



Vol. 4, Issue 7  
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## Vegetable News

Here we are just barely in the second week of June and we just got word of the second confirmed notice of Late blight in the northeast. The first one came to us from Cornell Plant Pathologist Meg McGrath on May 19, 2016. She wrote: "Garden tomato plants being grown in a greenhouse in MD were confirmed to be affected by late blight this week (recent dominant strain, US-23). The source has not been determined. Plants were grown from seed in a greenhouse where tomatoes were not grown over winter, thus no

Then on Friday, June 3, Rutgers Pathologist Andy Wyenandt alerted us to a second outbreak of Late blight in Virginia: "Late blight was confirmed on potato in Accomack County, VA located on the Eastern Shore just south of the Maryland border. This is the second report of Late blight in the mid-Atlantic region this growing season. All tomato and potato growers should scout their fields on a regular basis. Growers who have not initiated standard protectant fungicide programs should consider doing so."

**It's only June and already two reports of Late Blight in the Northeast!**

If there is any saving grace, it's that we have been pretty dry up until this past weekend, but a lot of tomato transplants have gone in the ground in the last week and because of our dry spring a lot of potatoes were planted early this year and have gotten off to a good start, so if you haven't been walking through those fields and scouting, now's the time to do it.

evident internal source. It is possible pathogen spores came from a potato crop or cull pile in the area that has not yet been found. This occurrence further documents the unpredictability of late blight and the consequent need for all growers to be continually monitoring their crops. Prior to this there were reports in FL and southern SC. Monitor occurrences at <http://usablight.org/> where anyone can sign up to receive notifications immediately if late blight is detected nearby."

The following article by CCE Ulster County Educator Justin O'Dea does a great job describing the symptoms and differences between other "look alike" diseases. Please take a look and keep this newsletter for further reference. If you suspect late blight, please contact your closest ENYCHP vegetable specialist so we can confirm a diagnosis. Don't forget that this disease can spread very quickly so it's not just your crop but those of your neighbor's and rest of the region that's in jeopardy!

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### Sweet Corn Pest Chart (week ending 6/7)

Location	CEW	ECBZ	ECBE	FAW	WBC
N. Washington	NA	0	0	NA	NA
S. Washington	NA	0	2	NA	NA
Albany	NA	1	0	NA	NA
Fulton	NA	0	0	NA	NA
Orange	1	5	0	63	1



## Know Late Blight Symptoms and It's Look-Alikes

*Justin O'Dea, Vegetable Extension Educator, CCE Ulster County*

Reports of late blight in the region can drum up anxiety that any wilted leaf or spot on found on your tomato or potato crops could be the beginning of the end. A lot of plant symptoms can look similar without a trained eye or a good reference. Reduce your anxiety by knowing what clear signs to look for, and what issues may look like late blight at first glance.

