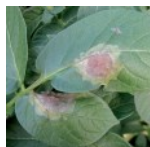




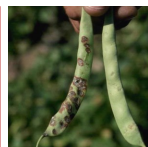
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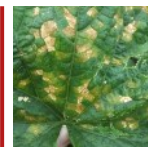
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Alternaria on Cucumbers

Judson Reid, CCE Cornell Vegetable Program

Alternaria has become an all too common word on vegetable farms in our region. *Alternaria* of cole crops caused vast losses of Brussel sprouts, broccoli and cauliflower last fall. Early Blight of tomato is an annual nemesis, also known by the name *Alternaria*. This genus of fungus produces spores capable of overwintering in NY, surviving on plant residue, then sporulating in the spring, causing new infections. The disease is favored by 'lengthy periods of high relative humidity (18 hours) over a broad range of temperatures (68 to 90°F)¹. We can see that 2019 has been an ideal infection period.

CHARACTERISTICS

Alternaria diseases have a characteristic target lesion, with rings, and sometimes a yellow halo. This season we find the disease on cucumbers, which is not a common occurrence for us. The lesions are larger and a lighter brown than other *Alternaria* diseases (Fig. 1 and Fig. 2). Our experience in cucumbers is the disease is more of a leaf spot than blight, but some growers may choose to apply fungicides, given the age of the crop and proximity of other cucurbits.

ROTATION

We highly recommend that each of the following fungicides be rotated to another group to prevent resistance not just in *Alternaria*, but other diseases such as Powdery and Downy mildews.



Figure 1. *Alternaria* Leaf Spot of Cucumber caused by the fungus *Alternaria cucumerina*. Notice rings.
Photo: J. Reid, CCE CVP

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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.

We're interested in your comments. Contact us at:
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Help us serve you better by telling us what you think. Email us at cce-cvp@cornell.edu or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.



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The next issue of VegEdge newsletter will be produced July 31, 2019.

Cornell Cooperative Extension | Cornell Vegetable Program

Niagara Region

SUMMER VEGETABLE MEETING

Pest management options plus a crop walk to learn scouting techniques

Tuesday, August 6, 2019
5:45 - 8:00pm
Freatman Farms
3699 N Ridge Rd, Lockport, NY 14094

FREE to attend! 2.0 DEC recertification credits offered

See page 10 for more details or visit <https://cvp.cce.cornell.edu/event.php?id=1223>

- Quadris F (1 D PHI, group 11)
- Endura (0 D PHI, group 7)
- Inspire Super (7 D PHI, groups 3 and 9)
- Tanos (3 D PHI, groups 11 and 27)
- Copper (OMRI versions available, Re-entry interval may be longer than PHI).

Rotation isn't just for fungicides groups! This same fungus *Alternaria cucumerina* can rapidly defoliate cantaloupe (Fig. 3). Keep vine crops out of the same ground for at least two years to reduce this disease. This means cucumbers, pumpkins, cantaloupes, watermelons, zucchini, squash, etc. should be grouped together and grown in a distinct block each year; with a non-related crop such as grains or legumes in the off years.

¹ vegetablemdonline.ppath.cornell.edu ●



Figure 2. Defoliation from *Alternaria* can reduce yield and quality of cucumbers. Photo: J. Reid, CCE CVP



Figure 3. Symptoms can be severe on cantaloupe. Photo: J. Reid, CCE CVP

Stretching Onion Fungicide Spray Programs to Preserve Useful Longevity of FRAC 3/7

Christy Hoepting, CCE Cornell Vegetable Program

Since thrips pressure has been overall very low and *Botrytis* leaf blight has been kept in check, onion foliage is currently very clean and beautiful. It is very tempting to stretch spray programs when fields are looking so good, for the purpose of reducing fungicide use in order to decrease the pressure put on *Stemphylium* leaf blight (and *Botrytis* leaf blight) to develop fungicide resistance, and to reduce the cost of the spray program.

