Verticillium Wilt is caused by a soilborne fungus with multiple strains that attacks many crops. Once a plant is infected there is no rescue treatment.

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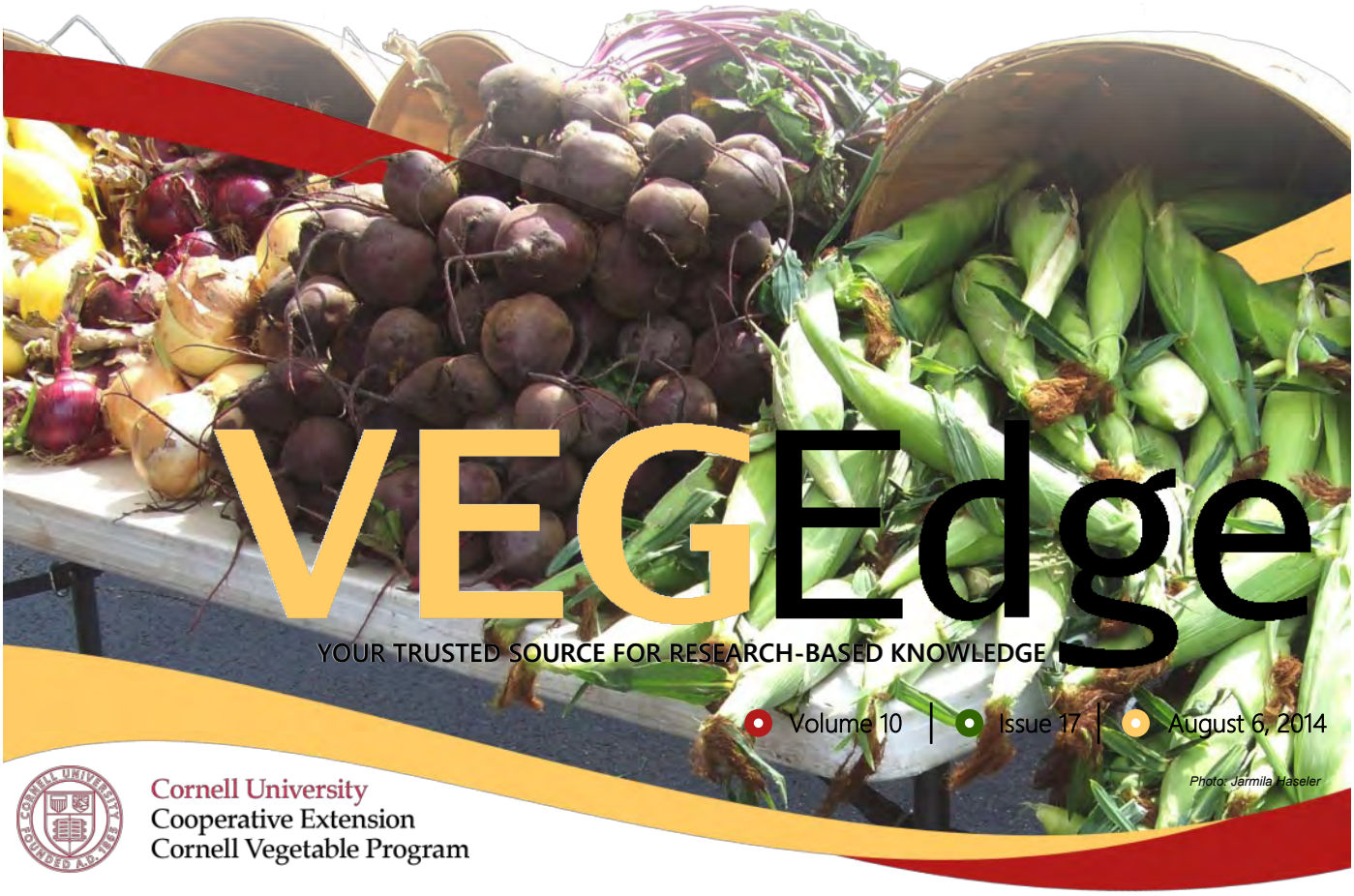

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 10 | Issue 17 | August 6, 2014

Photo: Jarmila Haseler

Cornell University
Cooperative Extension
Cornell Vegetable Program

Verticillium 2014

Judson Reid, CCE Cornell Vegetable Program

Verticillium Wilt has been observed on multiple crops in the last two weeks; **eggplant, tomato, zucchini, cantaloupe, watermelon, strawberries and raspberries!** This is a soil-borne fungus with multiple strains that attack many different crops. It is generally associated with wet soils, and is favored by cooler soil temperatures.

Eggplants are among the most susceptible crops. The characteristic mottling of foliage can often be found in otherwise healthy plantings. Damage to eggplant may be moderate and sporadic, however

Verticillium Wilt. *Photos: Judson Reid, Cornell Vegetable Program*

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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.

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.

Cornell University
Cooperative Extension
Cornell Vegetable Program

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The next issue of VegEdge will be produced August 13, 2014.

