Cornell University Cooperative Extension

Eastern NY Commercial Horticulture Program

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Weekly Vegetable Update

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North Country—Clinton, Essex, northern Warren and Washington counties

Hot, humid weather arrived in the north this week. Most plants love it but humans are taking some time to adjust. May-planted spinach is bolting while corn and tomatoes are thriving. The next round of bugs is emerging led by Colorado potato beetles. If you didn't catch the overwintering adults you need to be right on top of the newly hatching larvae and stop them. If they get away from you, you'll be struggling the rest of the summer. As is this case with most larvae, the younger they are, the easier they are to kill. Check pages 296-301 of the Cornell Guidelines for the many control options for this important pest.

Attention: Late blight has been found on Long Island, in Western NY, and in PA. Please scout your potato and tomato fields regularly, apply protective fungicides, and contact us if you see anything suspicious.

With the burst of heat and dry winds this week, pay close attention to watering. A lot of moisture is lost through the leaves in this weather, especially by leafy plants. Most growers can easily recognize blossom end rot on tomatoes, but on peppers the dead patches often appear on the side of the fruit, rather than at the blossom end (see photo). Pick off any affected fruit, adjust your watering practices so plants receive adequate moisture and the next fruit that forms should be fine.

Capital District—Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, southern Warren and Washington counties

Right after last weeks' newsletter was sent, many areas in Eastern NY saw some severe weather with torrential rains and high winds. As has been the case with many of the severe storms we receive, the severest events were fairly isolated, but still left their mark. There were reports of over 6 inches of rain within a very short period of time that raised local creeks and rivers, quickly resulting in flooding, and in some cases soil erosion and field gullying. Already we have seen some *Phytophthora capsici* showing up in flooded pumpkin fields.

Later in the week, including today, we saw temperatures reach levels that shut many plants down (and heck, some people too). High tunnel growers are struggling to keep temps out of the 100's, which stress plants and stop ripening.

Mid-Hudson Valley—Columbia, Dutchess, Greene, Orange and Ulster counties

European Corn Borer larval feeding on stalks is high in many areas. Spraying before tassels have started to unfurl (see Chuck's article in last week's update for full explanation of when) is a waste of time and money. If the larvae are hidden in the whorl, and the chemical can't reach them (as the vast majority of what is in the chemical tool box is a contact-insecticide), there will be little to no efficacy. Wait until they are exposed by the ascension and opening of the tassel.

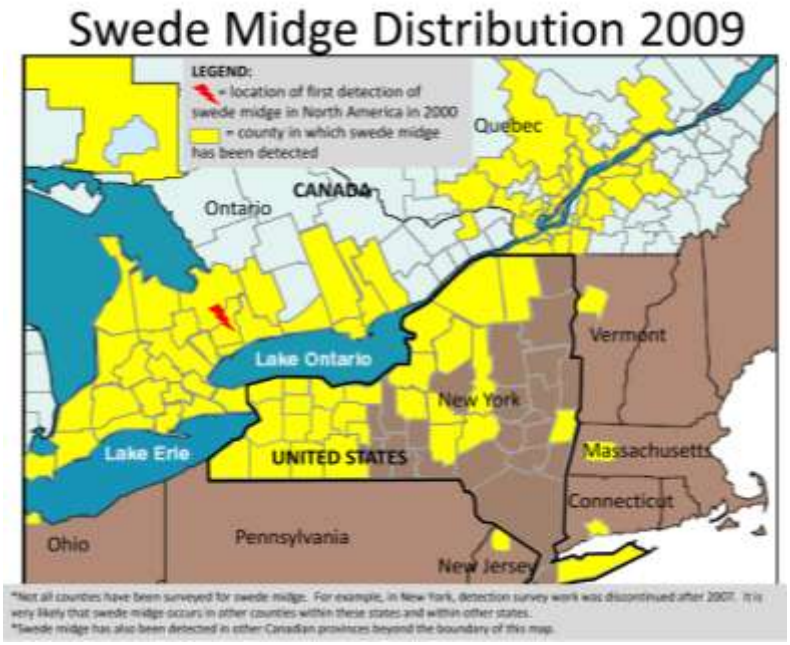
Damage from Downey Mildew, now that better control programs are in place, is on the sharp decline. Expect onions and greens to possibly show some tip-burn and other signs of high temperatures on Tuesday and Wednesday. Tip-burn is a sign of stress at lack of calcium at the most distant tissue. Usually, this is due to lack of water (water moves the calcium), not a lack of soil-available calcium. In high temperatures, cool-season crops have a hard time respiring AND growing, so the growing portion of the operation fails, calcium ceases to be translocated and then death occurs at the tips of leaves.

Missing Broccoli Heads

It's July – do you know where your broccoli heads are?

