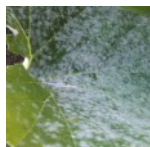




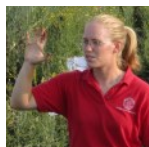
Early blight and bacterial speck are beginning to be seen in our region. Learn more about these diseases of tomato.

PAGE 1



Lots of insects and diseases are popping up in WNY vegetable crops. Read what we're finding and some control recommendations in the CROP Insights.

PAGE 4



We're sad that our colleague and friend, Darcy Telenko, is leaving the CVP but we're excited to welcome Elizabeth Buck to our team as our new Veg Specialist!

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Within the next week, see IPM's cultivation equipment trial being conducted in Geneva at the NYS Agricultural Experiment Station. Details coming soon!

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VEGEEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

• Volume 14 | • Issue 12 | • June 27, 2018

Photo: Julie Kikkert

Cornell Cooperative Extension
Cornell Vegetable Program

Early Blight and Bacterial Speck of Tomato

Darcy Telenko, CCE Cornell Vegetable Program

Keep an eye on tomatoes! We have seen the start of early blight and bacteria speck.

Symptoms of early blight are first observed as small brownish-black lesions on the lower leaves near to or touching the ground. This symptom is shortly followed by yellowing of leaves around the abrasions. Lesions enlarge rapidly in a matter of days to form concentric rings ("bullseyes" or "targets") Sunken brown lesions can also form on the stems of tomato and potato plants, and can cause collar rot in transplants and smaller plants. Tomato fruit can become infected with sizable round concentric rings near the stem attachment in either the green or ripe stage. Tubers show infection through sunken irregularly shaped lesions. Symptoms and losses are magnified when early blight is present in conjunction with an-



Early blight lesion on tomato. *Photo: D. Telenko, CCE CVP*

continued on page 3



VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension regional agriculture team, serving 13 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:
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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.

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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.



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NOTE: The next issue of VegEdge will be Thursday, July 5, 2018.

GARLIC TWILIGHT MEETING
Thursday, July 5, 2018
6:00 pm until ?
Trials located at 14,765 East Lee Rd (State Rte 31A), Albion, NY 14411

Cornell Cooperative Extension
Cornell Vegetable Program

See event details on page 6.

other disease such as Verticillium wilt or blackleg.

Foliar symptoms can be reduced, but not eliminated; by the application of protectant fungicides. The optimum time for the first fungicide application is when airborne spores first appear. Higher rates of fungicide may be necessary as the season progresses. Early blight can overwinter in plant debris and soil, so it is good to rotate an infected field out of tomato/potato production for at least two years. The disease can survive from season to season on a variety of weeds, including horse nettle and black nightshade, so proper weed management during rotation is also important. To further avoid future infection, fully remove all tomato debris from the field after harvest. Postharvest, store slightly infected fruits and tubers in a cool dry area to slow the rate of development.

Bacterial speck has been found in a few tomato fields. Initial leaf symptoms appear as black lesions, 1/8 to 1/4 inch in diameter with a distinct yellow halo. This disease is of most concern from planting until first fruits are one third of their final size. Necrotic leaf lesions up to 1/4 inch in diameter appear on the upper leaf surface of mature leaves, and in other cases circular, slightly raised white spots about 1/16 inch in diameter appear. Symptoms on fruit may be observed at any age, but are usually seen first on green fruit 1/2-2 inches in diameter. White spots 1/8 inch in diameter develop on the most-exposed parts of the fruit spots have a dark brown center, which becomes raised, and are surrounded by a distinct white halo; they have been termed "bird's-eye spots."

Management of bacterial speck and other bacterial diseases on tomato is limited. There are no resistant varieties. Two-year rotations away from tomato and pepper with non-host crops are recommended to reduce bacterial speck. Plant treated and/or certified seed and transplants. All plant stakes should be disinfested if they are to be reused, either by steam treatment or wash in bleach solution or disinfectant.

Copper compounds, Actigard, Tanos, and Gavel are a few products labeled for use in managing bacterial specks. Follow label guidelines for tank-mixing and rotation for resistance management. ●



Bacterial speck lesions on tomato fruit. Photo: J. Reid, CCE CVP

WANTED

THE VEGGIE KILLING OUTLAWS

Crime: Ruthless decimation of numerous vegetable crops.