Ontario County growers in Stanley, NY (near Geneva) were hit hard by hail the morning of July 31. The NYS Agriculture Experiment Station suffered damage as well. Leaves were torn apart by the hail, leaving them susceptible to disease (see cabbage photo above, courtesy of Jim Ochterski, CCE Ontario). Fruit was damaged as well (see pumpkin photo on right, courtesy of WHEC News 10 Rochester).

continued from cover - Verticillium 2014

with melons vines collapse causing complete loss. With all affected crops the wilt strikes when fruit is being filled.

Verticillium can easily be confused with Fusarium Wilt, another fungal disease. Management will not differ significantly between the two. Fungicides are not recommended, as the disease is wide spread and can produce sturdy overwintering spores. The disease is long lived in the soil, which leads us to recommend extended rotations of a minimum of 3 years for affected fields.

Problems are vexing this year as symptoms occur in fields that have not seen susceptible crops in recent years. The wide spread geography of 2014 Wilt across a spectrum of management approaches indicate that soil temperatures must be favoring infection. **Once a plant is infected there is no rescue treatment.** Along with rotation, varietal resistance is a key preventative technique. Tomato growers have a number of options (see table), noted with V in catalogs for Verticillium resistance. Fusarium resistance is noted with a capital F. There are several races of both fungi.

Determinate	**Indeterminate (suitable for GH/HT production)**
Mountain Majesty	*Panzer*
Primo Red	*Geronimo*
Red Deuce	*Trust*
Red Mountain	*Rebelski*

On a final note growers in tunnels and greenhouses may consider the use of grafting onto resistant rootstock as a Verticillium management tool. An online guide, including an instructional video can be found at: http://bit.ly/1lZ12F0 This approach is mainly for tomatoes, although we share some of work with grafted eggplant here: http://bit.ly/1pH87LI The CVP is conducting a grafting trial with determinate tomatoes again this year and offers an opportunity to tour our research plot on August 29 (see description below). This meeting has limited space and will sell out. Sign up soon.

CVP Research Update Meeting

Research Updates: Grafting, Living Mulch & More

August 29, 2014

6:00 PM - 8:00 PM

Maple Lane Produce (Nelson Hoover farm)
3039 Bath Rd, Penn Yan 14527

This meeting will provide an update on several Cornell Vegetable Program research projects:

Living mulch as an alternative weed control method in plasticulture vegetables – For three years we have examined the possibility of sowing a cover crop between rows of vegetables on plastic mulch. This year we are growing peppers between cover crops of barley, rye, clover and compost. Come learn about how these methods affect weed populations and crop yields.

Grafting of determinate tomatoes – High tunnels can increase tomato yield, quality and market window; but after several years of production result in degraded soil conditions. Grafting allows us to overcome diseases such as Verticillium and nematodes. This trial also has valuable lessons on Brown Leaf Mold management with resistant scions.

Container production of tunnel tomatoes – Another approach to solve the issue of degraded tunnel soil is the use of containers such as bags or pots. We are looking at 3 different pot sizes and manufacturers.

Due to space limitations this meeting is capped at 30 attendees. Register by phone with Karen Gavette at 315-536-5123. Cost is $20 per person.

Weed of the Week

GREEN AND GIANT FOXTAIL

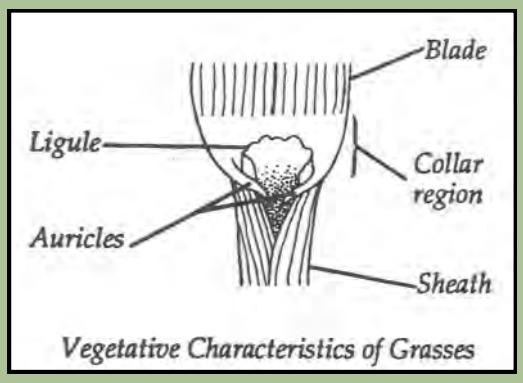
Darcy Telenko, Cornell Vegetable Program

Green foxtail (*Setaria viridis*) is a summer annual grass. It has a fibrous root system and reproduces by seed. Seedlings of green foxtail have a smooth or hairless leaf sheath with hairy margins. Leaf blades are hairless with membranous ligule that is short and fringed with hairs (see drawing of vegetative characteristics of grass). Leaf blades are flat and usually less than 6 inches long and 1/8 to 1/2 inch wide and smooth. Sheath is closed, with a hairy margin near mouth otherwise hairless. Green foxtail stems are erect, bend at nodes and may be branched at the base. The seed head is cylindrical, tapering to the tip and 1 to 6 inches long with 3 or less bristles per spikelet.

Giant foxtail (*S. faberi*) is the larger than green foxtail. Seedlings and mature plants have numerous short hairs on the upper surface of the blades and on margins of the sheath. Its ligule is fringed and membranous. Giant foxtail leaf blades are 4-12 inches long, 1/10 to 8/10 inches wide, and hairy on the upper surface only. The seed head is a cylindrical, nodding spike 2-8 inches long with 3-6 bristles below each spikelet.

A multi-faceted approach using cultural and chemical tools is needed for foxtail management since seed can germinate over the entire summer. Most preemergence surface applied and preplant-incorporated herbicides provide good to excellent control of foxtail. Overtime these herbicides may lose their effectiveness reducing their ability to control foxtail that germinates later in the season and can cause problems in fields that are planted early. Post-emergence herbicides that have good to excellent activity on foxtail include Aatrex+oil, Assure II/ Targa, Fusilade, Gramoxone, Impact, Laudis, Matrix, Poast, Select, Roundup, and metribuzin.