Is anyone having a problem with their broccoli as in the picture below? The plants look fine with full, healthy leaves. But when you get up close to see if the heads are getting ready to harvest, is there only cupped, distorted tissue where the head ought to have been? If so, you might have swede midge. This tiny pest causes big problems to all the crucifers and it's beginning to move into our eastern New York region.

The adult is a tiny fly, or midge, and its larvae feed on the growing points of crucifers (broccoli, cabbage, etc) causing distorted growth and 'blind' heads, where no head forms. Infested cabbage may form several small heads instead of a single head in response to the damage, and often brown, corky tissue will be noticeable as well.



Map showing locations of swede midge as of 2009.

Source http://web.entomology.cornell.edu/shelton/swede-midge/distribution.html

Swede midge is native to Europe and Asia and was first found in Canada in 2000, and then in the United States, in western NY, in 2004. It is now common in western and north/central New York and Burlington, Vermont as well as Renssalaer County, NY (see map). It was first seen in 2013 on one farm in Essex County, across Lake Champlain from Burlington, and just this week it was found on another Essex County farm.

We are very interested to know of any new locations where this pest is occurring. Please contact anyone on our team if you suspect you have it. Swede midge feeds on all crucifers including broccoli, cabbage, Brussels sprouts, cauliflower, kale and collards. Look for a full article on this pest in next week's issue but for now you can find information on swede midge at this site: http://web.entomology.cornell.edu/shelton/swede-midge/ *-ADI*

Sweet Corn

It appears that our first generation of European corn borers has ended with hardly any moths caught this week. As I said last week, **whorl applications of insecticides aren't very effective for ECB control**—your focus needs to be on corn that is starting to tassel. Larvae are quite protected in the whorl and it is difficult to get insecticides down in there to contact them unless you are using one of the translaminar materials like Coragen. Insecticide applications need to be timed to kill larvae before they bore into a new feeding location where again they will be protected from sprays. Examine 10 plants in a row, 5 or 6 times throughout a field and record the number of plants with feeding damage or those found with live larvae. The threshold for early tassel and tasseling sweet corn is 15% infestation. Once this threshold is obtained, it is recommended that two applications may be necessary: one when approximately 25-50% of the tassels have emerged, and again after 75-100% of the tassels have emerged, if the field is still over threshold. *-CDB*

European corn borer larvae leave holes across the leaf. When scouting, look for this telltale damage. *Image: MSU Extension.*

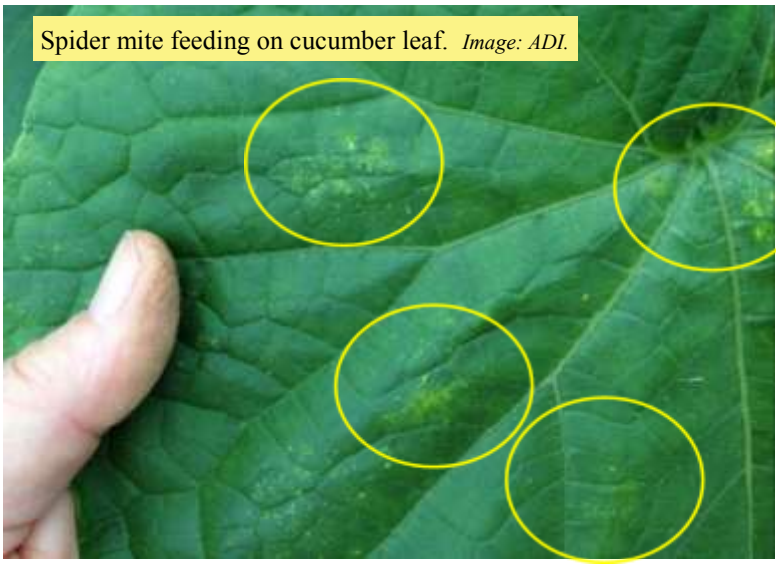
First Signs of Spider Mites

From a distance this cucumber leaf looks pretty healthy, with a nice dark green color. But look a little more closely and you can see the very first symptoms of spider mite damage. This cucumber is in a high tunnel and the warm, protected conditions there are ideal for spider mites. This population will explode in just a day or two, especially with the hot weather predicted for this week. It's probably already too late to release the beneficial predatory mite, Persimilis, at this point. Conventional products for mite control in tunnels include bifenthrin and Agri-Mek (active ingredient is abamectin). Organic growers can try azidirachtin (such as Molt-X) but efficacy against spider mites is unclear.

Spider mites are tiny and always on the undersides of the leaves so it really helps to learn to recognize the symptoms in order to catch outbreaks early. To be sure these symptoms are indeed caused by spider mites, turn the leaves over and look closely for the tiny mites.