For best fungicide resistance management, it is our goal to not exceed more than 3 apps per FRAC per growing season. SLB has developed fungicide resistance to 1) FRAC 11 (Quadris, Cabrio, etc.); 2) FRAC 7 sub-class 3 (boscalid = Endura, Pristine); 3) FRAC 9 (= Scala), especially in Oswego; and 4) although not confirmed, FRAC 2 (= Rovral) looks like it has slipped in Oswego (waiting for full report on status of FRAC 2). **This leaves FRAC 3 and FRAC 7 the main SLB fungicides.** The two FRAC 7 products, Luna Tranquility and Merivon belong to different sub-classes within the FRAC 7 class, which are both different than FRAC 7 boscalid. This means that the different sub classes have slightly different ways of attacking

fungi, and that just because a fungi has developed resistance to one sub-class does not mean that it has developed resistance to all of the sub-classes. This is why we see Luna Tranquility and Merivon still working very well against SLB, while efficacy of Endura has dropped from excellent to poor. The FRAC 3s that we have in onions, including Inspire Super/Quadris Top (same FRAC 3 active ingredient), Tilt and Via-thon all belong to the same sub-class of FRAC 3 group. In this case, **if SLB develops resistance to any of the FRAC 3s there is a very good chance that “cross resistance” will occur leaving none of the FRAC 3 fungicides effective.** Even though we have several FRAC 3 products, they should be thought of as “one” product for SLB resistance management purposes. To manage the development of fungicide resistance, we rotate chemical classes and try to reduce fungicide use.

Several fungicide programs already have 2-3 applications of FRAC 3 and 7 fungicides. With no more than 3 apps per FRAC, this gives a total of six apps between three FRAC 3 apps and three FRAC 7 apps. Some fungicide programs only have 2-3 more FRAC 3/7 apps left,

which with weekly sprays may take them to mid-August. By skipping a week or stretching the spray program to 10 days, this could extend the program through August. We have several cases already where growers have already done this.

Best opportunity to stretch or skip a FRAC 3/7 spray is when:

- 1) **There are no insecticides going in the tank mix.** Since Movento is not compatible with Bravo, most growers substitute a FRAC 3/7 fungicide for BLB (and SLB) with Movento. Therefore, when fields are riding the momentum of Movento, they have just had two back-to-back very good fungicide sprays, and good take a break from FRAC 3/7 and go with Bravo.
- 2) **Foliage is green to the tip.** If you have tipburn starting or “more than usual” necrotic leaf dieback from water stress, herbicide burn or other, it would be more risky to skip FRAC 3/7, because SLB first gets established on necrotic tissue.
- 3) **Canopy is not yet filled in.** Thick canopies decrease aeration and create a more humid microclimate

more favorable for disease. Crops with thick canopies may be at higher risk for SLB/BLB.

4) **SLB is not yet detected and BLB is in check.** If you already have disease present, especially if SLB appears to be becoming a primary pathogen (e.g. it has moved from just tiny spore activity on leaf tips to distinct target spot lesions, especially purple and black and on green leaf tissue), it would be higher risk to take a week off from spraying.

5) **Disease conditions are not as favorable.** Optimum temperature for SLB

is 77°F with long periods of leaf wetness (16 hours or more), but it will be active up to 93°F. So, if conditions are dry and winy, disease pressure will be less.

6) **Even if you take a week off or stretch FRAC 3/7 fungicide program, you may still want to protect for downy mildew.** If nighttime temperatures drop into the 50s and 60s, this disease may still drive at night, especially if it is humid and there are long periods of dew in thick canopies that do not dry out. Mancozeb can be used for DM protection.

For more information, see article in June 26 issue of VegEdge, and 2019 edition of [Cornell Onion Fungicide Cheat Sheet for Leaf Diseases](#) is available on the Cornell Vegetable Program website at cvp.cce.cornell.edu. 📍

Potato and Tomato Alert: Keep Your Eyes Open for Late Blight

John Gibbons and Margie Lund, CCE Cornell Vegetable Program

There have been new finds of late blight this past week. Late blight was reported on 7/18 in Erie county PA. The crop was potatoes. The genotype was US-23 which is Metalaxyl sensitive. Other reports came from Tennessee and Washington plus the find in Florida. Growers should be on a heightened alert.

Late blight is a fungus-like pathogen that starts from an infected host, often infected potato seed pieces, and spreads into new areas aerially or from transportation of diseased plants. The threat of late blight increases in cool, wet weather, and in fields with closed rows or overhead irrigation systems. Row closure allows for less sunlight to penetrate down to the soil, so plant material near the soil has difficulty drying out and moisture gets trapped, increasing the ability for fungal diseases to persist and lesions to form. With most potato fields now at or past flowering stages and row closure, accompanied by the rainy weather over the past week and the cooler temperatures this week, many fields are experiencing ideal conditions for late blight and should be scouted regularly.

When scouting, look for dark-green or brown irregular water-soaked spots on leaflets with the presence of white mycelium on the leaflet underside. A yellow halo may also form around the lesions, and lesions can spread across leaf veins. Brown or black lesions and white mycelium may also form on stems, often starting around a growing point where water can collect and spreading from that point. If you suspect you may have late blight in your field, contact us to take a sample for testing.

