Cornell Cooperative Extension | Cornell Vegetable Program

VEGEdge

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Bacterial Leaf Spot of Pepper

Judson Reid, CCE Cornell Vegetable Program

Presently Bacterial Leaf Spot of pepper is readily visible in many fields. This is one of only a handful of foliar diseases that affect peppers in our region, and is in our experience the most common. Symptoms begin as small, circular water-soaked spots that enlarge up to ¼" in diameter and when grouped together may cause necrosis across an entire leaf surface. Leaf Spot infections often lead to defoliation, which causes further problems with quality as the fruit are exposed to too much sun. Further fruit infections with this disease or other rots can occur. This disease affects both hot and sweet peppers and can cause devastating yield loss.

As the name implies, Bacterial Leaf Spot is caused by a bacterium; *Xanthamonas campestris*. There are multiple strains of this bacterium, some of which are pathogenic to tomatoes. It is important to understand that as pathogens, bacteria are biologically distinct from fungi, which means most commercial fungicides are not effective for controlling bacterial diseases. Indeed, there are very limited control options once infection is present in a field, making prevention paramount.

Figure 1. Bacterial Leaf Spot on pepper. Once established, this disease can lead to defoliation and crop loss. *Photo: J. Reid*

BACTERIAL LEAF SPOT PREVENTION

Select Resistant Varieties

The good news is that there are many varieties of peppers with resistance. In the seed catalog, look for varieties listed as BLS Resistant (often times listing multiple races). Chile peppers will be

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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.

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The next issue of VegEdge newsletter will be produced September 4, 2019.

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harder to find with BLS resistance, although many hybrid jalapenos have resistance genes.

Crop Rotation

The next step in combating BLS is crop rotation. Ground that has seen tomatoes or peppers should go into another crop family for a minimum of two years before these crops are grown again.

Disinfect Stakes

As more growers are using stakes to grow peppers, we also need to manage these for BLS (Fig. 2). Reusing stakes from tomatoes for peppers increases infection risk, as does repeatedly using the same sets of stakes for peppers, year-after-year. Stakes should be disinfected with a steam treatment or washed in bleach solution or disinfectant. Prior to disinfecting stakes need to be power washed to remove soil and debris. Given the labor, material costs, handling and continued infection risk of used stakes, many growers do not reuse them.

Spray Options

Moving on to spray materials we find a short list.

Actigard (FRAC Group 21) is a unique material that activates plant defense. It must be used preventively and is for chile pepper use only. Actigard has a 14 day pre-harvest interval. Organic growers can use copper products, which is also the preferred bactericide of conventional growers, generally a 0 day PHI. Mancocide combines copper with the fungicide mancozeb (FRAC group M3) and has a 7 day PHI. Tanos (groups 11+27) is labeled for suppression only, but given current tomato disease pressure, many growers may already have this material in their spray-tank. Finally we will mention that Agri-Mycin is available to prevent BLS only on greenhouse transplants, not for field applications.

Figure 2. Growers who use stakes and twine to trellis peppers experience less crop loss to sun scald, but stakes can overwinter Bacterial Leaf Spot. Disinfection or destruction of stakes is recommended. *Photo: J. Reid, CCE CVP*

Figure 3. Preventing BLS in peppers begins with selecting resistant varieties and greenhouse sanitation. Agri-Mycin is labeled for greenhouse transplant applications only. *Photo: J. Reid, CCE CVP*

Figure 4. Open-pollinated chile peppers are less likely to be resistant to BLS than hybrids. However, we still encourage the production of these varieties because the world needs hot sauce!
Photo: J. Reid, CVP

Post-Emergent Herbicide Options in Cole Crops

Christy Hoepting, CCE Cornell Vegetable Program

Newly emerged weeds have been growing like crazy following recent rain events (Fig. 1). Effective control with post-emergent herbicides requires that herbicides be applied before the weeds get too big, which is usually no larger than 2 inches (wide/tall) for broadleaves and 8 inches tall for grasses. Even when cultivation is the main method of weed control, there are often weed escapes in the row. In Cole crops, post-emergent herbicide applications need to be applied before row closure and before weeds get too big.