We also found spider mites feeding on green beans in the field this week. In this case damage was quite widespread, with the same stippling found on the leaves in Amy's picture as well as some leaf puckering from feeding damage. The damage looked slightly like leaf hopper damage on first glance, but turning the leaf over quickly showed that mites, not hoppers, were present. You might not be able to see the insect itself without a magnifying glass because they are extremely small, but you will probably be able to see webbing and what looks like moving dust.

One of the crops we will see spidermites on first during periods of dusty, dry weather are eggplants. If you see spidermites on your farm, you might also want to scout eggplants just to be safe. *-ADI and CLS*



Spider mite feeding on cucumber leaf. *Image: ADI.*

Late Blight Found on Potatoes in Erie County

After Extension Agents on Long Island found late blight last week I was hoping that maybe it would be an isolated event and that would be all the late blight we would see. Alas, it was not meant to be as our Cornell diagnosticians have now confirmed late blight in potatoes on a farm in Erie County, NY. The strain in Erie County has been identified as US 23. Knowing the strain or isolate is very important for management decisions. US 23 is fairly aggressive on both tomato and potatoes, so preventative care should be taken on both of these crops. This strain is also still sensitive to Ridomil which is a very important tool if late blight is identified conventional farms. In the meantime, we should continue to scout hard for this pathogen and should also be applying at the minimum protective fungicides on potatoes and tomatoes. Conventional growers can use chlorothalonil or mancozeb. Organic growers can use a low rate of copper tank alone or mixed with Regalia or Double Nickel LC can be applied as a preventative approach until the pathogen is found closer to us.

Not only has late blight been found in NY, but this week we received the first reports of Late blight in Pennsylvania. The following came from the June 30th edition of the Penn State Vegetable and Small Fruit Gazette: *"Late last week, late blight was confirmed on potato in several fields on the same farm in* ***Cambria Co.*** *and today it was confirmed on both potato and tomato in adjacent fields in* ***Lancaster Co.*** *These are the first confirmed reports of late blight in PA this season. The fields are currently being managed with late blight specific fungicides. Two of the outbreaks are likely the result of infected seed. One was from seed that was saved from last year's crop which also had late blight. Samples have been collected and the genotype is being determined....It is also suspected in* ***Chester Co.*** *and we are working to confirm that report."*

Be sure to continue to scout your tomato and potato crops and be sure to call any member of the ENYCHP if you suspect late blight. *-CDB and CLS*

Basil Downy Mildew in 2014: After an Early Start, Prepare for a Challenging Summer

By Margaret Tuttle McGrath, Cornell Dept. Plant Pathology/Plant-Microbe Biology, L.I. Horticultural Research and Extension Center

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 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://psur.cce.cornell.edu/. 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.

Yellowing of the upper surface of affected basil leaves often occurs in sections of the leaf delineated by veins because the downy mildew pathogen cannot grow past major veins in leaves.

Purplish gray spores of the downy mildew pathogen only develop on the lower surface of leaves. These are the same leaves as in the other photo. Sporulation coincides with yellowing on the opposite side of the leaf.

Photo source: http://vegetablemdonline.ppath.cornell.edu/NewsArticles/BasilDowny.html

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.

Post Emergent Weed Control in Pumpkins and Winter Squash

Right about now or within the next week or so I suspect that we will start to see some weed escapes in our pumpkin and winter squash plantings, especially weeds like Common Lambsquarter and Ragweed. Fields treated with halosulfuron (Sandea or Profine), can only expect excellent control for about 4 weeks, especially when used at the recommended rate (0.5 ounces per acre) for pumpkins and squash. So what to do: first, if you used Sandea or Profine post plant/pre-emergent at 0.5 oz per acre, you can still come back in with another 0.5 oz per acre as a post emergent application. This is very effective on young, small actively growing weeds like velvetleaf, yellow nutsedge and ragweed, but not effective on already growing lambsquarter. I think the best way to use a post emergent application of Sandea/Profine is right after a cultivation as it does a better job as a seed germination inhibitor. There are a couple of things to remember with this post application: first, the plants must have a minimum of 2-5 true leaves; second, there cannot be any female flowers visible on your cucurbits; and lastly, it is recommended that you add a non-ionic surfactant (NIS) to the tank at a rate of 1 to 2 quarts per 100 gallons of spray solution).