Most of the stations have accumulated 30 blight units (BU) needed to trigger a spray for late blight (LB) through the forecasted period thru 7/26. Some are one or two BU away from the 30 BU: Bergen, Buffalo, and Elba. Only one station, Burt, did not get close to 30 BU. All other stations exceeded the 30 BU threshold. 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 7/17.

Information for other weather stations can be found at the following address: <http://newa.cornell.edu/index.php?page=potato-diseases>

We will continue to monitor late blight finds across the country. You can monitor this by going to the late blight website: <https://usablight.org/?q=map> 📍

Late Blight Risk Chart, 7/23/19

Location ¹	Blight Units ¹ 7/17-7/23	Blight Units ² 7/24-7/26	Location ¹	Blight Units ¹ 7/17-7/23	Blight Units ² 7/24-7/26
Albion	20	11	Hammondsport	19	19
Arkport	25	18	Kendall	27	18
Baldwinsville	25	18	Knowlesville	26	16
Bergen	18	11	Lyndonville	NA	NA
Buffalo	18	11	Medina	32	16
Burt	11	0	Niagara Falls	23	11
Ceres	49	20	Penn Yan	28	19
Elba	12	16	Rochester	24	17
Fairville	31	17	Sodus	35	18
Farmington	33	17	Versailles	30	19
Fulton	34	19	Wellsville	45	20
Geneva	19	11	Williamson	25	16

¹ Past week Simcast Blight Units (BU)

² Three day predicted Simcast Blight Units (BUs)

NY Sweet Corn Trap Network Report, 7/23/19

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

WNY Pheromone Trap Catches, 7/23/19

Location	ECB-E	ECB-Z	CEW	FAW	WBC	DD to Date
Batavia (Genesee)	0	1	0	0	0	2348
Bellona (Yates)	0	0	1	7	5	2403
Carlton (Orleans)	0	0	1	0	0	2243
Eden (Erie)	0	0	5	7	20	2381
Farmington (Ontario)	0	0	0	0	1	2406
Geneva (Ontario)	0	0	2	2	1	2379
Hamlin (Monroe)	NA	NA	NA	NA	NA	2278
Kennedy (Chautauqua)	0	0	0	0	5	2307
Lyndonville (Orleans)	0	0	12	NA	5	2229
Penn Yan (Yates)	0	0	0	4	1	2344
Portville (Cattaraugus)	0	1	0	0	4	2226
Ransomville (Niagara)	0	0	0	0	0	2306
Seneca Castle (Ontario)	0	1	0	0	3	2316
Williamson (Wayne)	0	0	0	0	0	2138

ECB - European Corn Borer

WBC - Western Bean Cutworm

CEW - Corn Earworm

NA - not available

FAW - Fall Armyworm

DD - Degree Day (mod. base 50F) accumulation

Statewide, thirty-three sites reporting this week. European corn borer (ECB)-E was caught at six sites and ECB-Z was caught at seven sites. Seven of the ten sites reporting corn earworm (CEW) were over threshold, indicating a need for a spray, please see the chart at the bottom of this page to determine the correct spray interval for your field. Fall armyworm (FAW) was caught at eight sites and Western bean cutworm (WBC) were caught at seventeen sites this week.

WBC flight usually peaks the first week of August. Below is a map

created by Dan Omstead, [NEWA](#) coordinator, showing the estimated WBC flight completion based on Hanson et al.

Summary of Hanson et al. (2015) by Dan Olmstead:

A group from University of Minnesota published a revised method for predicting WBC flight periods in 2015. The older literature, commonly referred to as the 'Nebraska method' was published in 1976. The new method, referred to as the 'Hanson method,' noted WBC range expansion into Northern and Eastern US regions where suitable temperatures before the historical model start date of May 1 may occur.