Leader

LATE BLIGHT

Members

TOMATO BACTERIAL SPOT, SPECK AND CANKER




TOMATO LEAF MOLD

BLACK ROT OF CABBAGE (AND OTHER CRUCIFERS)

DOWNY MILDEW OF CUCUMBER

Must be taken ALIVE

Capture in labelled baggie and place in cold holding cell. Contact your favorite Cornell Vegetable Program Specialist.



Bacterial Canker

Bacterial Spot/Speck

Downy Mildew

All captured offenders will be brought to justice before the honorable Cornell Researchers of Plant Pathology and will serve to improve New York disease detection and management programs. ●

by Elizabeth Buck

CROP INSIGHTS

Colorado potato beetle (CPB) larvae are voraciously feeding on eggplant, tomatoes and potatoes throughout the region. In several areas, they are above threshold. If you are implementing an insecticide program remember to rotate chemistries for resistance management. – DT



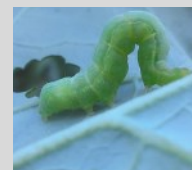
Colorado potato beetle feeding on eggplant (left), potato (center), and close up of larvae (right). Photo: D. Telenko, CCE CVP

BRASSICAS

Cabbage looper eggs and larvae found on cabbages, kale, and Brussels sprouts.

Flea beetles still plentiful on young transplants. When treating crops for flea beetles be sure to have spray reach the ground on either side of row. Beetles drop off plants quickly and attempt to hide on the ground.

Swede midge damage found in several kohlrabi plantings in Ontario, Monroe, and Genesee Counties. – RH



Cabbage looper.

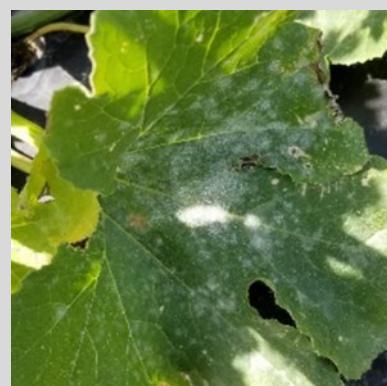
CUCURBITS (CUCUMBERS, MELONS, and OTHER VINES)

Cucumber beetles are very active in some areas while numbers are dropping off in other spots. Keep an eye on new transplants or emerging seedlings.

Aphids found on several plantings of summer squash/zucchini and pumpkins. Ordinarily aphids aren't worrisome this time of the year except that periodically we do see virus problems turn up later in July or August from aphids that were carrying the virus and feeding back in June. Scout and treat now to reduce the chance of problems later in the season. – RH

Powdery mildew has been identified in squash that have lush vine growth. Dry weather combined with small pockets of water (from drip irrigation or excessive rain) can create a humid climate, perfect conditions for powdery mildew. The fungus appears white and seems to speckle the plant like sprinkled powder on a surface (see photo). 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. **Apply fungicides for a powdery mildew in rotation to manage resistance (in the use directions on many labels; typically, 1 or 2 consecutive spray maximum) and to ensure effective control if resistance develops.** – DT



Powdery mildew on lower leaves of summer squash. Photo: D. Telenko, CVP

GREENS

Green aphids on lettuce, and leaf miner on spinach and chard. – RH

ONIONS

Rains this week is welcomed across the region. Adequate soil moisture is essential during bulbing (Fig. 1). Crop is looking great. Botrytis leaf blight (BLB) was still very hard to find this week with most fields well below the spray threshold of 1.0 BLB lesions per leaf. Despite this, many growers have begun their fungicide spray programs. Managing BLB can get complicated while spraying for thrips and Stemphium leaf blight (SLB) - see article, page 9, for BLB fungicide recommendations. Speaking of SLB, first real SLB lesions were detected this week in transplanted onions (Fig. 2). It is now time to start SLB fungicide program in transplanted onions: Scala 9 fl oz + Rovral 1 pt is a good choice for SLB and BLB, or some growers are starting with Tilt 8 fl oz +/- Bravo/Rovral. **SLB management is complicated due to fungicide resistance issues and will be featured in next**

continued on next page

week's issue of VegEdge. Many direct seeded fields have not reached threshold of 0.6 thrips per leaf to start spraying for onion thrips. However, with bulbing right around the corner and 90 degree temperatures forecast for the weekend, many growers are getting their first app of Movento on before the weekend. Details outlining the label change to Surchlor for suppression of bacterial bulb decay are now available on the CVP website.