A= Seed head, ligule and seedling of green foxtail. B= Seed head, ligule and seedling of giant foxtail, ligule and seed head of green foxtail.
Photos courtesy of Weed Identification Guide, Southern Weed Science Society



From the Grass and Grasslike Weed Vegetative Key, C. Diane Anderson, and other Weed Science Extension Specialists, University of Illinois Cooperative Extension Service

Pest Management for Sustainable Season Extension

Having trouble with pests in your greenhouses and high tunnels? Interested in learning more about using biological control to manage them? Read SARE's new fact sheet, *Sustainable Pest Management in Greenhouses and High Tunnels*, to learn how beneficial insects can protect crops in season-extending structures and enhance the sustainability of your operation.

Download the fact sheet now.

SARE-funded researchers at Cornell University found that with a combination of controls, greenhouse and high tunnel pests could be managed effectively and, in some cases, eradicated.

Highlights of 23 New York case studies include the development of an effective combination of parasitic wasps (*Aphidius colemani* and *Aphidius ervi*) to eradicate an aphid infestation on winter greens and peppers. And predatory mites (*Amblyeius cucumeris*) used in conjunction with minute pirate bugs (*Orius insidiosus*) helped eradicate thrips on cucumbers. Researchers also found that the two-spotted spider mite was effectively managed by applying a parasitic mite (*Phytoseiulus persimilis*) on eggplant and strawberries. The Nile Delta wasp (*Encarsia formosa*) helped manage, and in some instances, even eradicate whiteflies on tomatoes.

The fact sheet includes an introduction to biological control, along with photos that can be used to identify pests and their associated crop damage. It also provides specific how-to information on scouting for pests along with detailed release information, including optimal temperature, quantity of natural enemies and timing of release relative to pest populations. Management strategies for control agents, such as predatory mites and parasitic wasps, and a supply list for obtaining biological control agents are also found in the fact sheet.

Late Summer is a Good Time to Control "Deep-Rooted" Perennial Broadleaf Weeds

Russell R. Hahn, Section of Soil and Crop Sciences, Cornell

All perennial weeds can be troublesome, however "deep-rooted", creeping perennial broadleaf weeds such as field bindweed, hemp dogbane, horsenettle, and common milkweed are among the most difficult to control. Like annual and biennial weeds, these perennials reproduce by forming seed. In addition, they spread by rhizomes (underground stems). Buds or growing points are found all along these underground stems. Effective control programs must control newly germinated seedlings and minimize the ability of these underground buds to produce new above ground shoots. Between-cropping applications of translocated herbicides during late summer or early fall have proven more effective than other programs for control or suppression of these perennial broadleaf weeds.

Rhizomes are Key to Survival

Rhizomes are the key to the survival of these perennial broadleaf weeds since they serve as a storehouse for food reserves (carbohydrates). It is these food reserves that allow these plants to survive winter. In the spring these creeping perennials draw on these reserves to make new growth. During this period of vegetative growth, carbohydrate movement is mainly upward in the plants. The depletion of food reserves continues until the plants reach full leaf development and flower bud formation in mid- to late summer. At this time, these plants have the maximum leaf area and the lowest level of carbohydrate reserves that they will have all season. After flowering, they start moving carbohydrates from the leaves into the rhizomes in preparation for winter. Effective chemical control of established patches of these perennial weeds takes advantage of this food storage period to move translocated herbicides down to the underground buds or growing points.

Translocated Herbicides

Translocated herbicides are the key to chemical control of "deep-rooted" perennial broadleaf weeds. Translocation refers to the movement of substances from one place to another, such as the movement of herbicides in plants. Herbicide movement in plants may follow the pathway of sugars formed during photosynthesis and/or the pathway of water that us absorbed by plant roots. Perennial weed control is most dependent on herbicide movement with the manufactured sugars. These sugars move out of the leaves to areas of rapid growth (growing points). Herbicide translocation to the growing points on the underground stems is most rapid and most effective when large amounts of sugars are being moved to the rhizomes. This usually occurs after full bloom in late summer and fall. Since 2,4-D, dicamba (Banvel, Clarity, etc.) and glyphosate (Roundup, etc.) are readily translocated from leaves into underground structures of perennial weeds, these herbicides can be effective in controlling or suppressing these weeds.

Between-Cropping Applications

Between-cropping herbicide applications are simply those that are made: 1) after harvesting one crop, 2) before killing frost, and 3) before planting the next crop. Situations that meet these requirements include fields where small grains (not seeded to legumes) or certain vegetable crops (peas, early sweet corn, etc.) have recently been harvested, and where the next crop won't be planted until fall (small grains) or until the next spring. These between-cropping situations provide the opportunity to use non-selective herbicides such as glyphosate or to use high rates of 2,4-D or dicamba that cannot be used safely when crops are present. These herbicides should be applied when the weeds are actively growing. It may be necessary to allow the weeds to recover from damage done during crop harvest. Herbicide labels should be consulted to determine application rates for the targeted perennial broadleaf weeds. In all cases, tillage and other operations should be delayed for 7 or more days following application to allow time for herbicide translocation to the underground buds.

