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VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 10 | Issue 12 | July 2, 2014

Cornell University
Cooperative Extension
Cornell Vegetable Program

Tomato Spotted Wilt Virus Confirmed on Field & High Tunnel Tomatoes

Judson Reid, CCE Cornell Vegetable Program

Tomato Spotted Wilt Virus (TSWV) of tomato was confirmed on both field and high tunnel tomatoes this week by Cornell University Virologist Marc Fuchs. TSWV is a very destructive disease of tomatoes causing irregular growth and necrotic spots on foliage, with highly diagnostic ring-spots on fruit (see photos). This disease is primarily vectored by thrips.

Tomato spotted wilt virus symptomatic foliage. *Photo: Judson Reid, Cornell Vegetable Program*

TSWV infected fruit showing characteristic ring-spots. *Photo: Judson Reid, CVP*

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VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension regional agriculture team, serving 11 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.

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The next issue of VegEdge will be produced July 9, 2014.

Blossoms of colored edible pod peas.
Photo: Christy Hoepting, Cornell Vegetable Program

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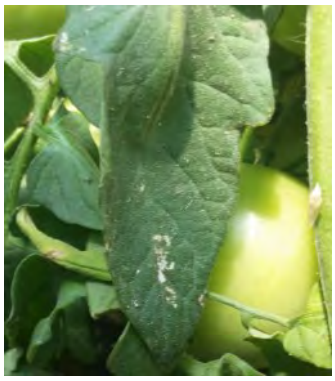
In the confirmed cases tomatoes were grown together with flowering annuals, with much of the vegetative material bought in from outside greenhouses. This is a high risk situation, particularly as ornamentals are commonly infested with thrips. Thrips in turn spread TSWV from flowers to tomatoes. In this situation the tomatoes were then transplanted into a high tunnel and later in the field. Thrip feeding on tomato leaves was abundant (see photo).



Thrips feeding on tunnel tomatoes. *Photo: Judson Reid, CVP*

TSWV management for NY tomato growers begins by reducing exposure to thrips during the transplant stage.

- Avoid growing tomatoes near bought-in vegetative material flowers. In Cornell Vegetable Program research trials we have successfully grown petunia hanging baskets over tunnel tomatoes, however these flowers were started from seed.
- Scout for thrips throughout the transplant stage, in all crop species.
- Release biological controls or spray if discovered (see side bar for options).
- Grow resistant varieties. Many excellent varieties are listed TSWV in commercial seed catalogs.

Unfortunately once a plant is infected with TSWV there is no rescue treatment.

CONTROL OF THRIPS in Greenhouses and High Tunnels

Insecticides in greenhouses and high tunnels can be tricky. Registered conventional materials for thrips control include imidacloprid, acetamiprid and malathion. Organic growers may consider products containing azadiractin or Entrust (spinosid). All growers may benefit from the use of biological controls such as *A. cucumeris,* a beneficial mite that preys on thrips.

***Remember* - TSWV is spread in the saliva of thrips so regular scouting and early control (no matter what material is used) is essential to minimize epidemics.**

Watch Out for Black Rot in Cole Crops in Hot and Wet Weather

Christy Hoepting, CCE Cornell Vegetable Program

Black rot (BR) can be a very serious bacterial disease of Cole crops and is very challenging to control when weather conditions are favorable. Optimum conditions for BR are moist and warm temperatures (75°F to 95°F), the bacteria do not spread below 50°F or during dry weather. UNLESS, there is dew during the night and morning, those dew drops on diseased plants will contain the pathogen. BR does not spread without water, but irrigation can provide water to spread this disease in dry weather.

The diagnostic symptoms of BR are yellow-brown V-shaped lesions on the margins of leaves (Fig 1). Upon close inspection (i.e. holding the lesion up to the light), veins are also blackened (Fig. 2). Veins throughout the plant will eventually turn black too (Fig. 3).

At this time, only secondary spread of black rot within the field may be managed, primarily with copper sprays. Targeting sprays before/after rain is a good plan, but if there are significant dews or even short rain showers, or irrigation, go ahead and spray on a 7-10 day schedule. While not all coppers are the same (make sure to follow the label), they all work equally well to reduce the spread of BR. Maneb and mancozeb are not labeled for BR (rather, Alternaria leaf spot and downy mildew), but have reportedly worked well tank-mixed with copper for control of bacterial diseases in other crops. Actigard, a plant resistance inducer has performed similarly to copper bactericides in Cornell studies for minimizing development of black rot. Controlling the spread of black rot in the greenhouse can help to reduce disease in the field. When overhead irrigation is necessary, do so in the morning to minimize hours of leaf wetness. Avoid entering fields when foliage is wet. People, animals, and equipment can all spread BR bacteria throughout a field and into other non-infested fields.