POST-EMERGENT CONTROL OF BROADLEAF WEEDS

Goaltender

- Available in New York as a Special Local Needs Label (SLN NY-090002)
- ***Active Ingredient:*** oxyflufen (WSSA Group 14)
- Labeled only on **broccoli, cabbage and cauliflower**, direct-seeded or transplanted.
- ***Weeds controlled:*** Provides excellent control of pigweed, good control of lambsquarters, purslane, smartweed, Eastern black nightshade and Shepherd's purse.
- ***Weeds it does not control well:*** It is weak on ragweed, mustards and velvet leaf.
- ***Crop Stage:*** Apply to a transplanted crop after a minimum of 2 weeks after planting, and to direct seeded crops with at least 4 true leaves.
- ***Rates:*** 4 to 6 fl oz per acre per application. Up to 8 fl oz for a directed spray. A directed spray is applied in such a manner as to minimize contact with crop leaves.
- ***Maximum usage:*** Do not apply more than 8 fl oz per acre per season. If a pre-transplant treatment has previously been made, the combination of pre-plant and post-transplant treatments must not exceed 16 fl oz per acre per season.
- ***Pre-harvest interval (PHI):*** 35 days
- ***Notes:*** **Do not add any adjuvant, liquid fertilizer or pesticides (including grass herbicides) to the spray mixture.** Avoid application if heavy rainfall is predicted to occur within 24 hours after planned application.
- ***Potential injury:*** Can cause leaf cupping, crinkling, stunting or necrotic lesions when applied during cool and cloudy weather. Injury is usually limited to treated leaves with new leaves emerging undamaged. Sometimes delay in maturity and yield reduction may result.
- ***Be aware that application of Goaltender within a couple days of applying a spray containing an adjuvant may also result in injury*** **– wait at least 7 days between application of Goaltender and any treatment that contains an adjuvant.**

Stinger (and generic such as Spur)

- ***Active Ingredient:*** clopyralid (WSSA Group 4)
- ***Labeled on most Cole crops*** including broccoli, Brussels sprouts, cabbage, cauliflower, cavalo broccoli, Chinese broccoli (gai lon), Chinese cabbage (napa), Chinese mustard cabbage (gai choy), rapini, collards, kale, mizuna, mustard greens, kohlrabi (all crop group 5).
- ***Weeds controlled:*** Provides excellent control of ragweed, galingsoga, common groundsil and thistles, and good control of nightshades.
- ***Crop Stage:*** not specified
- ***Rates:*** 4 to 8 fl oz per acre per application, up to a total of 12 fl oz per acre per season. Cornell studies have found that multiple applications of Stinger work better than a single high rate. For example, Stinger 8 fl oz followed by Stinger 4 fl oz 2 weeks later provided better control of Perennial sow thistle compared to Stinger 12 fl oz all at once.
- ***Pre-harvest interval (PHI):*** 30 days
- ***Notes:*** Be aware of crop rotation restrictions: 10.5 months for onions and 18 months for peas and potatoes. See label for other non-vegetable crop rotation restrictions.

Figure 1. Recent rain events have resulted in a flush of newly emerged weeds. There are a handful of options for post-emergent herbicides that may be useful for shutting this down. Note, that Goaltender is only labeled on cabbage, broccoli and cauliflower and cause injury to other brassicas in mixed plantings. *Photo: C. Hoepting, CVP*

POST-EMERGENT CONTROL OF GRASSES

Select Max/Select EC (and generics of Select EC)

- ***Active ingredient:*** clethodim (WSSA Group 1).
- ***Rates:*** Apply 8 fl oz to 16 fl oz per acre according to weed species.
- ***Maximum Usage:*** 32 fl oz per crop per season.

Poast

- ***Active ingredient:*** sethoxydim (WSSA group 1)
- ***Rates:*** 1 to 1.5 pt per acre.
- ***Maximum Usage:*** 3 pt per acre per season.