Rotational Crops

Glyphosate is inactivated upon contact with the soil so a variety of crops can be planted following the 7-day waiting period. Since dicamba, the active ingredient in Banvel, Clarity, and numerous other products, has residual soil activity, rotational guidelines must be followed to avoid injuring subsequent crops. Corn, soybeans, and all other crops grown in areas with 30 inches or more of annual rainfall may be planted 120 days after application of up to 4 pints/acre of dicamba products like Banvel and Clarity. Small grains may be planted if the interval between dicamba application and planting is 20 to 30 days (depends on which product is applied) per 1 pint/acre east of the Mississippi River. These waiting periods should exclude days when the ground is frozen. The waiting period for planting winter wheat or barley following late summer dicamba applications can be shortened by applying reduced dicamba rates in tank mixes with glyphosate or 2,4-D.

Between-cropping applications of translocated herbicides provide the best opportunity to suppress or control "deep-rooted" perennial broadleaf weeds, however, growers must act now to take advantage of existing situations or to plan a rotation that will allow such applications next year. Unfortunately, the typical dairy rotation of corn and perennial forages doesn't provide good opportunities for these between-cropping herbicide applications.

WNY Sweet Corn Trap Network Report

Marion Zuefle, NYS IPM Program

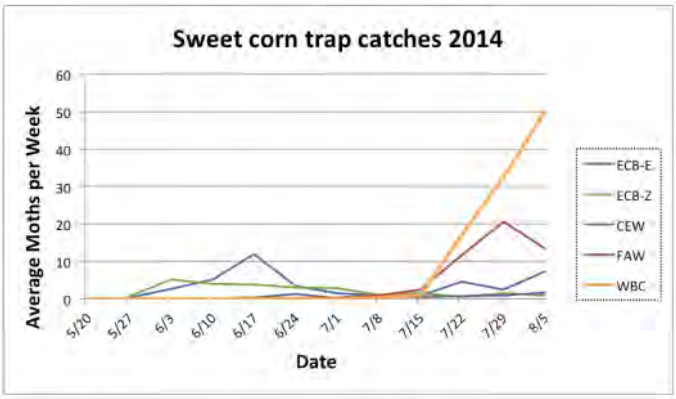
Twenty-one sites reporting this week with 12 sites reporting European corn borer-E (ECB-E). The Seneca Castle site had the highest count with 37 moths. Only four sites reporting ECB-Z. Corn earworm (CEW) was reported at 4 sites, with three of the sites over threshold indicating a need for a spray, please see the chart at the bottom of this page. Ten sites reporting Fall armyworm (FAW) but the average number has dropped from last week. Western bean cutworm (WBC) was caught at 18 of the 21 sites reporting, with a high count of 216 at the Eden site. It appears that WBC numbers are still increasing (see graph to the right).

Below is a graphical representation of moth emergence for the season. All reporting sites have been averaged to show the general trend for the 5 moth species for western NY from May 20 to August 5 (please see the map for site locations). Numbers for ECB-Z have been low for most of the season. ECB-E peaked on June 17th with a second flight beginning now. FAW numbers have been much higher this year with average trap catches of 20 moths 5 weeks earlier than last year. WBC numbers appear to be on the rise. In 2013 WBC peaked the first week of August, so we could begin to see a drop in trap catches after this week.

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.

Average sweet corn trap catches for all reporting sites, 5/20/14 - 8/5/14



WNY Pheromone Trap Catches: August 5, 2014

Location	ECB-E	ECB-Z	CEW	FAW	WBC
Baldwinsville (Onondaga)	4	0	0	4	2
Batavia (Genesee)	3	0	0	0	27
Bellona (Yates)	NA	NA	NA	NA	NA
Eden (Erie)	0	0	0	45	216
Farmington (Ontario)	14	0	0	0	1
Hamlin (Monroe)	5	0	3	0	0
LeRoy (Genesee)	1	0	0	0	5
Lockport (Niagara)	0	0	0	1	0
Pavilion	0	0	0	49	50
Penn Yan (Yates)	0	1	0	1	2
Seneca Castle (Ontario)	37	0	0	0	1
Spencerport (Monroe)	4	6	9	0	8
Waterport (Orleans)	0	0	0	1	17
Williamson (Wayne)	2	1	0	0	2

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

More Incidences of Downy Mildew Hot Spots Detected in Onions

Christy Hoepting, CCE Cornell Vegetable Program

More incidences of downy mildew (DM) hot spots were detected again this week in Elba, this disease has clearly been active and forecasted weather of night time lows in the 50s and day time highs not exceeding 80°F will continue to be favorable for the development and spread of this aggressive disease (Fig. 1). **All onions should be treated with a protectant fungicide against DM for the rest of the season.** These include mancozeb products, phosphorous acid products and Quadris. **Once DM has been detected (Fig. 2), the recommendation is to use a Ridomil Gold product (a.i. mefanoxam) + mancozeb.** Ridomil Gold Bravo SC can be applied every 7 to 14 days, up to three 2.5 pt applications per season. Ridomil Gold MZ can be applied in 14 day intervals with up to four 2.5 pt applications per season. Ridomil Gold should be alternated with a product containing a Group 11 fungicide, such as Quadris Top, Pristine, Reason or Tanos, plus mancozeb. These materials will also help to manage Purple blotch and possibly Stemphylium leaf blight,