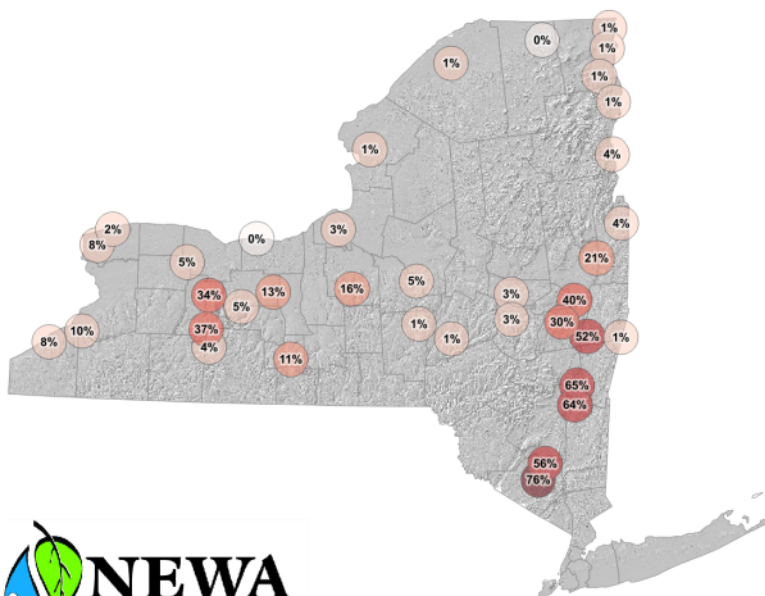
The Minnesota group used historical WBC black-light trap data from Nebraska to compare actual 25% flight completion dates with predicted values derived from a variety of candidate models having different lower and upper development thresholds using both simple and modified sine wave degree day calculations.

The best fit model proved to be one using a lower threshold of 3.3°C (38°F), an upper threshold of 23.9°C (75°F) and a simple daily degree day calculation.

To determine the estimated flight prediction of the sweet corn sites, use the degree days in the table to the left. Degree days were calculated using a base 38°F but not the upper threshold of 75°F. The degree days are therefore overestimated a bit.

Western Bean Cutworm Estimated Flight Completion on 7/22/2019

Access the NEWA WBC model for 169 NY locations at <http://bit.ly/2G1U99c>



NEWA Western bean cutworm flight emergence lookup table

Est. Flight completion	Hanson method (2015) ¹	
	Base 3.3°C ²	Base 38°F ²
1%	1230	2200
5%	1320	2390
10%	1365	2460
15%	1390	2540
20%	1415	2585
25% (scout for egg masses)	1430	2615
30%	1450	2655
40%	1475	2690
50%	1500	2735
60%	1530	2800
70%	1560	2845
80%	1600	2919
90%	1660	3030
100%	2110	3825

¹ Hanson, A.A., R.D. Moon, R.J. Wright, T.E. Hunt, and W.D. Hutchison. 2015. Degree-Day Prediction Models for the Flight Phenology of Western Bean Cutworm (Lepidoptera: Noctuidae) Assessed with the Concordance Correlation Coefficient. J. Econ. Entomol. 108:1728-1738. DOI: 10.1093/jee/108.1728

² Models use lower and upper thresholds of 3.3°C (38°F) and 23.9°C (75°F), respectively.

Bacterial Diseases of Beans

Julie Kikkert, CCE Cornell Vegetable Program

Symptoms of bacterial disease was seen in one field of dry beans last week and could be popping up over the next week or so. Heavy rains are very favorable for the development and spread of bacteria. Severe disease outbreaks typically occur seven to ten days after a period of humid, rainy weather. High winds and hail cause wounds which enable pathogens to enter and infect the tissue. Three different pathogens may be involved (see table). Each may cause lesions (spots) on leaves, stems or pods.

Common Name	Bacterial Brown Spot	Halo Blight	Common Bacterial Blight
Scientific Name	<i>Pseudomonas syringae</i> pv. <i>syringae</i>	<i>Pseudomonas syringae</i> pv. <i>phaseolica</i>	<i>Xanthomonas campestris</i> pv. <i>phaseoli</i> or <i>X. axonopodis</i> pv. <i>phaseoli</i>
Common Hosts	Snap bean, dry bean, lima bean, pea	Snap bean, dry bean, lima bean, soybean	Snap bean, dry bean, cowpea, soybean
Environment Favoring	High humidity; Moderate temps with daily highs less than 86°F	High humidity; Moderate temps with daily highs less than 77°F	Warm temps with daily highs greater than 86°F
Age of infected leaves	Infect young leaves	Infect young leaves	Middle-aged to older leaves



Common bacterial blight on dry beans in NY.
Photo: J. Kikkert, CVP

MANAGEMENT

- Application of copper at the first sign of infection may help reduce the spread. However, these diseases may be impossible to control in wet weather.
- Resistant varieties where available
- High quality, certified seed (can be seed-borne)
- Crop rotation, with beans planted once every fourth year
- Avoid working in fields when they are wet