Both Select and Poast

- Labelled on most brassicas
- ***Weeds controlled:*** Annual and perennial grasses, including Quackgrass. Generally controls grass weeds best when they are less than 8" tall before tillering.
- ***Crop Stage:*** none specified.
- Make multiple applications **14 days apart**, if re-growth occurs.
- ***Pre-harvest interval (PHI):*** 30 days
- ***Notes:*** Use with Crop Oil Concentrate 1% v/v (or other adjuvant – see label). Works best when weeds are actively growing and not under stress.

NY Sweet Corn Trap Network Report, 8/27/19

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

WNY Pheromone Trap Catches, 8/27/19

Location	ECB-E	ECB-Z	CEW	FAW	WBC	DD Base 38F
Batavia (Genesee)	0	0	0	2	5	1966
Bellona (Yates)	0	0	15	18	3	2012
Carlton (Orleans)	0	0	0	2	7	1903
Eden (Erie)	NA	NA	NA	NA	NA	2004
Farmington (Ontario)	0	0	0	0	0	2045
Geneva (Ontario)	NA	NA	NA	NA	NA	1991
Kennedy (Chautauqua)	0	3	1	14	1	1924
LeRoy (Genesee)	1	1	41	36	5	1922
Lyndonville (Orleans)	0	0	0	21	74	1901
Penn Yan (Yates)	0	0	0	0	1	1951
Portville (Cattaraugus)	1	0	0	3	0	1828
Ransomville (Niagara)	1	0	2	19	5	2007
Seneca Castle (Ontario)	4	2	0	0	1	1943
Williamson (Wayne)	NA	NA	NA	NA	NA	1797

ECB - European Corn Borer
CEW - Corn Earworm
FAW - Fall Armyworm
WBC - Western Bean Cutworm
NA - not available
DD - Degree Day (mod. base 50F) accumulation

Average corn earworm catch and recommended spray interval

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, 29 sites reported this week. European corn borer (ECB)-E was caught at six sites and ECB-Z was caught at eight sites. Fifteen sites reported corn earworm (CEW), with thirteen high enough to be on a 4, 5, or 6 day spray schedule (see table). Fall armyworm (FAW) was caught at seventeen sites and Western bean cutworm (WBC) was caught at twenty-two sites this week.

Where CEW are being caught in high enough numbers to drive the spray schedule, the other worm pests should also be controlled. Where FAW are being caught, a tassel emergence scout is still a good idea, as some years we see heavy FAW infestations in the emerging tassels in late plantings that may have time to get into developing ears before silk sprays for CEW. At locations where CEW numbers are still low, scout tassel emergence and silk stage fields for ECB and FAW larvae. Use a threshold of 15% infested plants in tassel emergence stage fields and 5% in silk stage fields.

Western Bean Cutworm Report

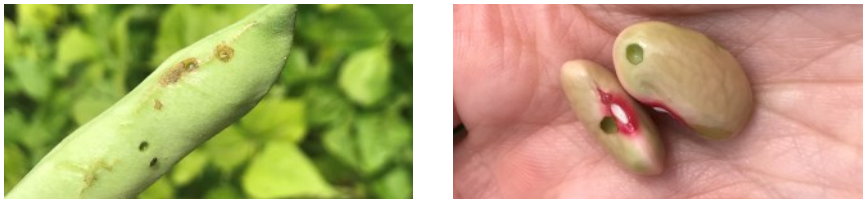
Margie Lund, CCE Cornell Vegetable Program

Historically, peak flight for WBC is the last week of July to the first week of August, though seems to be delayed this year. Both the trap reports and scouting corn in fields near dry beans can help determine the risk. Growers should scout adjacent corn fields when cumulative WBC have reached >50 moths per trap. Traps in Avoca, South Caledonia, Southwest Caledonia, Riga, Stafford, and Wayland have reached >50 cumulative catch, so sweet corn fields in these areas should be scouted. Dry bean pod scouting should begin 7 to 10 days after peak emergence, regardless of cumulative WBC trap catch, and especially where WBC has been found in bean pods/seeds in recent years. This scouting should continue for three weeks.