Thank you to all the onion growers from Elba, Oswego and Wayne, and allied industry representatives from distribution, pesticide and seed industries who participated in the Elba Onion Twilight Meeting featuring weed control last Thursday. What a great way to enjoy the first day of summer!
– CH

PEPPERS

Keep an eye out for thrips and aphids – we have seen a few around. Levels are not quite at threshold in the areas we have seen them. For aphids, treatment should begin before the population exceeds 5 nymphs per leaf (scouting a minimum of 10 randomly selected sites throughout a field). Naturally occurring predators, parasitoids and pathogens can help suppress aphid infestations. <https://biocontrol.entomology.cornell.edu/index.php> can help identify the natural enemies.
– DT

PROCESSING CROPS

Pea harvest is underway and I've seen some beautiful fields out there this week. Carrot and beet planting is pretty much complete. Snap bean, lima bean and sweet corn fields have been going in the last couple of weeks. Drought and heat have been the significant issue this year, which is evidenced by spotty stands and/or slow growth in many fields. The rain this past weekend was beneficial, but uneven across the area and generally not enough. Some fields are able to be irrigated. No major pest problems being reported at this time. – JK

SWEET CORN

We still caught a few corn ear worms and European corn borers in traps in western NY. Scout fields that are in tassel and silking. Ears are starting to form on the earliest plantings. – DT

TOMATO

See cover article about early blight and bacterial speck of tomato.

Blossom End Rot on High Tunnel Tomatoes – Blossom End Rot, a localized calcium deficiency, appears as a tan or brown lesion on the side or bottom of tomato fruit. We find it very common this year with after the hot windy weather we experienced a couple weeks ago. The calcium deficiency is caused by water stress, and generally not low soil calcium levels. In heat, or high wind situations, tomato crops that are producing a number of new shoots, in addition to fruit, may not reach the water demand of all growing points; this results in Blossom End Rot. High tunnels can experience higher temperatures and do not benefit from rain, so risk is higher.

Prevention:

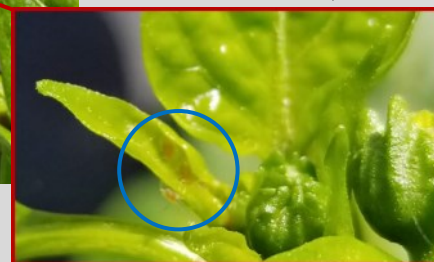
- Use a timer to ensure consistent water schedules.
- Avoid ammonium forms of nitrogen
- Reduce nitrogen application during cloudy weather/short days
- Monitor soil and plant tissue levels of calcium
- Prune out affected fruit as the plant will continue to mature them – JR



Figure 1. During bulbing is the critical timing for adequate moisture during onion production. Irrigating when rainfall is inadequate is a great way to boost yields. Photo: C. Hoepting, CCE CVP



Figure 2. Tan target spot lesion on necrotic tissue of the outermost leaf is one of the first signs of Stemphylium leaf blight (SLB), which typically does not show up until bulbing is underway. It is now time to initiate SLB fungicide programs in transplanted onions. Photo: C. Hoepting, CCE CVP



Aphids on new pepper leaves and in buds. Photos: D. Telenko, CVP



Blossom End Rot of high tunnel tomato. Photo: J. Reid



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

Wayne County Muck Donut Hour

June 28, 2018 | 9:00 AM

Meet at Johnson's storage across from 4523 Fish Farm Rd, Sodus, NY

At this meeting CVP Onion Specialist, Christy Hoepting will review 2017 onion scouting data and spray records, and gear up for 2018 fungicide and insecticide spray season with emphasis on resistance management strategies and improvements to the ever evolving spray programs. Participants of CVP Onion Research Scouting program should plan on attending. Meeting open to onion growers and allied industry. Similar meetings will be scheduled in Elba (July 3 Donut Hour) and Oswego (TBA) soon. Contact Christy Hoepting for more info.