For post-emergent grass control we have two pretty good materials in Poast and Select 2 EC (or a generic version called Section 2 EC). Which one you choose will depend on what grasses you have. If perennial grass like quackgrass is your main problem then I would recommend using Select (it also works very well on annual grasses). If your grass species are mostly annual, you can use Poast. Again a few things to remember—pay close attention to the adjuvants each of these products want you to use and that will also depend on the formulations of these products you get. For example, Select Max requires you to use a non-ionic surfactant but Select 2 EC or Section 2EC and Poast recommend using a crop oil concentrate (COC). Second, do not tank mix these with your Sandea/Profine post emergent applications. There is very good data that shows there is some antagonism that occurs and neither of the products will be as effective tank mixed compared to applied individually. Several of the labels now clearly state not to apply your grass materials within 1 day of a post emergent broadleaf herbicide application. Also, make sure that the grasses are actively growing. I find that applying these materials a couple days after a rain really improves control. And last but not least, don't expect to see results in two or three days! These grass herbicides take 7-10 days for you to really notice anything dying back. -*CDB*

Vegetable Grower Twilight Meeting

July 10 from 5:30 - 7:30 pm
Hudson Valley Farm Hub (formally Gill Farm)
1875 Hurley Mountain Road, Hurley, New York 12443*

Guest Speaker, Thomas Bjorkman of Cornell University will cover use of cover crops for soil health and weed control. Updates from ENYCHP educators on insect and diseases in vegetables this season. DEC Pesticide Applicator Credits have been applied for.

*Hurley Bridge on Wynkoop Road is closed. Use alternate route to access Hurley Mountain Road from 28 West (Kenco on corner) or Tongore Road off Route 209 in Stone Ridge.

For more information: Teresa 845-389-3562 or email tr28@cornell.edu

Mohawk Valley Produce Auction Growers' Meeting

July 11, at the conclusion of the auction (around 11:30am)
840 Fordsbush Rd, Fort Plain, NY 13339

Thomas Bjorkman will be discussing creative ways to integrate cover crops into a vegetable operation to improve soil health. Bring your cover crop questions, check out the auction, and discuss pest and disease issues with Extension Specialists.

The meeting is free and lunch can be purchased at the snack bar on site.
For more information please contact Crystal at 518-775-0018

GAPS Help?

Remember to call the Orange CCE office if you want help with writing your GAPs plan or need to get ready for your first inspection. We have a staff person that is prepared to help you take the next steps needed to get that inspection and to be GAPs certified.

This Fall, we plan on having more 2-day classes across the region for those who have yet to get started with their plans or investigating "what it takes".

Please call 845-344-1234, and ask for Maire, if you have questions or want to book an appointment with our GAPs specialist.

2014 Weather Table—This chart is compiled using the data collected by Northeast Weather Association (NEWA) weather stations. For more information on NEWA and a list of sites, visit http://newa.cornell.edu/ This site has information not only on weather, but insect and disease forecasting tools that are free to use.

Sweet Corn Pest Trap Catches for the week ending June 30

Location	ECB-E	ECB-Z
Albany	0	0
C. Clinton	0	0
S. Clinton	0	0
Columbia	1	0
Dutchess	4	0
Fulton	0	0
Orange	0	3
Saratoga	0	0
Schoharie	0	0
C. Ulster	7	2
N. Ulster	0	5
C. Washington	0	0
N. Washington	0	1

2014 Weekly and Seasonal Weather Information

	Growing Degree Information Base 50^{O} F			Rainfall Accumulations		
Site	**2014 Weekly Total** 6/23 –6/29	**2014 Season Total** 3/1 - 6/29	**2013 Season Total** 3/1 - 6/29	**2014 Weekly Rainfall** 6/23 –6/29 (inches)	**2014 Season Rainfall** 3/1 - 6/29 (inches)	**2013 Total Rainfall** 3/1 - 6/29 (inches)
Albany	**161.5**	**928.8**	**887.0**	**1.64**	**8.91**	**19.17**
Castleton	**152.1**	**879.2**	**882.0**	**1.70**	**10.35**	**16.32**
Clifton Park	**148.0**	**840.2**	**819.7**	**2.03**	**9.26**	**21.37**
Clintondale	**159.1**	**967.8**	**972.5**	**0.46**	**10.18**	**14.50**
Glens Falls	**135.6**	**837.6**	**757.5**	**0.79**	**10.94**	**15.60**
Guilderland	**138.0**	**849.0**	**803.5**	**0.51**	**N/A**	**N/A**
Highland	**159.1**	**960.3**	**963.2**	**0.46**	**11.61**	**12.94**
Hudson	**159.5**	**953.1**	**911.6**	**4.81**	**9.83**	**14.03**
Marlboro	**151.5**	**901.3**	**925.5**	**0.56**	**12.78**	**15.25**
Montgomery	**150.5**	**918.8**	**905.0**	**0.26**	**14.46**	**16.33**
Monticello	**126.9**	**681.3**	**696.0**	**N/A**	**N/A**	**N/A**
Peru	**137.0**	**776.2**	**772.1**	**1.55**	**10.13**	**13.81**
Shoreham, VT	**139.6**	**797.7**	**818.4**	**1.19**	**9.22**	**13.78**
Wilsboro	**132.7**	**731.7**	**746.7**	**N/A**	**N/A**	**17.14**