In addition, to the WBC traps listed in the sweet corn report, the following dry bean trap sites are being monitored this year (funded by the NYS Dry Bean Endowment and led by Marion Zuefle, NYS IPM):

Dry Bean Location	7/23/19	7/30/19	8/6/19	8/13/19	8/20/19	8/27/19	Cumulative WBC
Avoca 1 (Steuben Co.)	37*	37*	69	11	1	NA	156
Avoca 2 (Steuben Co.)	19*	19*	36	25	12	NA	101
Caledonia South (Livingston Co.)	11	44	20	14	14	12	104
Caledonia SW (Livingston Co.)	0	8	10	13	5	4	51
Geneva (Ontario Co.)	2	10	1	13	19	0	45
Riga (Monroe Co.)	17	61	80	83	62	14	317
Stafford (Genesee Co.)	5	28	23	23	15	9	103
Wayland (Steuben Co.)	40.5*	40.5*	73	108	31	NA	298

Western Bean Cutworm trap counts by date
NA - not available
* Traps not checked on 7/23, therefore two week total divided over the two weeks



Damage to dry bean pod by WBC (left). When opened, beans inside the damaged pod also show feeding damage by WBC (right). *Photos: M. Lund, CVP*

CROP INSIGHTS

BEETS & SWISS CHARD - *FRESH MARKET*

Slug damage is really showing up in many plantings. Younger plants will be set back if slugs not controlled. Cercospora leaf spot is coming on in some plantings as well. – *RH*

BRASSICAS

Late cabbage plantings that sat wet are suffering from root rots. – *EB*

Alternaria has been getting worse on cabbage and cauliflower. Head rots in cauliflower and broccoli are also a problem. Consider harvesting heads earlier and consider using varieties in the future with more "domed" heads to help shed water. – *RH*

DRY BEANS

Continue monitoring for leafhoppers in beans this week. A recommended threshold for leafhoppers in larger dry bean plants is 1 nymph per 10 leaves, or 1 adult per sweep using a sweep net. In plants treated with Cruiser, the presence of nymphs indicates that Cruiser is no longer working to control leafhoppers. A foliar treatment can be used if thresholds are met. – *ML*

EGGPLANT

Colorado potato beetle have been laying eggs and the new generation is hatching. Leaf damage could be severe without management.

MELONS

Sudden wilt is a complex syndrome that can involve environmental, physiological, and pathological components. I'm seeing portions of a few melon plantings going down to it, collapsing without warning just before harvest. – *EB*

ONION

Figure 1. Recent rainfall and heavy dews have made for perfect conditions for onion leaf diseases to take off (left), which has caused an increase in Stemphylium leaf blight invading necrotic tips and necrotic spots of Botrytis leaf blight (right). Ideally, prior to application of sprout inhibitor, leaf dieback should not exceed 20%.

Figure 2. Necrotic spots (left) and "halo" lesions (middle) caused by Botrytis leaf blight, compared to necrotic spots caused by post-emergent herbicide injury (right). In recent weeks, we have observed an increase in BLB necrotic spots and a decrease in BLB halo lesions. Necrotic BLB can be distinguished from herbicide injury by its yellow color and round defined border, as opposed to the greenish-white color and "blurry" borders of necrotic spots caused by herbicide injury. *Photos: C. Hoepting, CVP*

Figure 3. Tan (left) and black/purple (right) target-spot lesions caused by Stemphylium leaf blight has increased in necrotic leaf dieback tissue in onion in recent weeks. *Photos: C. Hoepting*