Garlic Twilight Meeting

July 5, 2018 | 6:00 PM 'til ?

Trials located at 14,765 East Lee Rd (State Rte 31A), Albion, NY 14411

Join CCE Cornell Vegetable Program Specialists Christy Hoepting and Robert Hadad, and Frank Hay, Cornell, for a viewing of replicated garlic field trials including a nitrogen fertility trial, a Fusarium fungicide trial, an Eriophyid mite control trial, and an herbicide trial (potentially).

We will discuss both conventional and organic treatments including dips, slurries, soaks, in-furrow drenches and hot-water treatments. What works and what does not. What happens when infested/infected seed is planted? How much nitrogen is enough? Attendees will learn about "E mite" and Fusarium diagnosis.

FREE! An RSVP would be appreciated to Christy Hoepting, cah59@cornell.edu; 585-721-6953. *Trials were funded in-part by NESARE Research and Education and New York Farm Viability Institute.*

Chautauqua Produce Auction Growers Meeting

July 10, 2018 | 6:30 PM

Mahlon C. Byler farm, 7156 Burdick Rd, Dewittville, NY 14728



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. We will walk the fields and provide a hands-on demonstration of weed, insect and disease identification in vegetables including management options. FREE! Contact Judson Reid at 585-313-8912 for more info.

Respirator Fit Testing Clinic, DEC Region 8

July 16-17, 2018 | by appointment only (1 hr each)

Fulkerson Winery, 5576 State Route 14, Dundee, NY 14837

The New York Center for Agricultural Medicine and Health (NYCAMH) is providing respirator fit testing clinics in DEC Region 8, Finger Lakes (**Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne, Yates**). During the clinics NYCAMH will provide medical evaluations; respirator fit tests; and WPS complaint trainings on how to properly inspect, put on, take off, fit, seal check, use, clean, maintain, and store respirators. Clinic appointments are 1 hour long, and groups of 4 workers can be seen at a time. Medical evaluations, fit tests, and trainings are available in both English and Spanish.

You must schedule an appointment to attend. You may [contact NYCAMH between June 18 and July 13 to schedule your appointment](#). Call 607-547-6023 or 800-343-7527, Mon-Fri 8:00 AM - 4:30 PM and ask to speak with the farm respirator clinic scheduler. When calling to schedule an appointment, please have the following information available: total number of people attending from your farm, name of each person being scheduled, language spoken by each attendee, and make and model of each respirator to be tested. If a worker wears more than one respirator style, including filtering facepieces, they must be fit tested for each one.

Ontario Produce Auction Growers Meeting

July 17, 2018 | 6:00 PM - 8:00 PM

Jonathan Sensenig, 5299 Crowe Rd, Stanley, NY 14561



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. FREE! Contact Judson Reid at 585-313-8912 for more info.

New York Soil Health Summit

July 18, 2018 | 9:30 AM - 6:00 PM

Empire State Plaza Conference Center, downtown Albany, NY

This event, organized by the New York Soil Health project, is for farmers, researchers, agriculture service providers, government agencies, non-profits and policy-makers interested in advancing soil health efforts across the state. Topics include local experts/grower panel, research and policies relevant to soil health, and Soil Health Roadmap breakout sessions.

Registration, summit agenda, and other details are available at: summit.newyorksoilhealth.org For more information, contact David Wolfe (dww5@cornell.edu) or Aaron Ristow (ajr229@cornell.edu). *New York Soil Health is funded through New York State Department of Agriculture & Markets.*

Finger Lakes Produce Auction Grower Twilight Meeting

July 27, 2018 | 6:00 PM - 8:00 PM

5351 Jessop Rd, Dundee, NY 14837

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. FREE! Contact Judson Reid at 585-313-8912 for more info.



Chautauqua Produce Auction Growers Meeting

August 14, 2018 | 6:30 PM

Andy E. Yoder farm, 2051 Rt 62, Frewsburg, NY 14738

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 crop walk will provide a hands-on demonstration of weed, insect and disease identification in vegetables including management options. FREE! Contact Judson Reid at 585-313-8912 for more info.