Figure 1. Black rot on cabbage. Note V-shaped lesions on leaf margins. *Photo: Chris Smart, Cornell*

Figure 2. V-shaped lesions of black rot. Note, blackening of leaf veins. *Photo: Meg McGrath, Cornell*

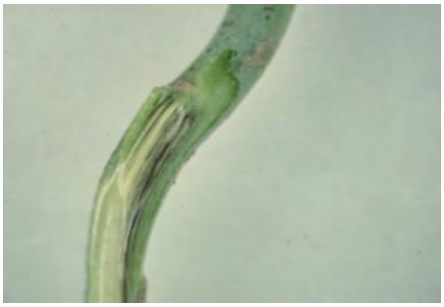


Figure 3. Blackening of veins due to black rot in stem of cabbage. *Photo: D. Langston, Univ. of Georgia*

The Many Looks of Botrytis Leaf Blight

Christy Hoepting, CCE Cornell Vegetable Program

Onion leaves can have a lot of necrotic spots, specks and splotches on them and it can be very difficult to figure out which ones are caused by Botrytis leaf blight (BLB). There is also a lot of variability in the appearance of BLB lesions.

BLB LESIONS:

These are the tiny pin-prick to pin-head sized yellow necrotic spots surrounded by silvery halos (Fig. 1). The silvery halo is often blotchy in shape. Sometimes the necrotic spot is barely visible, which can make identification of such versions of these lesions tricky to identify (Fig. 2). When BLB lesions get old, the center becomes sunken and often splits, it is still yellowish in color and remnants of the silvery halo can usually still be seen (Fig. 2). BLB lesions are most abundant on the outer leaves, usually on the underside of the leaf, and are distributed anywhere along the leaf. All of these lesions are counted when scouting to use for spray thresholds for BLB.

Figure 1. Classic or "Model" BLB lesions with tiny yellow necrotic spots surrounded by silvery halos. *Photo: Christy Hoepting, Cornell Vegetable Program*

Figure 2. Ten BLB lesions on an onion leaf.

Lesion No. 1,4,5,6 & 7 have tiny yellow necrotic centers.

In lesion No. 2 & 10, the necrotic center is not visible.

Lesion No. 8 does not have a distinct yellow center and blends into No. 7.

Lesion No. 9 is an old lesion with a sunken center and silvery halo still visible.

Photo: Christy Hoepting, Cornell Vegetable Program

BLB LOOK-A-LIKES:

Necrotic Spots from Chemical Injury: Although similar in size to BLB spots, necrotic specking caused by contact herbicide injury such as Goal is more white or greenish in color, are not surrounded by a silvery halo, and tends to be distributed in a patch in the part of the leaf that was originally exposed to the herbicide application (Fig. 3). Also, you will notice that a lot of the onions in the field have similar patches of flecking on the same leaf and part of leaf. Often the leaf is a bit distorted where chemical specking occurs, because the herbicide injury can interfere with normal growth.

Figure 3. Necrotic specking caused by herbicide injury is whitish-greenish in color. *Photo: Christy Hoepting, CVP*

Silver Streaking: Onion thrips feeding causes longitudinal silver streaking along the leaves, at first on the innermost leaves and eventually on all leaves (Fig. 4). As thrips pressure increases, leaves appear progressively white. Thrips alone do not cause any yellow spotting. Most often, the thrips insects can be found on the plants exhibiting damage, especially in the leaf axils.

Figure 4. Silver longitudinal streaking caused by onion thrips feeding. *Photo: Christy Hoepting, CVP*

Pelting Rain Injury: Wind-driven heavy rain can bruise the onion leaves resulting in silvery splotches (Fig. 5), which may be confused with BLB lesions, except that they do not have a yellow necrotic spot in the center. Also, the injury tends to be on the side of the leaves exposed directly to the rain, which will be the same across most plants in the field.

Figure 5. Silvery blotches caused by pelting rain. *Photo: Christy Hoepting, CVP*

Movento is Number One for Onion Thrips Control in Onions

Christy Hoepting, CCE Cornell Vegetable Program

Movento is "Number One" for onion thrips (OT) control in the sense that Cornell recommends it first in a sequence of products to control onion thrips. The reason that Movento is strategically placed first in the sequence is because it is weak against adults, which appear in higher numbers later in the season and it moves systemically more easily through a young plant. Movento is recommended for both direct seeded and transplanted onions and for both muck and upland onions*. Control of onion thrips in onions are now included in the Movento label (previously this use was only available in New York as an Emergency Section 18 label).

Cornell recommendation for early season thrips control:
1st spray: Movento 5 fl oz + penetrating surfactant @ 1.0 OT per leaf.