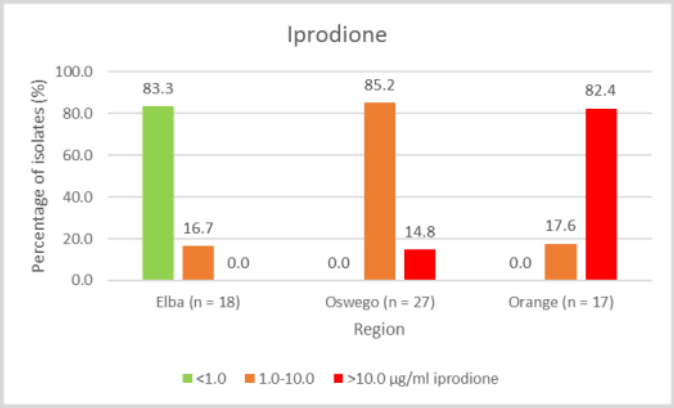


Figure 4. Sensitivity of 62 isolates of Stemphylium leaf blight (*S. vesicarium*) collected from around NY in 2018 to the fungicide active ingredient iprodione (= Rovral) by region. Green = SLB isolates are sensitive, Orange = moderately sensitive/tolerant, Red = insensitive. Frank Hay 2019.

The spray season is either winding down or over in most fields. However, lodging is still less than 50% in many "late" planted fields, which are still in need of protection from leaf diseases and thrips. With more frequent rainfall events and dewy nights during the last couple of weeks, conditions for leaf diseases have been favorable (Fig. 1). Generally, we have noticed a jump in Botrytis leaf blight in the form of necrotic spots (Fig. 2) and Stemphylium leaf blight (SLB) (Fig. 3), as well as a few more new infections of downy mildew (DM). If necrotic leaf tips and outer leaves have 20% or more leaf dieback, which is infected with SLB fungicide should be included in the spray with sprout inhibitor. Similarly, if thrips are greater than 1.0 per leaf, a final insecticide should be included with sprout inhibitor. **Current**

continued on next page

continued – CROP Insights

conditions are high risk for DM, which can cause plants to die standing up in just two weeks. Growers with less than 50% lodging may want to consider Ridomil Gold Bravo or Orondis Opti/Ultra for increased protection against DM. In 2015 Cornell field trial (Hoepting), these products were almost twice as good as preventing new DM infections as mancozeb. Growers have made noble efforts to preserve useful longevity of SLB fungicides by trying not to use more than 3 apps per FRAC. Since FRAC 7 fungicides Luna Tranquility and Merivon belong to different sub-classes, and all FRAC 3 products (Inspire Super, Quadris Top, Viathon, Tilt) belong to the same sub-class, it may be better to favor more apps of FRAC 7 products with rotation among sub-classes than to use 5-6 apps of FRAC 3 products. If you have put a lot of pressure on FRAC 3 products this season, tank mixing two FRAC 3 products such as Quadris Top + Tilt, may be a way of using essentially a high rate of FRAC 3 that will not let any strains that might be developing resistance through. In Elba, as of the end of 2018, majority (83%) of SLB isolates tested were sensitive to Rovral (= FRAC 2) (Fig. 4). Having not used much Rovral in Elba in 2019, it is possible that this fungicide is still effective against SLB and could be used in a tank mix with a FRAC 3 such as Inspire Super to not let any strains that might be developing resistance through. In Oswego, none of the SLB strains tested were completely sensitive to Rovral (Fig. 4), and its use is not recommended in Oswego. – *CH*

POTATO

Late blight has been confirmed in more counties throughout Western New York this week (see Late Blight Risk), so growers in the regions should be on alert and monitoring fields regularly. Protective sprays should be applied (all current confirmations in NY are US-23, Ridomil sensitive), and spray programs followed. If you suspect you have late blight in your field, it is important to act quickly. Once established in a field, late blight will continue to develop even after a fungicide application, though applying fungicides quickly can help drastically reduce the rate of spread. Fungicides applied to fields with 1% infection will see slow development, while fields with 5% infection will see a more noticeable development. Fields with 10% or more late blight infection are likely too infected for fungicides to be effective at slowing further spread, and will see a loss of foliage in the field. If you suspect you have late blight in your field, contact your local Vegetable Specialist to collect a sample for strain identification, kill any hotspots and a 30 ft. border, and maintain a tight spray schedule. – *ML*

SWEET CORN

Sweet corn across a wide area is becoming plastered with aphids in the tassel. Aphids move into the silks and set up in the wrapper leaves, where they are difficult to control. They can directly affect marketability. Fall army worm feeding is also present. – *EB*

Dark green to gray aphids coat the tassels of corn. *Photos: E. Buck*

Aphids move into the silk and establish in the wrapper leaves.