ADDITIONAL INFORMATION AND PHOTOS

http://vegetablemdonline.ppath.cornell.edu/factsheets/Beans_Bacterial.htm

<http://www.ext.colostate.edu/pubs/crops/02913.html>



Chlorosis and isolated lesions of Halo blight on dry bean leaves.
Photo: Howard F. Schwartz, Colorado State University, Bugwood.org



Halo blight on bean pods.
Photo: Howard F. Schwartz, Colorado State University, Bugwood.org



Bacterial brown spot on dry bean pod.
Photo: Howard F. Schwartz, Colorado State University, Bugwood.org



Bean leaves showing advanced symptoms of common bacterial blight.
Photo: Howard F. Schwartz, Colorado State University, Bugwood.org

Western Bean Cutworm Report

Margie Lund, CCE Cornell Vegetable Program

So far this year, numbers of Western Bean Cutworm (WBC) found in traps near dry bean fields are low due to the cool, wet weather early in the season. However, the peak flight is historically the last week of July to the first week of August, so increased numbers are expected in the next couple of weeks. 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 100-150 moths per trap. 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.

To scout for WBC, inspect 50 plants per field (10 stops, 5 plants per stop), looking at all pods present on the plant for holes. WBC chew directly into the pod and eat the seed. It can be difficult to scout dry

beans for egg masses or caterpillars, since the caterpillars move from the pods to the soil during the daytime, so looking for signs of damage is the best strategy. European corn borer damage (ECB) may be similar to WBC, but an ECB larva would likely still be present in the pod when inspected. If damage into the pod and seed is found with no larva present, it is possible this is WBC. A spray is recommended if dry bean pod damage is found. In addition, to the WBC traps listed in the sweet corn report, the following dry bean trap sites are being monitored this year (project funded by the NYS Dry Bean Endowment and led by Marion Zuefle, NYS IPM):

Dry Bean Location	7/2/2019	7/9/2019	7/16/2019	7/23/2019	Cumulative WBC
Avoca 1 (Steuben Co.)	0	0	1	NA	1
Avoca 2 (Steuben Co.)	1	1	0	NA	2
Caledonia South (Livingston Co.)	NA	0	0	11	11
Caledonia Southwest (Livingston Co.)	NA	0	0	0	0
Geneva (Ontario Co.)	NA	NA	0	2	2
Riga (Monroe Co.)	NA	0	0	17	17
Stafford (Genesee Co.)	NA	0	0	5	5
Wayland (Steuben Co.)	0	2	3	NA	5
Western Bean Cutworm trap counts by date NA - not available					

Excerpts from "Guidelines on Managing Cucurbit Downy Mildew in NY in 2019 Based on Recent Research"

Margaret McGrath, Cornell Plant Pathology, Riverhead, NY; edited by R. Hadad, CCE Cornell Vegetable Program

This piece comes from a longer article by Dr. Meg McGrath, Cornell Plant Pathologist in Riverhead, NY. For the complete article check out, <http://vegetablemdonline.ppath.cornell.edu/NewsArticles/Cucurbit%20Downy%20Mildew%20MGT%202019-NY-McGrath.pdf>

Managing Cucurbit Downy Mildew

Chlorothalonil and mancozeb are the main protectant fungicides for downy mildew. Copper is not as effective. Most fungicides labeled for downy mildew are also labeled for Phytophthora blight, which is caused by a related (oomycete) pathogen.

Orondis (FRAC Code 49, previously U15). The novel active ingredient, oxathiapiprolin, has exhibited excellent activity in fungicide evaluations. It is formulated with mandipropamid (FRAC 40) as Orondis Ultra (REI is 4 hr) and

with chlorothalonil (M5) as Orondis Opti (REI is 12 hr). PHI is 0 day. Make no more than 2 consecutive applications of either before rotating to a different fungicide. When at least 3 applications for downy mildew will be made, Orondis fungicides can be no more than 33% of the applications, or a maximum of 4 applications per planting, whichever is fewer. Orondis Opti is labeled for several other diseases because it contains chlorothalonil. It is only recommended used for these diseases when downy mildew is also present. Orondis Ultra is also labeled for Phytophthora blight. Another fungicide, Orondis Gold 200, is only labeled for application to soil for Phytophthora blight. Its use in a crop prohibits foliar application of Orondis fungicides for downy mildew.

Ranman (21). Use organosilicone surfactant when water volumes are less than 60 gallons per acre. REI is 12 hr.

PHI is 0 day. Apply no more than 6 times in a season with no more than 3 consecutive applications.