2nd spray: Movento 5 fl oz + penetrating surfactant 7-10 days after the first app if thrips reach 1 OT per leaf. If threshold is not reached again until 3 weeks later, avoid another app of Movento and continue with the next product in the sequence… more on the rest of sequence to follow in a proceeding issue.

The "Momentum" of Movento:
During the last couple of years, we have experienced that when Movento (plus penetrating surfactant** without Bravo***) is applied to young onions (pre-bulbing) at no greater than 1.0 OT per leaf at the beginning of the season that a single app can keep OT populations below 1.0 OT per leaf for 2 to 3 weeks! This is what we call "The Momentum of Movento" and it occurs about 25% of the time. The remaining 75% of the time, we see that two applications of Movento are needed in order to get a knockdown. We suspect that "The Momentum of Movento" is a function of the systemic activity of Movento being stronger in young plants, and that the double application is needed when plants start to get big (e.g. plants have 2 inch bulbs) and when more adult thrips occur in the population. Transplanted onions that are beginning to bulb or are about to bulb can be sprayed when OT are 0.7 to 1.0 OT per leaf at this time to hopefully capitalize on the "Momentum of Movento" before the plants/bulbs get too big. Cornell trials and grower experience have shown that when Movento is used later in sequence, it is not nearly as effective as when it is positioned first.

*Small-scale growers who do not wish to use Movento and where thrips populations have not developed resistance to pyrethroids, should start with a pyrethroid such as Warrior, or Lannate (a carbamate). The first application should be made at about 0.5 OT per leaf. If 7 days after the first spray, the number of OT is higher than 1 OT per leaf, switch to an insecticide with a different mode of action. Plan to save Radiant for use later in the season when thrips pressure is highest.

**Movento must penetrate the leaves to maximize effectiveness against thrips, so a penetrating surfactant must be included in the spray tank.

***In Cornell studies, when Radiant, Agri-Mek and Movento were combined with Chloronil 720 (same active as Bravo), which contains a spreader sticker, thrips control was significantly reduced by 12 to 35%.

Basil Downy Mildew in 2014: Prepare for a Challenging Summer

Meg McGrath, Cornell - Long Island

[Basil Downy Mildew (BDM) may have been found in WNY this past week. We are awaiting confirmation but all indications are that this is BDM. It spread quickly into a transplant house from outside sources and infected many seedlings being grown for outdoor production. ed. R. Hadad, CVP]

Downy mildew has started to develop on outdoor-grown basil during mid-summer every year in NY since 2008. This timing is thought to reflect how long it takes for the pathogen to hop northward via its wind-dispersed spores from south FL, where it survives over winter, through a succession of plants, similar to the cucurbit downy mildew pathogen. Neither pathogen can survive in soil. Basil downy mildew was first detected in the US in fall 2007.

This spring several greenhouse growers have contacted me for advice on managing basil downy mildew, and there have been many reports of downy mildew observed on basil plants for retail sale and on plants purchased by gardeners. This reflects the challenges of successfully managing this disease and suggests the other source of the pathogen, contaminated seed, has been important this year. In addition to LI, reports have come from AL, CA, CT, DE, FL, GA, IL, KY, LA, MA, MD, ME, MN, MO, NC, NJ, upstate NY, OH, PA, TN, VA, WI, WV, and several locations in Ontario. Some affected plants that I saw at a local garden center had newly developed spores on young leaves of otherwise very healthy-appearing plants, suggesting they no longer had adequate fungicide residue.

There is much concern about the potential impact on outdoor-grown commercial basil crops of downy mildew being present in gardens at the start of the growing season. This is reminiscent of the late blight pandemic of 2009, when widespread occurrence of this disease in commercial tomato and potato crops was associated with affected plants being purchased by gardeners in the northeast, except that basil plants with downy mildew have been found in a much larger geographical area and this disease is more difficult to manage organically! Both pathogens are very destructive to their host plants, produce an abundance of spores easily dispersed by wind, and can infect when humidity is high, not requiring wet leaf tissue as some other pathogens do. Basil is susceptible to downy mildew from emergence.

A fungicide program is recommended implemented on a preventive schedule due to the challenges of managing downy mildew in basil. Fungicides for conventional production include Ranman, Revus (label expansion just approved in NY), Quadris, and

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phosphorous acid fungicides (ProPhyt, Fosphite and K-Phite). When applying Quadris in NY the applicator must possess the approved FIFRA 2(ee) recommendation, which can be downloaded at http://magritte.psur.cornell.edu/pims/current/. Phosphorous acid fungicides are recommended used at a low to intermediate label rate in combination with another fungicide. Alternate among other fungicides to manage resistance. Products approved for organic production include Actinovate AG, Double Nickel, MilStop, Regalia, Trilogy, and OxiDate. An integrated program with applications applied more frequently than once a week is recommended with organic products.