TOMATO

Late blight continues to spread and we have favorable weather for further disease development. Seeing several cases of bacterial canker and some bacterial speck. – *EB*

Late Blight Risk

John Gibbons, CCE Cornell Vegetable Program

This past week has been very favorable for late blight development. All stations will have accumulated 30 blight units (BU) needed to trigger a spray for late blight (LB) through the forecasted period thru 8/30 except Kendall which will have 29. 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! The chart assumes that chlorothalonil at the high rate was applied on 8/21. Information for other weather stations can be found at: http://newa.cornell.edu/index.php?page=potato-diseases

Late blight has now been found in the following counties in NY: **Allegany, Cattaraugus, Genesee, Orleans, and most recently Yates County** (8/26/19). So far all have been US-23 genotype. We are still waiting to hear what genotype has been found in Yates County but Dr. Chris Smart believes this will be US-23 also. Other states where late blight has been identified include Florida, North Carolina, Pennsylvania, Tennessee, and Washington. In all these states US-23 has been the genotype.

Late Blight Risk Chart, 8/27/19

Location[1]	Blight Units[1] 8/21-8/27	Blight Units[2] 8/28-8/30
Albion	18	18
Arkport	19	19
Baldwinsville	37	18
Bergen	15	18
Buffalo	24	19
Burt	NA	NA
Ceres	36	21
Elba	18	18
Fairville	28	19
Farmington	34	19
Fulton	31	19
Geneva	12	19
Hammondsport	17	18
Kendall	10	19
Knowlesville	20	18
Lyndonville	20	21
Medina	16	19
Niagara Falls	25	19
Penn Yan	44	17
Rochester	26	19
Sodus	39	19
Versailles	30	19
Wellsville	42	21
Williamson	14	19

[1] Past week Simcast Blight Units (BU)
[2] Three day predicted Simcast Blight Units (BUs)

Late Blight 'Imitators'

How to Distinguish Late Blight from Other Diseases and Disorders with Similar Symptoms

Margaret McGrath, Long Island Horticultural Research & Extension Center, Riverhead, NY

Before you pull up plants that have symptoms that look like late blight, make sure they aren't one of the 'imitators'! There are several diseases and disorders with symptoms that could be mistaken for late blight. The most common are below.

Late blight. The first step in diagnosis is to examine affected plants thoroughly for symptoms. Don't stop at the first symptom. Look at other plant parts too. Early in the day is best. The late blight pathogen produces most of its spores at night, so it's usually more visible in the morning. Late blight can affect all parts whereas some of the 'imitators' cannot. Characteristic leaf symptoms are very large spots, which look water-soaked at first then turn brown, often with a border of light green wilted tissue. The best place to look for the white fuzzy growth of spores is on the underside of leaf lesions. Large, dark brown lesions develop on stems and petioles, and sometimes the pathogen sporulates on these, too. When petioles are affected, the whole leaf can collapse. Affected fruit develop large, brown, firm areas.

Gray mold. This is the disease most commonly confused for late blight because the pathogen causes large leaf spots, stem lesions, and affects fruit. These symptoms are often associated with dead plant tissue (flowers, leaves). The pathogen typically needs to become established on these dead tissues before it can attack living plant tissue. Affected fruit are soft and are not brown. The pathogen growth is fuzzier and gray to brownish, not white as with late blight.