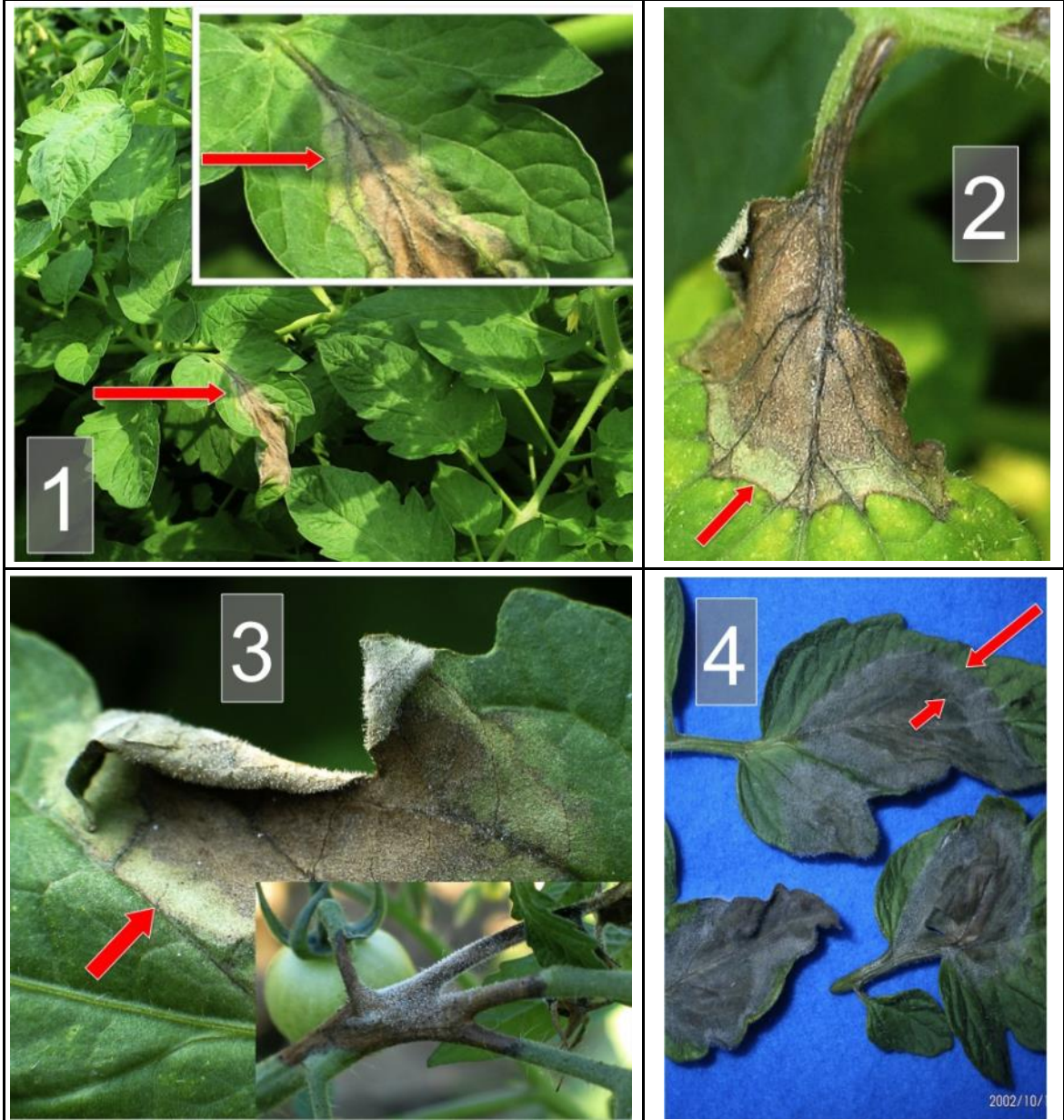
Pictures 1-4 below *ARE* late blight

1. Early symptoms of single leaf showing late blight brownish wilted leaf lesion. Subset picture showing close-up with arrows pointing to light greenish-brown border area characteristic to late blight. Yellowing is *not* characteristic to late blight.

2. Close-up of leaf and stem lesions with arrow pointing to light greenish-brown border characteristic to late blight. Note the lesion gets darker towards the center, and veins are even darker. Lesions become darker grayish-brown as they progress.

3. Stem and leaf lesions showing fuzzy whitish fungal spores forming on infected areas.

4. Further progressed infection, showing darker sooty-grayish leaf lesions. The lighter colored outer border between arrows is also darkened, with spores concentrated in this area.



*All Photos (adapted) courtesy Meg McGrath, Long Island Horticultural Research and Extension Center.*

Pictures 5 & 6  
*ARE NOT* late blight

*continued on next page*





5. Botrytis gray mold on leaf. Note, *no* greenish-brown border, coloration is more uniformly brownish with concentric rippling and is *lacking* any grayish hues; diffuse yellowing on lesion borders is *not* characteristic to late blight.

6. Botrytis gray mold spores on tomato stem. Botrytis gray mold spores are much longer (“fuzzier”) than late blight spores, and are gray-brown, *not* white.

Pictures 7-12 below *ARE NOT* late blight



7. Drought stress in tomato leaf. Drought stress damage comes inward from leaf edges and does not spread to stems or fruit. Drought stress does *not* have a lighter greenish-brown lesion border area, *lacks* sooty-grayish hues, and *doesn't* develop fuzzy spores.

8. Lightning damage on tomato leaf, and stem (subset). Similar to drought stress, leaves look scorched from tips/edges inward, but also have yellowing, and stems (subset photo) characteristically collapse/pucker.

*Note: Multiple symptoms of different afflictions may occur in tandem. Knowing symptoms characteristic to late blight specifically is your most important identification strategy!*

9. Early blight (Alternaria) on tomato leaf. Smaller, roundish, rippled concentric rings and yellowing are characteristic of early blight. Numerous smaller lesions and yellowing are *not* characteristic of late blight, and sooty-grayish hues are *lacking* in early blight.

10. Septoria on tomato leaf. Similar symptoms to early blight, but septoria develops tan centers and small black specks in their lesions.

For more information see:

- <http://www.longislandhort.cornell.edu/vegpath/photos/diagnose.htm>
- [http://www.longislandhort.cornell.edu/vegpath/photos/lateblight\\_tomato.htm](http://www.longislandhort.cornell.edu/vegpath/photos/lateblight_tomato.htm)
- <http://onvegetables.com/2010/07/13/late-blight-look-alikes/>
- <http://www.rodale.com/tomato-problems?page=0.0>

11. Powdery mildew on tomato leaf. Whitish-powdery spores develop, with mottled blackening on leaf undersides (subset). Diffuse yellow spotting is usually associated following whitish spore development, followed by necrotic lesions. Yellowing, and whitish spores *without* brownish or grayish lesions, are *not* characteristic of late blight.