Promptly destroy affected crops after harvest or when abandoned to eliminate this source of inoculum for other plantings. A sunny day is the best time to physically destroy an affected crop because the disturbed spores will be killed by UV radiation. Fortunately this pathogen cannot survive in soil.

More information about this disease plus images and links to monitoring pages are at http://vegetablemdonline.ppath.cornell.edu/NewsArticles/BasilDowny.html.

Please Note: The specific directions on fungicide labels must be adhered to -- they supersede these recommendations, if there is a conflict. Any reference to commercial products, trade or brand names is for information only; no endorsement is intended.

Being Prepared for Downy Mildew in Vine Crops

Robert Hadad, CCE Cornell Vegetable Program

As of July 2, NC has been experiencing the spread of DM across that state. Cucumbers, cantaloupe, summer squash, and acorn squash have been affected. When the winds blow out of the south, the DM will be moving northward and with the threat of a possible coastal tropical storm or hurricane next week, DM could make its way into the Northeast fairly quickly. Here are some excerpts from an article written last season by Meg McGrath, Cornell Plant Pathologist out of Long Island.

The most important component of an effective management program for downy mildew is an effective, properly-timed fungicide program. The key is to apply mobile fungicides targeted to the pathogen starting when there is a risk of the pathogen being present in your area. Mobile (or translaminar) fungicides are needed to manage the disease on the underside of leaves. Because these fungicides have targeted activity towards oomycete pathogens like downy mildew and Phytophthora blight, different fungicides must be used to manage other diseases such as powdery mildew.

FUNGICIDE PROGRAM

http://plant-pest-advisory.rutgers.edu/wp-content/uploads/2013/06/2013-FRAC-guidelines-for-CDM-and-PM_FINAL-mtm.pdf is a site listing available fungicides: 2013 Fungicide Resistance Management Guidelines for Cucurbit Downy Mildew and Powdery Mildew Control in the Mid-Atlantic & Northeast regions of the United States from Rutgers Vegetable Program. *(or check the CVP website, cvp.cce.cornell.edu/ for the complete article with fungicide listing).*

Alternate among targeted, mobile fungicides from different FRAC groups and apply with protectant fungicide to manage resistance development and to help avoid control failure if resistance occurs. Remember to comply with label use restrictions. The pathogen has demonstrated the ability to develop resistance to fungicides, thus a diversified fungicide program applied to resistant varieties when possible is critical for success.

WHEN TO APPLY FUNGICIDES

An important resource for determining when fungicide applications are warranted is the NCSU Cucurbit Downy Mildew Forecasting (CDM ipmPIPE) website at http://cdm.ipmpipe.org. The forecasting program monitors where downy mildew is currently active and predicts where the pathogen likely will be successfully spread and cause disease based on the current and forecasted weather conditions. The risk of downy mildew occurring throughout the eastern USA is forecast and posted three times a week (Mon, Wed, and Fri). Forecasts enable timely fungicide applications based on the risk of disease development. Growers can subscribe to receive customizable alerts by e-mail or text message. Information on the cucurbit hosts affected is also available. This is important because the pathogen exists as pathotypes that differ in their ability to infect different cucurbits. All pathotypes can infect cucumber; while only some can also infect melons and squashes. Success of the forecast system depends on knowledge of where downy mildew is occurring; therefore prompt reporting of outbreaks by growers is critical.

MANAGE DOWNY MILDEW EFFECTIVELY IN CUCURBIT CROPS

In summary, to manage downy mildew effectively in cucurbit crops:

1. Select resistant cucumber varieties,
2. Sign-up to receive alerts about downy mildew occurrence and routinely check the forecast web site to know where the disease is occurring and what crops are affected,
3. Inspect crops routinely for symptoms beginning at the start of crop development, and
4. Apply targeted fungicides tank-mixed with protectant fungicides weekly and alternate among available chemistries based on FRAC code, starting when there is a risk of downy mildew for the specific crop based on the forecasting program. Add new fungicides to the program when they become available; substitute new for older product if they are in the same FRAC group.

Note: The specific directions on fungicide labels must be adhered to — they supersede these recommendations, if there is a conflict. Some products mentioned are not yet registered for use on cucurbits. Check labels for use restrictions. Any reference to commercial products, trade or brand names is for information only; no endorsement is intended.

Top side view of DM on cucumber leaf.
Photos: Long Island Horticulture and Research Center

Underside view of DM on cucumber. Notice that the fungus starts within the vein margins of the leaf. Early in the morning, a grayish black fuzz can be seen which are spores developing.