Omega (29). REI is 12 hr. PHI is 7 days for squash/cucumber subgroup, which includes pumpkin, and 30 days for melons. Apply no more than 7.5 pts/A to a crop or 4 applications applied at highest label rate of 1.5 pts/A. Omega is more expensive than other fungicides.

Zing! or Gavel (22). Zing! and Gavel are the only products that consist of a targeted fungicide and a protectant fungicide (chlorothalonil or mancozeb). REI is 12 hr and PHI is 0 days for Zing!. REI is 48 hr and PHI is 5 days for Gavel. Apply no more than 8 times in a season. Some cantaloupe varieties are sensitive to Gavel. Due to a dermal sensitizer in the product, workers must be notified both orally and by posting at entrance to treated area 24 hours before the scheduled application and

continued on page 8

for 4 days afterwards. The amount of chlorothalonil in Zing! is an intermediate rate (1.18 lb/A chlorothalonil) of the labeled rate range for downy mildew in products with just chlorothalonil (1.125-1.5 lb/A). Chlorothalonil is labeled for use at a higher rate (1.5-2.25) to manage several other diseases including powdery mildew. Growers trying to manage these diseases as well as downy mildew should apply additional Bravo to bring the amount of chlorothalonil up to the higher rate. To obtain an application rate of 1.5-2.25 lb/A chlorothalonil, tank mix Bravo WeatherStik at 0.43-1.43 pt/A with Zing!.

Targeted fungicides recommended used sparingly to crops other than cucumber or for Phytophthora blight when downy mildew is not present.

Ariston, Curzate or Tanos (27). These have some curative activity (up to 2 days under cool temperatures) but limited residual activity (about 3-5 days). They can be a good choice when it was not possible to apply fungicide at the start of a high risk period when temperature is below 80 F. Both must be tank-mixed with a protectant. REI is 12 hr. PHI is 3 days. Apply no more than 4 times in a season (6-9 for Curzate depending on rate); no consecutive applications of Tanos are permitted. Tanos also has a FRAC Code 11 ingredient. It is recommended used only when this ingredient is needed for other diseases that are also occurring, such as Plectosporium blight. Tanos is the only one labeled for Phytophthora blight.

Zampro (40 + 45). Apply no more than 3 times in a season with no more than 2 consecutive applications before switching to a fungicide with different FRAC code. REI is 12 hr. PHI is 0 day.

Previcur Flex (FRAC Code 28). Only labeled for downy mildew. REI is 12 hr. PHI is 2 day.

Presidio (43). Recommended used early in the season for Phytophthora blight when downy mildew is not a concern. Apply no more than 4 times in a season with no more than 2 consecu-

tive applications. Must be applied with another fungicide.

Revus and Forum (40). Revus can be applied up to 4 times with no consecutive applications and Forum 5 times with at most 2 consecutive applications. REI is 12 hr and PHI is 0 day for both products. There is a different FRAC code 40 fungicide ingredient in Forum and Revus which may have slightly different mode of action, thus there may be benefit to using both in a fungicide program. Both must be applied as a tank mix with another non-Code 40 fungicide. A spreading/penetrating type adjuvant must be applied.

Fungicides with mefenoxam Fungicides with mefenoxam and metalaxyl (FRAC 4), e.g. Ridomil, or a strobilurin active ingredient (FRAC 11), e.g. Cabrio, have not been recommended since 2004 as they have been ineffective due to resistance.

Efficacy for cucurbit downy mildew of fungicides at risk for resistance development based on results from seedling bioassays conducted on Long Island, NY.

FRAC Code	Fungicide	2018	2017	2016
4	Ridomil ^z	not tested	not tested	not tested
11	Quadris	ineffective	ineffective	ineffective
21	Ranman	EFFECTIVE	EFFECTIVE	EFFECTIVE
22	Zing!, Gavel ^y	EFFECTIVE	EFFECTIVE	EFFECTIVE
27	Curzate, Tanos ^x	EFFECTIVE	poor	EFFECTIVE
28	Previcur Flex	EFFECTIVE	poor	EFFECTIVE
29	Omega	not tested	not tested	not tested
40	Revus	ineffective	ineffective	ineffective
40	Forum	EFFECTIVE	ineffective	ineffective
43	Presidio	ineffective	EFFECTIVE	ineffective
45	Zampro ^w	EFFECTIVE	EFFECTIVE	EFFECTIVE
49	Orondis	EFFECTIVE	not tested	not tested

^z Not tested because resistance considered to be widespread in the U.S.

^y Zing! was used in 2017 and 2016. The active ingredient in both products (zoxamide) was used in 2018 because these products also contain a protectant fungicide.