Figure 1. Downy mildew hot spot in onions characterized by excessive leaf dieback where leaf tissue is invaded by secondary organisms that are black in color. Note, fungicides cannot save these onions, but could alleviate spread to onions not yet infected. *Photo: Christy Hoepting, CVP*

continued on page 7

which quickly invade DM infection sites. This fungicide program is to prevent further spread from the infected plants to healthy ones, so that the whole field does not go down. Expect original DM hot spots to worsen, despite fungicide sprays. Unfortunately, when conditions are favorable for DM, it can still cause a lot of damage to onions, despite the best fungicide programs. However, preventative management can go a long way for this disease.

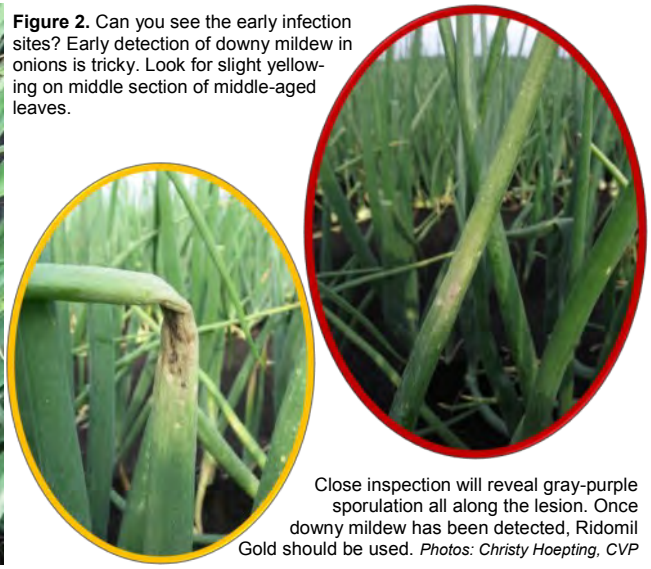


Figure 2. Can you see the early infection sites? Early detection of downy mildew in onions is tricky. Look for slight yellowing on middle section of middle-aged leaves. Close inspection will reveal gray-purple sporulation all along the lesion. Once downy mildew has been detected, Ridomil Gold should be used. *Photos: Christy Hoepting, CVP*

Late Blight Risk

Carol MacNeil, CCE Cornell Vegetable Program

Late blight (LB) has recently been confirmed in Wayne and Yates Counties, and is suspect in a few other Western NY/ Finger Lakes counties. This is not surprising since rain has fallen nearly every day in most areas for the past week. The LB Decision Support System (DSS) is calling for 4-5 days fungicide spray intervals for most locations (assuming a susceptible variety and the use of chlorothalonil). Use of a targeted LB fungicide like Previcur Flex + protectant, Revus Top, Ranman + protectant, or Gavel, only extends the spray interval by a day, 2 at most. This is intense LB pressure. Scout twice a week, especially in areas that stay wet longer from rain or dew. Quickly kill any hotspots with 5% or more foliage infected, plus a 30 ft. border around it, to protect other fields. Carefully read fungicide labels regarding the use of adjuvants. If a label says to use a non-ionic surfactant or does not recommend an adjuvant, then do NOT include a sticker in the spray tank! If wet fields are delaying your sprays consider filling spray tanks half full, or using a tractor with tracks. It's essential that all LB outbreaks be identified by strain. If the strain is US-23 then a mefenoxam fungicide (Ridomil, etc.) is recommended since it is fully systemic and works very well on sensitive strains, if applied before 5% of foliage is infected. Nothing else works better. Mefenoxam does NOT WORK AT ALL on insensitive strains, however. US-24, variably sensitive to mefenoxam, has been identified in two fields in Erie and Wyoming Counties this year. Everything else has been US-23. If you think you might have LB contact Carol MacNeil at 585-313-8796 or crm6@cornell.edu, John Gibbons at 585-394-3977 x405, or another Cornell Vegetable Program staff member, so we can get you a definite diagnosis and submit a sample to have the LB strain determined.

Late Blight Risk Chart, 8/05/14

Location[1]	Blight Units[2] 7/30-8/05	Blight Units[3] 8/06-8/08	Location[1]	Blight Units[2] 7/30-8/05	Blight Units[3] 8/06-8/08
Albion	NA	NA	Lodi	54	20
Appleton	38	18	Medina	47	18
Baldwinsville	54	20	Penn Yan	55	20
Buffalo	46	18	Ransomville	53	18
Ceres	47	19	Rochester	53	18
Elba	56	18	Romulus	35	17
Farmington	53	18	Silver Creek	27	18
Gainesville	NA	NA	Sodus	54	19
Geneva	46	19	Versailles	20	18
Kendall	44	18	Williamson	55	19

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)

LB DSS Users: If you are not getting Alerts or Reports on both blight units and fungicide units you may need to designate your variety and the date of first potato/tomato foliage emergence (use May 15), or you may need to input your most recent spray. If few blight units have been accumulating at the weather station you are using, in spite of the rainy weather, click on Get Reports on the DSS website, then Weather Report. The relative humidity (RH) should be reaching nearly 100% regularly. If it doesn't the RH sensor may be failing. If it is your own weather station contact Rainwise rep Lonnie at 800- 762-5723 Ext 106. If it is not your weather station then select the next nearest station under Observed Weather Station at the bottom right of the DSS Input page. Finally, if you need assistance with the DSS contact Ian Small at ims56@cornell.edu or Carol MacNeil at crm6@cornell.edu or 585-313-8796.