CROP INSIGHTS

COLE CROPS

Generally, worm pressure is lower than expected for this time of year. But there seem to be a lot of cabbage butterflies (imported cabbage worm adults) flying around. With the heat, it is expected that insect pressure including diamondback moth, imported cabbage worm, onion thrips and flea beetles will build over the next few weeks. The hot weather and heavy rain events have also favored bacterial head rots, especially in Chinese cabbage, which is especially prone, as well as black rot – see article, page 3.

ONIONS

Onions continue to grow very well in this weather with some of the earliest transplanted onions pushing 3-inch bulbs already! Generally, Botrytis leaf blight continued to increase across the region with direct seeded onions noticeably having much higher levels of disease than transplanted onions. All fields should be sprayed for BLB at this point – Bravo 3 pts is a simple choice for early season BLB management in direct seeded onions. As we are coming into Purple Blotch and Stemphylium leaf blight (SLB) weather (hot and humid), the spray program for transplanted onions should include a fungicide for these leaf diseases such as Scala or Quadris Top and/or one of the SLB fungicides – see last week's article and fungicide cheat sheet. For BLB lesion identification – see article, page 4.

Although pressure has increased slightly since last week, onion thrips have not yet reached the spray threshold of 1.0 onion thrips per leaf throughout most of the region for direct seeded onions. ***Transplanted onions should be scouted this week as some fields are approaching the spray threshold,*** pressure is variable depending upon location and variety. Onion thrips reached the spray threshold a couple of weeks ago in upland onions and at influx sites along the edge of muck lands. In these situations, Movento has been working very well at controlling the thrips. Movento is Cornell's recommendation for the first spray for onion thrips – see article, page 5. See June 18 issue of VegEdge for scouting tips for both BLB and OT.

POTATOES

Late fields are emerging rapidly with the heat and drier weather, while many more fields are being hilled. See the *Late Blight Alert for Erie County and Western NY* in the Late Blight Risk section of this issue. Watch for potato leafhopper adults (PLH) if you did not use a systemic insecticide on seed or at planting - see last week's VegEdge, Crop Insights. Colorado potato beetle larvae have been observed on some early fresh market potatoes.

SWEET CORN

In the earliest sweet corn plantings ears are starting to fill out. Larvae of both European corn borer and corn ear worm have been found feeding in the silks and tassels. Preventative measures should be taken.

Corn ear worm in silk feeding on tip of corn. *Photo: Darcy Telenko, CVP*

European corn borer feeding on tassel. *Photo: Darcy Telenko, CVP*

Phytophthora Blight Showing Up on Cucurbits and Peppers

Darcy Telenko, CCE Cornell Vegetable Program

Phytophthora blight, caused by the water mold *Phytophthora capsici*, has started to show up on cucurbits and peppers in areas with known infestation. *P. capsici* will attack roots, stems, leaves, and fruit. Stem lesions have been found at the soil line causing the tissue to become discolored and collapse. A systemic wilting symptom can be observed in infected plants across a field. Fortunately the short-lived spores of *P. capsici* cannot be spread by the wind between or within fields. The spores can be moved through water long distances and may also be splashed to aerial parts or between plants during heavy or wind-blown rain. If possible rogue infected plants and dispose of culled fruit to reduce spread of spores in water within an infested field. A preventative fungicide schedule is needed for effective control. This program should alternate between fungicide groups for resistance management.

Phytophthora infection of fruit. *Photo: D. Telenko*

More information about Phytophthora blight can be found at http://phytophthora.pppmb.cals.cornell.edu/

Fact sheet on Phytophthora blight http://phytophthora.pppmb.cals.cornell.edu/images/resources/pcapbrochure.pdf

Information on resistant pepper varieties http://phytophthora.pppmb.cals.cornell.edu/images/resources/tolerantpeppers.pdf

Late Blight Alert - Erie Co. & Western NY

Carol MacNeil, CCE Cornell Vegetable Program

There is a late blight (LB) alert for all of Western NY: LB was confirmed in several potato fields in Erie Co. last week. All potatoes over 4" tall and all field tomatoes should be on a 5 – 7 day fungicide spray interval, depending on weather, DSS blight units accumulated and/or fungicide used. (See the chart and interpretation of using blight units (BU), below, to time sprays.)The Erie Co. samples were determined by Bill Fry's Cornell lab to be US-23, aggressive on both potatoes and tomatoes, and sensitive to mefenoxam fungicides (Ridomil, other labeled products). Note: mefenoxam is not a miracle product, though it is better than any other LB fungicide since it is fully systemic. Once 5% of foliage is infected with LB no fungicide can totally stop it. Mefenoxam and other LB fungicides are much more effective than protectant products like chlorothalonil, mancozeb and copper, however. Last week's wet weather was extremely favorable for LB development. But it takes several days for a new LB lesion/infection site to become visible. Check potato cull piles for re-growth now!