^x Curzate was tested. Tanos has the same active ingredient (cymoxanil).

^w Not labeled for use on Long Island due to groundwater contamination concern. 🚫



GENERAL

European Corn Borer is wreaking havoc in peppers and other crops (including cut flowers). The female moth lays eggs on or near the pepper fruit stem. The eggs hatch the larvae bore into the fruit. The damage caused by the worm may not be seen from the outside. Internally, rot can take hold making it an unsightly mess for a customer who cuts into it.

In other crops, eggs are laid on or near plant stems. The borer larvae hatch, chew into the stem and feed. The visible symptom will be plants showing wilting in one stem while the rest of the plant looks fine.

To prevent feeding damage, spray plants when peppers are small and repeat as needed following label instructions. Check with the Cornell Vegetable Crop Production guidelines for full list of products available. – RH

DRY BEANS

Multiple fields throughout the region have started to show signs of virus. Symptoms may include mottling of the leaves (Fig. 1) or a mosaic discoloration on leaves (Fig. 2). Viruses are spread by aphids feeding on bean leaves, but unfortunately can't be managed through controlling the aphids. Once present in the field, there are no management strategies for virus. The best way to avoid viruses in beans is to plant tolerant cultivars. Potato leaf hoppers are also showing up in bean fields. Plants treated with conventional insecticides (Cruiser) may still be controlling leaf hopper populations, but should still be scouted for nymphs and adults. – ML



Figure 1. Dry bean leaf showing mottling symptoms. Photo: M. Lund, CCE CVP



Figure 2. Dry bean leaf showing mosaic discoloration. Photo: M. Lund, CCE CVP

ONIONS

Things were pretty calm in onions this week. The first early maturing transplants were harvested yesterday in Elba with tremendous yields, an exciting way to start the harvest season! With bulbing in full swing irrigation has begun, because bulbing is the most critical development stage for adequate moisture in onion. Most fields have had a double app of Movento insecticide for thrips and are enjoying the "momentum of Movento". So far, we've seen a single app of Movento result in a 2.5 week ride before thrips reached the spray threshold again. With fields looking so good, it is very tempting to stretch fungicide spray programs – see article, page 3. **Mark your calendars for the Tuesday, August 20th for the Elba Muck Onion Twilight Meeting.** – CH

POTATO

Colorado potato beetles (CPB) continue to be a problem in potatoes, with a second round of egg-laying on the way. Continue to scout fields for larvae and adults, observing 50 plants per field (5 plants at 10 stops per field). An insecticide should be considered in the following conditions: 25 adult beetles/50 plants, 4 small larvae per plant, 1.5 large larvae per plant, or overall 10% defoliation. – ML

PROCESSING VEGETABLES

Snap bean harvest was somewhat delayed this year, but is getting underway. Table beet harvest is scheduled to begin this week. In broadacre table beets, one lesion collected in Genesee Co. on Thursday, July 18th was confirmed as *Cercospora betae*. However, the overall risk for Cercospora leaf spot (CLS) and presence of lesions remains low and we are not recommending fungicides at this time. Please remain vigilant in scouting fields and let Julie know if you see an increase in leaf spotting in any of your plantings. Bacterial leaf spot (BLS) remains the predominant leaf spot in beets this year, but most plantings are growing out of severe symptoms. Some BLS spots remain on leaves and wet canopies will likely keep this disease around at low levels for the remainder of the season. – JK



Upcoming Events

view all Cornell Vegetable Program upcoming events at CVP.CCE.CORNELL.EDU

Tour of Beet and Snap Bean In-Row Cultivation Demonstration Plots

July 30, 2019 (Tuesday) | 1:00 - 2:30 PM

Gates Farm West, 3350 Gates Rd, Geneva, NY 14456

Join Dr. Bryan Brown and Grace Marshall of the NYSIPM Program for a tour of several different cultivator setups used to target in-row weeds in beets and snap beans. Treatments included sweeps, finger weeders, tine harrows, disk hillers, and several combinations and adjustments of these tools. This demo used a small, 2-row cultivator but results also apply to larger operations. Some of these setups killed over 90% of in-row weeds!

FREE to attend, but no DEC credits will be offered. Rain or shine. For more info contact bryan.brown@cornell.edu or call 315-787-2432.