CROP INSIGHTS

COLE CROPS

From Robert Hadad: Flea beetles are continuing to be a problem. Possible Swede midge damage has also been seen in a number of plantings all across the region. The damage is typified as a damaged or missing growing point with side shoots sprouting from down the stem. Cabbage, cauliflower, Brussels sprouts, and kale have been affected. Refer back to Christy Hoepting's posts on the CVP website for detailed information on this pest and its management.

DRY BEANS

More bacterial brown spot has shown up in dry bean fields, as well as white mold. Some growers are applying copper sprays for the bacterial disease but the continuous rains make it an uphill battle for control of spread. Once pin pods are common on beans the time has passed for white mold sprays to be effective. Note regarding certified seed: Disease certification means that bean seed fields have been walked by inspectors to look for any signs of disease, which would eliminate the field for certification. Samples of seed are tested for any sign of disease, which would also eliminate the lot from certification. Certified seed is not disease-free seed. It is seed with minimal, if any, undetectable disease with accepted testing procedures. The extremely wet weather means, however, that if even 1 in 10,000 seeds are infected, then disease can spread through a field with windblown rain, water running down the rows and splashing onto plants, or with equipment or even animals moving through a field. There are yellowing, dying spots in some fields where the most rain fell. Beans range from having pin pods to pods that are filling.

FRESH MARKET VEGETABLES

Rain, Rain Go Away! High humidity and moisture conditions continue to promote favorable conditions for many vegetable diseases. In particular, the soilborne pathogens are very active, including *Phytopthora capsici* (Phytophthora Blight of Cucurbits, Pepper, Tomato, and Eggplant), *Sclerotinia sclerotiorum* (white mold in tomato, pepper, and Sclerotinia rot of cabbage), and *Verticillium albo-atrum* (Verticillium wilt of tomato and eggplant – see cover article). In areas where Phytophthora blight is an issue we are seeing splash dispersal of the spores on leaves and fruit causing spots and rotting to occur. This disease is not wind dispersed and will only move through the movement of infested soil (equipment and people) or through water.

ONIONS

Heavy rainfall last week followed by more rain over the weekend has left several wet spots in onion fields with excessive leaf dieback and tip burn, yellowing and loss of turgor due to the plant roots suffocating in saturated soil (Fig. 1).

Generally, onion thrips increased this week and have become highly variable with some fields having very high numbers while in others, barely a thrips could be found. Scouting can go a very long way towards making thrips management decisions this year. With the increased stress of saturated soils, and simply that "it is time", tip burn increased this week and along with it, incidence of Stemphylium leaf blight (SLB). Botrytis leaf blight continues to drop and fungicide programs need to focus on SLB/Purple Blotch and DM for the rest of the season. The "Cornell Onion Fungicide Cheat Sheet" is available on the CVP website (http://cvp.cce.cornell.edu/submission.php?id=231&crumb=crops|crops|onions|crop*20). The "strategic management of onion thrips" decision chart is available on the CVP website http://rvpadmin.cce.cornell.edu/pdf/submission/pdf238_pdf.pdf

Figure 1. In foreground, onions in saturated soil display leaf yellowing, loss of turgor (drooping), excessive Tipburn and outer leaf dieback compared to healthy onions in the background. *Photo: Christy Hoepting, CVP*

Hope to see you at the Elba Muck Onion Twilight Meeting this Thursday, August 7th at Mortellaro's Red Shop. Dinner at 5:30 pm, educational program begins at 6:00 pm sharp. Meeting is free, 2.0 DEC and CCA credits each. Focus will be on management of perennial sow thistle, identification of Stemphylium leaf blight and strategic management of onion thrips.

POTATOES

While a few fields are going down with maturity, spots in other fields are yellowing from excess soil moisture. Tuber disease is likely if the soil in the hill is saturated for more than a day. Growers have been doing their best to get through fields to apply fungicides for late blight. Hotspots of aphids are beginning to show up as systemic, at-planting insecticides wear off. Winged aphids may drop into a field while flying by, especially near windbreaks where the wind speed slows. Scout your fields to detect aphids before an infestation spreads and grows. Examine both surfaces of a recently fully expanded leaf on 5 plants in different rows at 10 spots in a field (50 leaves). A hand lens is recommended so you don't miss the very tiny youngest aphids. Count all winged and wingless aphids. From tuber initiation until 2 weeks before vine kill the treatment threshold is 200 aphids on 50 leaves. If you did not use a Neonicotinoid insecticide (imidacloprid, thiamethoxam or acetamiprid) previously on the crop then materials with those systemic active ingredients will work well for aphids, as well as any Colorado potato beetles and potato leafhoppers present. If you did use a Neonicotinoid insecticide previously then you should not repeat it. Note also that pyrethroid insecticides may select strongly for resistance in aphids. Beleaf and Fulfill are two aphid-specific insecticides

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not related to other commonly used materials in potatoes. For all the recommended choices for aphid control in potaotes go to: http://veg-guidelines.cce.cornell.edu/24frameset.html Click on Insects, then Aphids.