Right before he retired, Tom Zitter, Cornell, summarized the effectiveness of fungicides against LB: There are charts rating conventional and organic fungicides against many potato diseases, including LB, (pgs. 2-3) at: http://vegetablemdonline.ppath.cornell.edu/NewsArticles/Potato_Strategies_Combined.pdf (Note: The heading Tuberborne means effectiveness against tuber disease.)

There is a similar chart for tomato diseases, including LB, (pg 2) at: http://vegetablemdonline.ppath.cornell.edu/NewsArticles/Tomato_Strategies_Fungicide.pdf

Growers should have applied their first fungicide spray. Cornell plant pathologist Bill Fry's LB Decision Support System (DSS) forecast uses Simcast blight units (BU) to time sprays after the first application. BUs for the past week at the weather stations are listed. Predicted BUs for the next 3 days, based on the National Weather Service (NWS) forecast, are also listed. *Warning! Forecast BUs can change day by day, just like the weather!* For a susceptible variety the threshold for applying the next spray is 30 BUs. The chart assumes that chlorothalonil at the high rate was applied 6/24. Considering fungicide (loss) units (FU) as well as BU (FU not shown) some sites should be on a 5 day spray interval while at other sites a 7 day interval is adequate, depending on recent weather.

To make full use of the LB DSS, choosing your variety, your farm location, and the fungicides you are using, and seeing fungicide loss information (either FU or BU can trigger a spray), contact Ian Small, Cornell, ims56@cornell.edu to get a user name and password so you can set up your personal farm account on the DSS website. Ian, Abby Seaman (ajs32@cornell.edu), or Carol MacNeil (crm6@cornell.edu or 585-313-8796) can help you with set up and use.

***New* Late Blight Risk Chart, 7/1/14**

Location[1]	Blight Units[2] 6/25-7/01	Blight Units[3] 7/02-7/04	Location[1]	Blight Units[2] 6/25-7/01	Blight Units[3] 7/02-7/04
Albion	NA	NA	Lodi	22	13
Appleton	32	17	Medina	25	10
Baldwinsville	25	14	Penn Yan	28	11
Buffalo	28	16	Ransomville	25	16
Ceres	38	19	Rochester	29	10
Elba	42	16	Romulus	24	15
Farmington	25	16	Silver Creek	27	18
Gainesville	NA	18	Sodus	32	12
Geneva	20	13	Versailles	26	18
Kendall	NA	NA	Williamson	32	12

1 Weather stations. For more sites, and varietal susceptibility to LB: http://newa.cornell.edu
2 Passed Week Simcast Blight Units (BUs)
3 Three days predicted Simcast Blight Units (BUs)

LATE BLIGHT IS IN WNY

What potato and tomato growers need to do NOW

Meg McGrath, Cornell - Long Island

1. Inspect crops for symptoms. Focus on areas that might not have gotten good spray coverage. Also inspect high spots in a field as these can 'catch' LB spore clouds. *[Also check low spots and protected areas, as near trees, where conditions stay wet longer.]* See photos at: http://www.longislandhort.cornell.edu/vegpath/photos/index.htm and scroll down to Potato or Tomato LB, or call 585-394-3977 for print copies.
2. Report observations of late blight ASAP! Foliage/stems with symptoms are needed to determine what strain of LB is present, which determines sensitivity to mefenoxam fungicides, aggressiveness on tomatoes vs. potatoes, and mating type (if both types occur together spores able to overwinter may be produced). *[Contact Carol MacNeil at 585-313-8796, John Gibbons at 585-394-3977 x405, or other Cornell Vegetable Program staff.]*
3. Managing late blight when found. If there are small "hot spots" pull them out of the ground, put in a garbage bag, or drop in place in a pile, then cover with a tarp. If larger areas are affected kill with a fast-acting herbicide like Gramoxone. Reducing the amount of LB inoculum by destroying "hot spots" can greatly improve ability to manage LB in the rest of the crop. For affected fields/farms Revus or RevusTop is a good choice now while plants are actively growing. Previcur Flex is a good choice for protecting stem tissue, which is especially important with tomatoes. Other fungicides to consider include Ranman, Presidio (only tomatoes), and Gavel. Ridomil is not recommended unless the LB strain in the field is confirmed to be sensitive, and it should be applied only once because of concern that resistance will develop.
4. Protectant fungicides like chlorothalonil and mancozeb provide good control applied on a preventive schedule and so are good choices for crops where LB has not been found. *[Approved copper fungicides are recommended protectants on organic farms.]*

Edited by C. MacNeil, CVP

WNY Sweet Corn Trap Network Report

Marion Zeufle, NYS IPM Program

Seventeen sites reporting this week. European corn borer (ECB-E) and ECB -Z were caught at five sites with a high count of 12 ECB-Z at Penn Yan. Fall army worm was caught at three sites this week and corn earworm (CEW) was caught at two sites. CEW counts were low enough at the two sites to not require a spray. Still no western bean cutworm (WBC) caught this season.