No-Till and Never-Till Soil Health Workshop

August 28, 2018 | 12:00 noon - 5:30 PM

Branton Farm, 8538 Route 237, Stafford, NY 14143

The Western New York Soil Health Alliance will be holding a Soil Health Workshop on August 28, 2018 focusing on No-Till practices and benefits. Frank Gibbs, a certified Soil Scientist who formed a Wetland and Soil Consulting Service in 2012 after working for 36 years for USDA in Ohio will be digging underground to look at a section of field that has NEVER had any tillage and will compare it to an adjacent area with a history of tillage practices. James J Hoorman, a NRCS Soil Health Specialist for Ohio & Michigan, will be sharing information on the problem of slugs and voles in the higher residue farming practices. DEC and CCA credits will be offered. Pre-registration fee is \$15; \$25 at the door. Red Osier food truck will be onsite for purchase of roast beef sandwiches from 12:00-4:00 PM. For more information, visit <http://www.wnysoilhealth.com> and click on the Events tab.



Late Blight Risk Update

Darcy Telenko and John Gibbons, CCE Cornell Vegetable Program

Recent rainfall can be favorable for the development of late blight. Scout field twice a week. See the table for the Blight Units (BU) accumulation from around the region. The trigger in the Decision Support System (DSS) forecast for applying a fungicide is 30 BU's if the variety is susceptible. All tomato and potato growers, conventional and organic, should be applying a protectant fungicides and monitoring the DSS to determine spray intervals. Albion, Baldwinsville, Gainesville, Penn Yan, are the sites that have exceeded the 30 bu's, this past which triggers the recommendation for an addition fungicide application.

Again, there are no new late blight confirmations this week. We will continue to watch the national occurrence map to track late blight movement.

New Late Blight Risk Chart, 6/26/18

Location ¹	Blight Units ¹ 6/20-6/26	Blight Units ² 6/27-6/29	Location ¹	Blight Units ¹ 6/20-6/26	Blight Units ² 6/27-6/29
Albion	29	11	Lodi	0	14
Baldwinsville	10	14	Lyndonville	19	19
Bergen	15	13	Medina	25	12
Buffalo	24	12	Niagara Falls	23	12
Burt	17	0	Penn Yan	32	13
Ceres	24	18	Rochester	21	17
Fairville	22	12	Sodus	26	18
Farmington	25	12	Versailles	6	19
Gainesville	49	21	Volney	4	19
Geneva	14	12	Wellsville	29	20
Kendall	24	13	Williamson	29	17
Knowlesville	13	13			

¹ Past week Simcast Blight Units (BU)

² Three day predicted Simcast Blight Units (BUs) ●

Adding a New Hat to My Collection

Darcy Telenko, CCE Cornell Vegetable Program

It is bittersweet as I sit here writing my last updates and articles for VegEdge. For those that haven't heard, I have accepted a faculty position at Purdue University as their Field



Crop Plant Pathologist with the Department of Botany and Plant Pathology. My family and belongings are all currently at our new home in West Lafayette, Indiana and, after finishing my last official day at Cornell on Friday, June 29, I will be joining them in Indiana.

Western NY is, and always will be, my home. Joining the Cornell Vegetable Program four years ago was an unexpected return after many years away and now I am saying goodbye again.

Thank you first and foremost to my husband, Dominic, and kids, Vincent and Sophia. They are my inspiration and drive. Thank you to my parents, Don and Pat Partridge, who I know were so excited to have me close to home again – they have always inspired me to reach for the stars – and are still encouraging me as we head west.

I couldn't have asked to work with a better team of unique and talented colleagues in the Cornell Vegetable Program and so many Cornell faculty, staff, and Extension educators across the state and the best grower – collaborators I've known (you know who you are).

I believe I am leaving you in great hands with Elizabeth Buck.

It is not good bye – but see you later. Please look me up if you are headed west. 🍷

(Re)Introducing Elizabeth Buck to the Cornell Vegetable Program Team

Hello everyone! I am Elizabeth Buck, and I am picking up where Darcy leaves off as the new Fresh Market Specialist for the western portion of the Cornell Vegetable Program (CVP). I'd like to wish Darcy all the best in her new role at Purdue, and say thank you for all of the hard and good work she has done for the vegetable industry in western NY.