PROCESSING CROPS

The general story is too much rain across the region leaving crops sitting in waterlogged soils. Blowing rain and in some cases hail, coupled with long periods of moisture increase the risk for diseases in all crops. Adding insult to injury, sprayers cannot get into muddy fields. Hopefully, we will get the stretch of dry weather predicted later this week. Harvest equipment has also struggled with getting through muddy fields. Good soil health and reduced tillage (with deep ripping) are showing their benefits this year. Consider attending the Aug 19th Soil Health Meeting in Stafford, NY (see dates section).

Lima Beans – Diseases are showing up on leaves in some fields. Samples have been collected and it is not certain whether these are bacterial or fungal pathogens as both have been isolated. Lima beans are susceptible to the *Pseudomonas* sp. bacteria that cause bacterial brown spot and halo blight in snap and dry beans. They are also susceptible to various fungal diseases. Other concerns are Phytophthora blight (see last week's Veg Edge) and white mold. A challenge in lima beans is that they flower over a long period, making for a lot of infection sites (dying blossoms) for the fungus that causes white mold. Labeled fungicides for white mold in lima beans in New York include: Endura (*boscalid*), Rovral (*iprodione*), Switch (*cypronil + fludioxonil*), and Topsin M (*thiophanate-methyl*). Endura and Switch are also good choices for controlling leaf spots caused by fungi. However, copper sprays should be used for bacterial leaf spot.

Snap Beans – Bacterial diseases continue to show up in snap and dry beans. See the cover article with photos in last week's VegEdge. *From C. MacNeil, Cornell Vegetable Program*: Copper sprays can reduce the spread of bacterial disease, which is spread by wind-blown rain, and by sprayers, cultivators, etc. driving through the beans when they're wet from rain or dew. Unfortunately copper sprays need to be applied weekly, or before the next rain after a spray. Drive through clean fields, parts of fields, before driving through your infected beans, and wash the equipment to remove bean debris afterwards.

SWEET CORN

Crop still looking good but scouting is essential to keep an eye on staying ahead of worm feeding. Trap counts are climbing again especially for ECB and Western bean cut worm – see the sweet corn trap network report, page 6.

In some areas, aphids in sweet corn have been a problem in the past and we are seeing the beginning of aphids moving into fields this week.

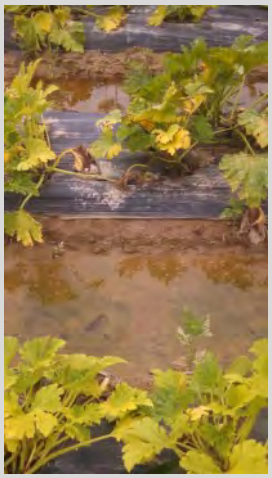
TOMATO

Bacterial speck has been found in field and high tunnel tomatoes. Early blight and Septoria leaf spot continue to been found. Unconfirmed reports (awaiting lab results) of late blight have been discovered in south western Monroe County and in Genesee.

VINE CROPS

Cucumber beetles have started to build up in numbers in some locations while numbers are dwindling in others. Plantings of melons and cucumbers where beetle control was tough, we are starting to see bacterial wilt showing symptoms. The symptoms start off by having vines start to wilt from the tips and move back toward the main stem. This is caused by bacteria clogging up the stems restricting water taken up by the root to make it out to the vines. Some or all the vines will become infected causing big losses. The time for action was when the beetles first came into the fields.

Striped cucumber beetle damage to melons. *Photos: Elizabeth Buck, Cornell Vegetable Program*



Summer squash field under water. *Photo: Robert Hadad CVP*

The weather has really beaten up many plantings of squash, melons, and cucumbers. Wet soils have caused problems with nutrient availability. Deficiencies in N and Mg have been seen frequently showing yellowing and mottling of leaves as well as poor fruit set. Poor aeration has also responsible for stunting of plants and killing roots.

Aphids have started to show up in some vine crop plantings as well. Watermelons and winter squash are attracting both green peach and black aphids. Large numbers congregate on the backs of the leaves sucking plant juices. Leaves start to yellow and photosynthesis drops affecting plant growth, fruit set, and fruit size. Sooty mold also becomes a cosmetic problem on fruit near harvest.

Squash bugs and squash borers are becoming active. Some fields are seeing some large numbers of squash bugs hatching which will soon cause major leaf damage. It's not too late to knock them back though good coverage with a thick canopy requires thorough spraying.

Powdery mildew is creeping in so it is critical to keep ahead of it. When using biological controls like Actinovate, it is vital that leaf diseases are minor. It takes a little time for the Actinovate to become established and manage the PM effectively.

Downy mildew is still restricted to a couple of areas in MI and no new reports of the disease west of NY. DM has been moving up the East Coast with new reports across DE. KY and TN have had new reports as well so the disease is building to the south and south east of us at this point.