WNY Pheromone Trap Catches: July 1, 2014

Location	ECB-E	ECB-Z	CEW	FAW	WBC
Baldwinsville (Onondaga)	1	0	0	0	0
Batavia (Genesee)	0	0	0	1	0
Bellona (Yates)	0	0	0	0	0
Eden (Erie)	0	4	0	1	0
Farmington (Ontario)	0	0	1	0	0
Hamlin (Monroe)	0	3	0	0	0
LeRoy (Genesee)	1	2	0	0	0
Lockport (Niagara)	NA	NA	NA	NA	NA
Pavilion	0	0	1	0	0
Penn Yan (Yates)	3	4	0	0	0
Spencerport (Monroe)	NA	NA	NA	NA	NA
Waterport (Orleans)	NA	NA	NA	0	0
Williamson (Wayne)	0	0	0	0	0

ECB - European Corn Borer
CEW - Corn Earworm
FAW - Fall Armyworm
WBC - Western Bean Cutworm
NA - not available

The first flight of ECB-E has peaked and the second flight will begin to emerge at about 1400 modified base 50 degree days. The degree days for reporting sites range from 686-934 modified base 50, with an average of 816. ECB and CEW larvae from eggs laid by moths during the peak flight will still be found in emerging tassels. Continue scouting emerging tassels (threshold 15% infested plants) for larvae, and the ear zone in silk stage fields (5% threshold) for small larvae and egg masses. While scouting two separate fields today, I observed both ECB larvae and damage in the tassels as well as FAW damage on leaves.

Fall Armyworm feeding damage.

Average corn earworm catch			
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.

Weed of the Week

RAGWEED

Darcy Telenko, CCE Cornell Vegetable Program

Common ragweed (*Ambrosia artemisiifolia* L.) is summer annual with erect, branched stems. It is a common weed in most cultivated crops and is distributed throughout North America. Cotyledons are dark green and spatulate in shape (rounded at tip and narrowed to base). Youngest leaves are opposite becoming alternate by the fourth node. Leaves are distinctively deeply cleft on margins with rounded or slightly pointed lobes. Leaves can be hairy to nearly smooth. Small green, inconspicuous flowers produce wind-dispersed pollen. Ragweed pollen is a primary cause of hay fever (an individual plant can produce over 1 billion pollen grains). Ragweed is monoecious meaning male and female flowers are produced in separate heads. Male flowers are found in racemes (elongated inflorescence in which the stalked flowers arise) at the top of the plant, while female flowers are in axils of upper leaves and branches. One plant can produce between 32,000 to 62,000 seed. Ragweed seed requires a dormancy period before germination which occurs between May to June. Seed can survive in soil for many years.

Triazine-resistant ragweed has been documented in New York. Glyphosate (Roundup) resistance is found in both common and giant ragweed in a number of mid-western states. Rotating herbicide mode of action, using effective combinations from different groups, and implementing cultural management strategies will help control existing resistance issues and minimize the development of future ones.

Control ragweed with preemergence herbicides to reduce competition with crops and provide flexibility in timing of POST emergence herbicides. Preemergence surface applied herbicides with good to excellent ragweed control in vegetable production are AAtrex, Karmex, Princep, Pyramin, Sandea, and metribuzin. There are a number of herbicides with excellent postemergence activity on ragweed applied before plants exceed 4 to 6 inches tall including AAtrex+oil, Basagran, Clarity, Gramoxone, Impact, Laudis, Lorax, Reflex, Roundup, Sandea/ Permit, metribuzin, Stinger, and 2,4-D. See product label for specific crop uses.

UPCOMING EVENTS

Muck Donut Hour

8:30 - 9:30 AM
July 8 | July 15 | July 22 | July 29 | August 5 | August 12
Elba muck, corner of Transit and Spoilbank, Elba 14058

Meet with Cornell Vegetable Program Specialist Christy Hoepting every Tuesday morning to ask questions and share your observations.

July Walk & Talk Discussion Group

July 9, 2014 | 5:00 PM - 6:30 PM
Schindlbeck Farms, 7906 Kingsbury Hill Road, Franklinville 14737

A crop walk to discuss pest/disease/weed control and highlight cultural practices for crop management. For more info, contact Elizabeth Buck at 607-425-3494 or emb273@cornell.edu.