Some of you may think I look familiar; I worked for the CVP as a technician and program aide from 2012-2015. I have spent the last two years at the University of Guelph working on an M.S. with a focus on integrated weed management practices in vegetable crops. Past work on nutritional management, disease control, variety evaluation, surveying, and scouting projects gives me diversified vegetable experience. When I'm not working, you might run across me leading a 4-H club or biking along the canal. Feel free to stop and say hello. I am eager to meet as many of you as possible this field season and to hear what you'd like to see included in the fresh market programming. Please feel free to text or call me at 585-406-3419, or email me at emb273@cornell.edu. 🍷



See It This Week: Cultivation Equipment in Action



Dr. Bryan Brown, Integrated Weed Management Specialist with the NYS IPM Program, invites anyone who may be interested to see the cultivation trial being conducted at the Agricultural Experiment Station in Geneva, NY. Torsion weeders, finger weeders, tine harrows, disc hillers, and several combinations and adjustments of these tools will be evaluated in snap beans. **The trial will occur sometime in the next week, depending on weather. To be placed on the notification list, please contact bryan.brown@cornell.edu or 315-787-2432.** The trial will take place at 3350 Gates Rd, Geneva, NY 14456. 🍷

WNY Sweet Corn Trap Network Report, 6/26/18

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

Twenty-eight of 37 sites reported this week. European corn borer (ECB)-E was caught at eight sites and ECB-Z was caught at 10 sites all in the single digits. Corn earworm was caught at five sites with two sites (Eden and Stone Ridge) high enough to be on a 5 day spray schedule (see table below). No fall armyworm (FAW) or Western bean cutworm (WBC) were caught this week.

I saw a lot of ECB damage in tasseling corn today. The tassels

European corn borer (bivoltine) development estimated using a modified base 50F degree day calculation.

Development Stage	Accumulated Degree Days
First Generation	
First spring moths	374
First eggs	450
Peak spring moths	631
First generation treatment period	800-1000
Second Generation	
First summer moths	1400
First eggs	1450
First egg hatch	1550
Peak summer moths	1733
Second generation treatment period	1550-2100

from J.W. Apple, Department of Entomology, Univ. of Wisconsin-Madison

were fully emerged and the larvae had already bored into the stems causing many of the tassels to break (see video at <http://sweetcorn.nysipm.cornell.edu/>). At this point the larvae are protected inside the stalk and sprays will not reach them.

WNY Pheromone Trap Catches: June 26, 2018

Location	ECB-E	ECB-Z	CEW	FAW	WBC	DD to Date
Baldwinsville (Onondaga)	0	0	1	0	0	946
Batavia (Genesee)	0	0	0	0	0	937
Bellona (Yates)	0	0	0	0	0	967
Eden (Erie)	0	1	4	0	0	965
Farmington (Ontario)	0	0	0	0	0	916
Geneva (Ontario)	0	1	0	0	0	939
Hamlin (Monroe)	NA	NA	NA	NA	NA	855
Kennedy (Chautauqua)	NA	NA	NA	NA	NA	866
Pavilion	NA	NA	NA	NA	NA	783
Penn Yan (Yates)	0	NA	0	0	0	971
Ransomville (Niagara)	0	1	0	0	0	942
Seneca Castle (Ontario)	0	3	0	0	0	850
Williamson (Wayne)	0	0	0	0	0	833

ECB - European Corn Borer

CEW - Corn Earworm

FAW - Fall Armyworm

WBC - Western Bean Cutworm

NA - not available

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

Fungicide Recommendations for Botrytis Leaf Blight in Onion

Christy Hoepting, CCE Cornell Vegetable Program

There have been no new changes to our fungicide recommendations for control of Botrytis leaf blight since last year. In a nutshell...

Bravo is the best for BLB

Historically, in on-farm fungicide trials conducted in commercial onion fields (Hoepting 2006-2013), Bravo has had the best efficacy against BLB. In 2016 trial, the best treatment in the trial was Bravo 1.5 pt + Scala 9 fl oz, which represented 87% disease control compared to the untreated, and was not significantly different than Bravo 3 pt or Bravo 1.5 pt. Of the four treatments that included Bravo, three of them placed within the top five lowest disease scores (Table 1). Unfortunately, Bravo has no activity on Stemphylium leaf blight (SLB).