WNY Produce Auction Summer Meetings

July 29, 2019 (Monday) | 5:45 - 8:00 PM | River View Farm, 2531 Oak Orchard River Rd, Medina, NY 14103

August 13, 2019 (Tuesday) | 6:15 - 8:30 PM | Farm of Melvin Hostetler, 2213 Rt 76, Panama, NY 14767

August 14, 2019 (Wednesday) | 6:15 - 8:30 PM | Farm of Henry Stutzman, 7700 East Flats Rd, East Otto, NY 14729

Attendees will be led by CCE Cornell Vegetable Program Specialists, Elizabeth Buck and Judson Reid, on a tour of the produce fields and receive hands-on training in scouting and identification of common weeds and vegetable-attacking diseases and insects. Cultural and chemical control options will be discussed, keeping in mind broader vegetable production best management practices. FREE! Questions? Contact Elizabeth Buck, 585-406-3419.



Niagara Region Summer Vegetable Meeting

August 6, 2019 (Tuesday) | 5:45 - 8:00 PM

Freatman Farms, 3699 N Ridge Rd, Lockport, NY 14094

Join the CCE Cornell Vegetable Program for an evening of pest management options plus a crop walk to learn scouting techniques: Optimizing sweet corn worm and spidermite control programs; crop walk of tomato and pumpkin fields; pepper Weevil & other pepper problems; management options for potato pests; Rhizoctonia and wire-stem of cole crops. It's FREE! 2.0 DEC recertification credits offered. [Full agenda](http://cvp.cce.cornell.edu) available at cvp.cce.cornell.edu. Questions? Contact Elizabeth Buck, 585-406-3419.



Dry Bean and Potato Twilight Meetings

August 12, 2019 (Monday)

4:30 - 5:45 PM Dry Bean Meeting at Cory Mark Farms dry bean field, corner of Whiteman Hill Rd and Gross Hill Rd, Wayland, NY 14572

6:00 dinner (included)

6:45 - 8:00 PM Potato Meeting at Cory Mark Farms shop, 11595 Buffalo St, Wayland, NY 14572

Dry bean and/or potato growers in the Cornell Vegetable Program region are encouraged to join us for an evening with two educational events in one! **Come to the Dry Bean Meeting, the Potato Meeting, or stay for BOTH!** Research updates will be provided by Cornell University faculty and the NYS IPM Program. *Hosted by CCE Cornell Vegetable Program and CCE Steuben County.*

\$20/person, includes dinner and access to both meetings. [Register online](http://cvp.cce.cornell.edu) at cvp.cce.cornell.edu. 1.0 DEC recertification credits will be available for both portions of the evening. Questions? Contact Ariel Kirk, 607-664-2574.



Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 7/16 - 7/22/19

Location**	Rainfall (inch)		Temp (°F)	
	Week	Month July	Max	Min
Albion	1.26	3.19	88	64
Arkport	1.25	2.23	89	60
Bergen	0.66	0.87	91	63
Brocton	2.03	2.76	87	64
Buffalo*	0.47	1.08	86	66
Burt	1.34	2.90	89	63
Ceres	2.46	4.49	89	56
Elba	0.85	1.72	86	64
Fairville	1.42	2.52	92	62
Farmington	1.75	2.95	89	62
Fulton*	3.26	4.06	91	63
Geneva	1.02	2.00	91	63
Hammondsport	0.87	1.15	89	60
Hanover	0.46	1.07	86	64
Lodi	1.11	2.72	89	62
Niagara Falls*	0.67	0.95	90	64
Penn Yan*	0.95	2.41	91	63
Rochester*	0.65	2.63	91	66
Sodus	0.99	1.75	92	61
South Bristol	1.05	1.57	89	61
Varick	3.42	3.89	91	63
Versailles	0.90	1.46	85	63
Williamson	0.69	0.97	91	62

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 - July 22, 2019

Location	2019	2018	2017
Albion	1223	1476	1289
Arkport	1140	1491	1204
Bergen	1187	1387	1257
Brocton	1216	NA	NA
Buffalo*	1216	1547	1325
Burt	1092	1331	1217
Ceres	1200	1279	1173
Elba	1141	1396	1239
Fairville	1125	1336	1234
Farmington	1154	1380	1233
Fulton*	1117	1373	1244
Geneva	1226	1422	1303
Hammondsport	1172	1352	1251
Hanover	1214	1449	NA
Lodi	1256	1459	1371
Niagara Falls*	1169	1599	1455
Penn Yan*	1282	1486	1394
Rochester*	1316	1579	1384
Sodus	1101	1327	1298
South Bristol	1160	1368	1246
Varick	1295	1487	1379
Versailles	1205	1415	1323
Williamson	1090	1299	1290

* Airport stations

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

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