Leaf mold. Spots on leaves are the primary symptom. They are smaller than typical late blight lesions and lack a distinct margin. Color of leaf mold spots on upper leaf surfaces progresses from pale green to yellow. And most notably for distinguishing this disease from late blight, the causal pathogen produces spores that initially are greenish gray to brown, becoming darker brown with age and developing a velvety appearance. Spores are produced on the underside of leaves. The late blight pathogen produces white spores.

Drought stress. When plants' roots cannot deliver enough water to leaves, large sections of leaf tissue can die. In contrast with late blight lesions, symptoms of drought stress always extend from the leaf edge, they lack a border of wilted tissue, and there is no fuzzy pathogen growth. Also, no symptoms develop on stems or fruit. Under some circumstances, late blight can be more difficult to distinguish from drought stress.

Bacterial canker. Sometimes canker causes large areas of leaf tissue to die without the characteristic yellow border for this disease. Affected tissue always extends from the leaf margin whereas late blight can cause spots in the center part of leaves.

Early blight. Leaf, stem and fruit spots are all smaller than with late blight and often have a characteristic concentric ring pattern or target-shape appearance.

Septoria leaf spot. Leaf and stem spots are all much smaller than with late blight and often have a characteristic tan center. Fruit are not affected.

Buckeye fruit rot. Fruit turns brown with white spores forming when moist. Unlike late blight, buckeye fruit rot is most likely on fruit on or near the soil where the pathogen can survive between crops, the fruit stays firm and smooth (not rough) and leaves and stems are not affected. Causal pathogens are closely related to late blight, but don't travel far or fast because their spores move by splashing water and soil, rather than air.

Larger photos: http://blogs.cornell.edu/livegpath/gallery/tomato/late-blight-imitators/

If you suspect you have late blight in your field, contact your local Cornell Vegetable Specialist to collect a sample for strain identification.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 8/20 - 8/26/19

Location**	Rainfall (inch)		Temp (°F)	
	Week	Month August	Max	Min
Albion	0.31	1.80	89	50
Arkport	0.05	2.86	85	46
Bergen	0.24	1.93	86	46
Brocton	0.46	2.17	86	52
Buffalo*	0.74	3.38	86	54
Burt	0.24	2.13	84	50
Ceres	0.22	1.97	86	48
Elba	0.88	3.22	88	47
Fairville	0.18	3.09	89	47
Farmington	0.57	4.60	86	48
Fulton*	0.41	2.00	84	51
Geneva	0.18	3.85	83	52
Hammondsport	0.01	1.65	86	49
Hanover	0.48	2.53	85	49
Lodi	0.09	2.16	85	51
Niagara Falls*	1.24	4.02	85	51
Penn Yan*	0.18	1.62	85	51
Rochester*	0.20	1.34	86	51
Sodus	0.21	3.49	85	46
South Bristol	0.51	5.61	82	51
Varick	1.15	5.79	84	54
Versailles	0.49	2.31	87	49
Williamson	0.26	3.06	86	48

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 - August 26, 2019

Location	2019	2018	2017
Albion	1945	2270	1972
Arkport	1752	2190	1811
Bergen	1867	2149	1889
Brocton	1917	NA	NA
Buffalo*	1973	2334	2008
Burt	1786	2114	1850
Ceres	1817	1966	1761
Elba	1787	2133	1895
Fairville	1797	2095	NA
Farmington	1815	2139	1853
Fulton*	1807	2165	1892
Geneva	1920	2190	1948
Hammondsport	1824	2079	1865
Hanover	1901	2204	NA
Lodi	1958	2231	2036
Niagara Falls*	1891	2385	2202
Penn Yan*	2007	2265	2076
Rochester*	2064	2399	2069
Sodus	1758	2077	NA
South Bristol	1797	2083	1845
Varick	2021	2268	2059
Versailles	1861	2157	1933
Williamson	1740	2050	1891

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

Cornell Cooperative Extension
Cornell Vegetable Program

480 North Main Street
Canandaigua, NY 14424

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

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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.

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Cornell Cooperative Extension
Cornell Vegetable Program

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