How well do SLB fungicides control BLB?

SLB fungicides include:	Relative Disease Control of BLB*
Luna Tranquility	Very Good
Merivon	Very Good-Good
Scala 9 fl oz + Rovral 1 pt	Very Good
Inspire Super	Mediocre
Quadris Top	Fail
Viathon	Poor
Tilt	Good-Mediocre

In very general terms, FRAC 7 SLB fungicides tend to have the best activity against BLB including Luna Tranquility (7, 9) and Merivon (7, 11). Single actives of FRAC 7 fungicides Endura and Sercadis (not labeled in onion) also resulted in very good control of BLB. FRAC 3 fungicides are variable in their activity on BLB and range from Good-Mediocre with Tilt to Fail with Quadris Top.

Alternatives for Bravo for BLB to solve the Bravo-Movento tank mix dilemma

Several years ago Cornell studies showed that when insecticides for control of onion thrips (OT), Movento, Agri-Mek and Radiant were tank mixed with Chloronil 720 (generic version of Bravo), thrips control was significantly reduced by 12 to 35%. So, the dilemma is that when it is desired to use Bravo for best control of BLB and Movento for best control of OT in the same tank mix, that it would be at the expense of Movento's ability to achieve optimal thrips control.

Alternatives to Bravo for BLB control include:

- Scala 9 fl oz + Rovral 1 pt
- Luna Tranquility (SLB fungicide)
- Endura
- Merivon (SLB fungicide)
- Tilt (SLB fungicide)

continued on page 10

Rovral to the rescue

In 2016 trial, Rovral alone and Inspire Super alone provided only mediocre control of BLB (56% control), which is similar to previous field trial results (Hoepting 2006-2011). However, when they were tank mixed together, BLB control increased significantly to 75%, which was not significantly different than Bravo 3 pt. In previous studies, Scala alone has only provided mediocre control of BLB; however, Bravo 1.5 pt + Scala 9 fl oz has always been a top performer for controlling BLB. Based on these results, **to achieve satisfactory control of BLB when using an SLB fungicide that needs some help with BLB, Rovral 1 pt may be added to the tank mix.** Similarly, Bravo may be added to the tank mix when there are no insecticides being applied that Bravo could compromise the effectiveness of.

Other fungicides with no or poor activity on BLB:

- Downy mildew fungicides (Ridomil Gold, Revus, Zampro, Orondis, phosphorous acid products like Rampart). Note, RG and Orondis come in premixes with Bravo that have some activity, but tend to be low rates.
- Mancozeb
- FRAC 11 – Quadris, Quadris Top Cabrio
- Tanos
- Gavel
- Switch

Fungicide Recommendations for Control of BLB in Onion:

- Scout for BLB and start spraying when threshold of 1 BLB per leaf is reached (see last week's issue of Veg Edge for scouting tips)
 - Apply Bravo 1.5 – 3 pts
- When threshold is reached to apply Movento for onion thrips:
 - Substitute Bravo with:
 - Scala 9 fl oz + Rovral 1 pt
 - Endura
- When it is time to control SLB,
 - SLB fungicides Luna Tranquility and Merivon may be used alone for BLB control
 - Rovral 1 pt or Bravo (if not using insecticide) may be added to tank mix to improve control of BLB with SLB fungicides that need some BLB help such as Inspire Super, Quadris Top, Tilt or Viathon
- Continue to apply fungicides for BLB as long as disease is present

Table 1. Efficacy of selected fungicides for control of Botrytis Leaf Blight (BLB) in order from best to worst control: Field Trial in Sodus, NY, 2016.