UPCOMING EVENTS

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.

Muck Donut Hour

8:30 - 9:30 AM
August 12 - *the last one of the year!*
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.

Organic Seed School

August 17, 2014 | 8:00 AM - 4:00 PM
Cornell University Homer C. Thompson Vegetable Research Farm, 133 Fall Creek Rd, Freeville 13068

Come learn from growers, breeders, and seed companies to better understand organic seed quality topics and how it affects your farm. Up to eight regional seed companies will present their new developments related to the needs of organic producers. A series of moderated group discussion sessions will focus on the issues surrounding organic seed quality and availability - bring your questions on organic seed and talk directly to the experts! Lunch and refreshments will be provided. Pre-registration is appreciated at the website http://goo.gl/zpR5UG. The $10 registration fee can be paid at the door. Contact Michael Glos at mag22@cornell.edu or 607-227-7793 with questions.

Improving Crop Production, Soil Health & the Environment

August 19, 2014 | 3:00 PM - 8:30 PM
Donn Branton's Farm, 6536 E Main Rd/Rte 5, Stafford 14143

Five innovative grower speakers, a nationally recognized soil health expert, and local staff will show and describe the benefits of improving the soil health on your farm. There will be equipment and displays to see. DEC and CCA credits will be available. Cost: $5 (pre-registered) or $10 at the door. For more information, to see the complete agenda, and mail-in pre-registration form, visit the CVP website at http://cvp.cce.cornell.edu/event.php?id=237. Questions? Contact Dennis Kirby, Orleans SWCD, at dennis.kirby@ny.nacdnet.net or 585-589-5959. Organized by USDA-NRCS, County SWCD, Cornell Cooperative Extension, and WNY Crop Management.

August Walk & Talk Discussion Group

August 20, 2014 | 6:00 PM
Simon Girod's farm, 11101 Fitch Farm Rd, Freedom 14065

This August crop walk will highlight pest and disease controls, with an emphasis on pro-active management. Cultural practices, as well as topics of interest to the group, will be discussed. This discussion group is free to join, and new growers are particularly encouraged to attend. Meetings are held on various farms in Allegany and Cattaraugus counties. Contact Elizabeth Buck at 607-425-3494 for more info.

Bejo Seeds Open House and Demonstration Trials 2014

August 26-27, 2014 | 10:00 AM - 6:00 PM
4188 Pre Emption Rd, Geneva 14456

View a wide variety of vegetable crops at Bejo's Research & Demonstration Farm. FREE! Lunch served August 26. RSVP to 315-789-4155.

Fresh Market Potato Varieties, Disease & Insect Management Meeting

August 28, 2014 | 5:30 PM - 8:30 PM
Williams Farm, Decker Rd, just west of Minstead Rd, Marion 14505

This meeting will include updates on late blight and other potato diseases, management of Colorado potato beetle and other insects, and the opportunity to see the 2014 Cornell fresh market muck variety and breeding line trial. CVP enrollees: $5 for first attendee/$10 for each additional attendee. Non-CVP enrollees: $15 per person. Pre-register to Angela Parr at aep63@cornell.edu, 585-394-3977 x426 by 8/22/14.

Cornell Vegetable Program Research Updates: Grafting, Living Mulch & More

August 29, 2014 | 6:00 PM - 8:00 PM
Maple Lane Produce (Nelson Hoover farm), 3039 Bath Rd, Penn Yan 14527

This meeting will provide an update on several CVP research projects. See page 3 for full details.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 7/29 – 8/4/14

Location	Rainfall (inch)		Temp (°F)	
	Week	Month July	Max	Min
Albion	NA	NA	NA	NA
Appleton, North	1.74	6.39	82	55
Baldwinsville	0.95	3.44	84	52
Buffalo*	2.17	5.44	82	54
Ceres	1.22	4.91	83	47
Elba	0.85	5.81	79	50
Farmington	NA	NA	82	51
Gainesville	1.57	4.96	83	49
Geneva	3.38	7.81	81	52
Kendall	2.14	4.33	81	57
Lodi	0.80	3.20	85	51
Penn Yan*	2.78	5.46	82	54
Ransomville	NA	NA	82	52
Rochester*	1.05	7.69	82	55
Romulus	NA	NA	81	52
Silver Creek	2.40	7.20	80	58
Sodus	1.37	7.76	82	53
Versailles	NA	NA	83	55
Williamson	2.88	6.57	81	52

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 – August 4, 2014

Location	2014	2013	2012
Albion	NA	NA	NA
Appleton, North	1297	1412	1681
Baldwinsville	1620	1652	1854
Buffalo	1529	1644	1933
Ceres	1340	1373	1523
Elba	1210	1433	1625
Farmington	1487	1512	1693
Gainesville	1186	NA	1606
Geneva	1522	1599	1835
Kendall	1490	1682	NA
Lodi	1665	1785	NA
Penn Yan	1618	1630	1851
Ransomville	1381	1347	1777
Rochester	1624	1703	1894
Romulus	1562	1671	NA
Silver Creek	1446	1599	1777
Sodus	1436	1443	1652
Versailles	1434	1586	1737
Williamson	1398	1611	1815

* 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

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

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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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