July Rolling Hills Discussion Group & Crop Walk

July 15, 2014 | 5:30 PM
Clearview Farm, 243 Faas Road, Palmyra 14522

Kurt Forman of Clearview Farm and the Cornell Vegetable Program staff will lead this crop walk and discussion. A potluck dinner will follow. For more info, contact Elizabeth Buck at 607-425-3494 or emb273@cornell.edu.

New York Vegetable & Field Crops Weed Science Field Day

July 16, 2014
8:00 AM - 11:30 AM - Vegetables
12:00 noon - 1:30 PM - NYSABA BBQ Lunch
1:30 PM - 5:00 PM - Field Crops
Robert Musgrave Research Farm, 1256 Poplar Ridge Rd, connects Rts 90 and 34B, Aurora

CCA and DEC Credits have been requested for both sessions. For more info, see last week's issue of *VegEdge* or contact Maxine Welcome: mw45@cornell.edu or 607-255-5439 (Veg), or Russ Hahn: rrh4@cornell.edu or 607-255-1759 (Field Crops).

Vegetable Pest and Cultural Management Field Meetings

6:00 PM - 8:00 PM
July 23 - Seneca County - Daniel Esh's Farm, 5839 Rt 96, Romulus 14541
July 25 - Yates County
July 31 - Orleans County
August 6 - Allegany County

This course (offered on several dates and at several different locations) will demonstrate pest management in fresh market vegetables in both field and greenhouse (high tunnel) vegetables; primarily for those growing for wholesale auction. A hands-on demonstration of weed, insect and disease identification in vegetables including management options such as inter-row cover crops, grafting and where appropriate, spray options will be used to educate growers. Judson Reid, Senior Extension Associate with the Cornell Vegetable Program will instruct participants and facilitate peer-based learning. Cooperating farms will be selected as the season progresses. Details on each topic will focus on field observations at these farms. DEC recertification credits have been requested. FREE! For a full agenda, visit the CVP website or call Judson at 585-313-8912.

Vegetable Disease Management - In Field Management Scenarios

August 4, 2014 | 6:00 PM - 7:30 PM
Eden Valley

Join us for field tours to talk about best crop production practices for managing and controlling vegetable diseases. There will be hands on demonstrations on identifying pests and scouting. Info will be provided for conventional and organic growers. 1.5 DEC recertification credits will be available. FREE! For the full agenda and more details, visit the CVP website or contact Darcy Telenko at 716-697-4965 or dep10@cornell.edu.

2014 Elba Muck Onion Twilight Meeting

August 7, 2014 | 5:30 PM - 8:30 PM
Mortellaro & Sons, 6550 Transit Rd, Elba 14058 ***(starting at Mortellaro's Red Shop in the Elba Muck Land)***

An in-field meeting with an update on onion research. Main topics will include onion thrips management, onion fungicide demonstration featuring Stemphylium leaf blight, and demonstration of managing perennial sowthistle. 2.0 DEC recertification credits will be available. Contact Christy Hoepting at 585-721-6953 or cah59@cornell.edu for more details.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 6/24 - 6/30/14

Location	Rainfall (inch)		Temp (°F)	
	Week	Month June	Max	Min
Albion	NA	NA	NA	NA
Appleton, South	0.42	3.37	87	57
Baldwinsville	1.87	3.43	88	59
Buffalo*	0.96	3.80	86	62
Ceres	2.84	6.22	85	57
Elba	0.70	4.47	84	55
Farmington	0.96	3.11	87	56
Gainesville	0.65	2.23	85	54
Geneva	1.44	3.23	88	58
Kendall	NA	NA	NA	NA
Lodi	0.70	3.83	88	57
Penn Yan*	1.20	3.50	89	60
Ransomville	0.40	2.19	87	59
Rochester*	1.07	2.13	90	60
Romulus	0.12	0.67	88	59
Silver Creek	0.67	1.46	88	60
Sodus	2.08	3.73	88	54
Versailles	0.84	NA	87	58
Williamson	0.97	3.03	88	56
Wolcott	NA	NA	NA	NA

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 — June 30, 2014

Location	2014	2013	2012
Albion	NA	851	946
Appleton, North	679	716	868
Baldwinsville	920	869	1008
Buffalo	862	930	1025
Ceres	762	725	796
Elba	678	780	996
Farmington	852	797	913
Gainesville	680	933	867
Geneva	869	841	991
Kendall	NA	NA	NA
Lodi	897	974	NA
Penn Yan	918	911	1010
Ransomville	770	726	941
Rochester	936	957	1029
Romulus	878	895	NA
Silver Creek	794	876	957
Sodus	805	739	890
Versailles	826	892	943
Williamson	740	840	969
Wolcott	NA	NA	NA

* Airport stations

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

Cornell University
Cooperative Extension
Cornell Vegetable Program

480 North Main Street
Canandaigua, NY 14424

VEGEdge

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

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