	FRAC ² Group	Mean BLB Score ³	Fungicide and Rate/A ¹	Relative Disease Control Rating of SLB ⁵
Bravo 1.5 pt + Scala 9 fl oz	M5, 9	13.3 i ⁴	Not significantly different than the best treatment	Poor-Mediocre
Bravo 3 pt	M5	17.3 hi		Fail
Merivon** 9 fl oz	7, 11	21.2 ghi		Very Good
Bravo 1.5 pt	M5	24.0 e-h		Fail
Scala 9 fl oz (A-G) + Rovral 1 pt	9, E3	24.1 ghi		Very Good
Luna Tranquility 16 fl oz	7, 9	24.5 fgh	Not significantly different than the untreated	Best
Inspire Super 20 fl oz + Rovral 1 pt	3, 9, 2	25.0 e-h		Very Good
Bravo 1.5 pt + Dithane 75DF 3 lb	M5, M3	32.1 d-g		Fail
Endura 6.8 oz	7	34.0 d-g		Poor
Tilt 8 fl oz	3	37.7 c-g		Mediocre
Inspire Super 20 fl oz	3, 9	44.2 b-f		Good-Very Good
Rovral 1.5 pt	2	44.8 b-e		Fail
Switch 14 fl oz	9, 12	49.7 bcd		Poor
Inspire 7 fl oz	3	74.9 ab		Very Good
Quadris Top** 14 fl oz	3, 11	78.6 abc		Good-Very Good
Untreated control	---	102.3 a		---
P value ($\alpha=0.05$)		<0.0001		

¹ All treatments applied A-G: A - 21 Jun; B - 29 Jun; C - 6 Jul; D - 13 Jul; E - 20 Jul; F - 27 Jul; G - 2 Aug. All treatments applied with nonionic surfactant Induce 0.125% v/v A-C and Activator 90 0.125% v/v E-G. spray volume: 40 gpa; pressure: 28-30 psi.

² **FRAC:** Fungicide Resistance Action Committee chemical class group.

³ **BLB Score (6 data points):** [6 Jul No. BLB lesions/plant] + [20 Jul No. BLB lesions/plant] + [2 Aug No. BLB lesions/plant] + [2 Aug (BLB lesion size rating scale 9-5/plant) x 10] + [Aug 2 (BLB density rating scale 0-5/plant) x 10] + [19 Aug visual disease control rating/plot]; **lower score = low disease and vice versa.**

⁴ Numbers in a column followed by the same letter are not significantly different, Fisher's Protected Least Significant Difference test ($p<0.05$).

⁵ **Relative Disease Control Rating of BLB** based on on-farm fungicide trials (Hoepting 2013-2017).

** Top-performing fungicide for control of Stemphylium leaf blight (Hoepting 2013-2016). ●

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 6/19 - 6/25/18

Location**	Rainfall (inch)		Temp (°F)	
	Week	Month June	Max	Min
Albion	0.53	1.58	80	45
Baldwinsville	0.25	2.23	82	45
Bergen	0.33	1.73	77	42
Buffalo*	0.54	1.65	75	54
Burt	0.46	1.28	75	49
Ceres	0.80	2.59	79	46
Fairville	0.52	2.44	76	43
Farmington	0.72	NA	78	42
Gainesville	0.82	2.32	73	40
Geneva	0.47	1.38	76	47
Lodi	0.95	2.15	78	45
Niagara Falls*	0.29	1.14	79	52
Ovid	0.40	1.76	78	45
Penn Yan*	1.32	3.51	75	48
Phelps	0.48	1.63	77	43
Portland	1.77	3.00	75	55
Rochester*	0.43	1.64	75	48
Silver Creek	0.50	1.85	75	51
Sodus	0.79	NA	76	41
Versailles	NA	NA	78	51
Volney	0.24	1.30	81	45
Williamson	0.22	1.67	74	44

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 - June 25, 2018

Location	2018	2017	2016
Albion	831	752	710
Baldwinsville	878	803	731
Bergen	773	726	624
Buffalo	888	781	757
Burt	710	697	NA
Ceres	756	693	555
Fairville	741	717	612
Farmington	775	653	648
Gainesville	644	653	506
Geneva	808	760	688
Lodi	904	872	764
Niagara Falls	941	859	798
Ovid	846	815	722
Penn Yan	860	816	731
Phelps	688	762	664
Portland	836	826	700
Rochester	899	821	743
Silver Creek	748	789	657
Sodus	731	744	591
Versailles	815	806	660
Volney	742	699	NA
Williamson	711	758	602

* Airport stations

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

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