	0.26	86	54
Varick	0.39	0.39	89	56
Versailles	0.55	0.55	85	54
Williamson	0.07	0.07	88	48

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 - July 8, 2019

Location	2019	2018	2017
Albion	891	1140	992
Arkport	828	1211	917
Bergen	856	1073	962
Brocton	892	NA	NA
Buffalo*	879	1208	1030
Burt	776	1009	929
Ceres	896	1021	899
Elba	825	1094	948
Fairville	804	1032	945
Farmington	836	1070	946
Fulton*	800	1049	948
Geneva	890	1108	1001
Hammondsport	852	1061	958
Hanover	890	1137	NA
Lodi	924	1145	1063
Niagara Falls*	832	1292	1128
Penn Yan*	940	1164	1076
Rochester*	964	1229	1075
Sodus	786	1025	985
South Bristol	844	1076	963
Varick	957	1163	1069
Versailles	885	1123	1039
Williamson	765	996	986

Airport stations

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





American Takii, Inc. 831-443-4901 | www.takii.com Creating Tomorrow Today



Vegetable Seeds for Professionals 315-789-4155 www.bejoseeds.com

Carolina Bastern

www.cecrocker.com Stafford, NY (585) 345-4141

Crocker, LLC Pavilion, NY (585) 584-3036



Growmark FS - Filling Your Crop Needs Elba Muck 716-474-0500 | Caledonia 585-538-6836 Knowlesville 585-798-3350 | Batavia 585-343-4622



Pest control products for fruit, vegetable and field crops. Dave Pieczarka, 315-447-0560



Call 800-544-7938 for sales or visit www.harrisseeds.com EST SEEDS 1879 A Grower Friendly Company



Medina, NY...(585) 798-6215 Geneva, NY...(315) 789-4450 Genoa, NY...(315) 497-2713



SEEDWAY Vegetable Seeds 800-952-7333 | www.seedway.com We are focused on quality seed and service!



Blake Myers, 585-303-3252 ED CO. vegetableseeds@aol.com www.siegers.com



Our Vision... "To be the first choice for growers in all of our marketplaces." www.StokeSeeds.com

Cornell Cooperative Extension Cornell Vegetable Program

480 North Main Street Canandaigua, NY 14424



VEGEdge

VegEdge is the award-winning newsletter produced by the Cornell Vegetable Program. 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

Elizabeth Buck | 585-406-3419 cell | emb273@cornell.edu fresh market vegetables, weed management, and soil health

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, broccoli, and pesticide management

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

Margie Lund | 607-377-9109 cell | mel296@cornell.edu potatoes, dry beans, and post-harvest handling and storage

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

PRECISION AG SPECIALIST

Ali Nafchi | 585-313-6197 cell | anafchi@cornell.edu

PROGRAM ASSISTANTS

Amy Celentano | ac2642@cornell.edu

John Gibbons | 716-474-5238 cell | jpg10@cornell.edu

Angela Ochterski | 585-394-3977 x426 | aep63@cornell.edu

Sarah Vande Brake | sv483@cornell.edu

Emma van der Heide | ev247@cornell.edu

Caitlin Vore | cv275@cornell.edu

ADMINISTRATION

Peter Landre | ptl2@cornell.edu

Steve Reiners | sr43@cornell.edu

Cornell Cooperative Extension Cornell Vegetable Program

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

Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EEO, Protected Veterans, and Individuals with Disabilities and provides equal program and employment opportunities.