12. Corky root/stem rot on tomato. Leaves and stems decline from the tips inward with complete necrosis. Stem yellowing behind necrotic areas is characteristic, and roots are corky with banded lesions. Leaf decline may resemble late blight, but leaf and stem yellowing and specific outward-in decline pattern is *not* characteristic to late blight.

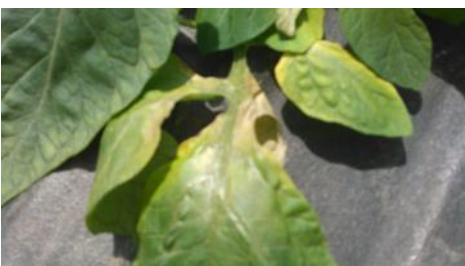
Photos by: [unclear], lower by LeBoeuf.



## Tomato Rust Mite

Chuck Bornt, ENYCHP

One of the reasons I enjoy my job so much is that no day is ever the same. For example, I received an email from a local grower with several pictures attached of some not so good looking greenhouse tomatoes. Upon first observation I thought, well it could be Gray mold or it could be one of the leaf molds causing the damage. I sent him back a quick note that said what I thought it looked like but I couldn't be sure until I physically get there to look at the plants.



The next day I visited the greenhouse and examined the plants. They had pruned heavily since the email exchange and it took me a few minutes to find similar symptoms to the ones the grower had sent me pictures of. Something in me kept saying that my original diagnosis wasn't right as the symptoms up close and in real life looked somewhat different than the pictures I was sent: bronzing on some of the leaves, brownish like coloration of the stems and I was sure I had seen this before and then it hit me: Tomato russet mite (*Aculops lycopersici*). I've only probably seen this 3 or 4 times in my career, but I know that in greenhouse tomatoes it can be a major concern.

Tomato russet mites are very, very small – much smaller than Two spotted spider mites and with different damage symptoms. Even the adults can't be seen without at least a 14X magnifying lens. I knew there was something on the undersides of the leaves but my hand lens was certainly not strong enough to see them until I was able to put them under a dissecting microscope at the office. There I saw numerous yellowish, wedge shaped (head is much larger than hind end) mites feeding on the undersides of the leaves. This shape is much different from the usual rounded body shape of other mite pests (Figure 1). Upon reading more about them the symptomology and progression of their spreading matched almost

exactly to what I read: damage starts on the lowest leaves and progresses up the plant and can be mistaken for a nutritional deficiency, plant disease or water stress and occurs during hot dry periods. Greenhouses and high tunnels make some of the best environments for this pest to become a problem.

How do you control tomato russet mite? There are a couple options: for conventional growers AgriMek (abemectin) is labeled for use against tomato russet mite and is effective. However, it only works against nymphs and adults not the eggs so a follow up treatment may be required. Coverage of the canopy will be important as well to ensure adequate control. Sulfur is also labeled and has been a standard for a long time. However, be very careful using sulfur in enclosed greenhouse spaces as it can be harmful to the plants and user. *Amblyseius fallacis* and *A. swirskii* are both predatory mites that have shown to have some effectiveness if released early in the infestation. Removal of all old plant debris and sanitation may also help. Removing of other hosts such as other nightshade or solanaceous plants (weeds like jimson weed, petunia, and field bindweed). Russet mites can also move on workers clothes so having workers start in un-infested areas first with their work and move into infested areas may also help slow the spread. Making sure your plants (if your not growing your own) come from a reputable grower.

If you suspect you might have some Tomato russet mites, contact your local ENYCHP educator to confirm a diagnosis. If you have more questions, please feel free to give me a call at 518-859-6213.

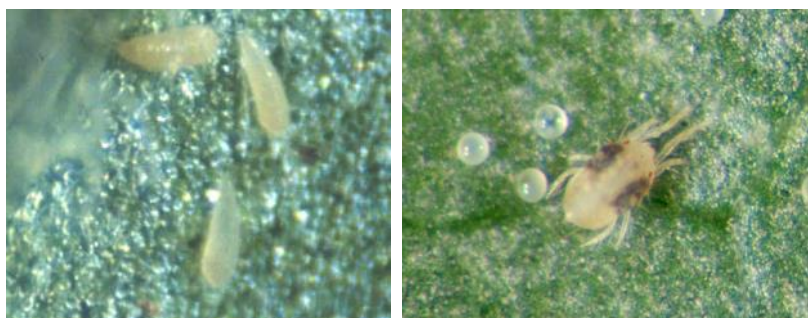


Figure 2: Adult Tomato russet mites on the left and an adult two spotted spider mite on the right. Notice the difference in shape and size. (Source: Graeme Murphy - Greenhouse Floriculture IPM Specialist/ OMAFRA; Gillian Ferguson - Greenhouse Vegetable IPM Specialist/ OMAFRA; Les Shipp - Research Scientist/Agriculture and Agri-Food Canada, *Mite Pests in Greenhouse Crops: Description, Biology and Management*, Ontario Ministry of Agriculture, Food and Rural Affairs) <http://www.omafra.gov.on.ca/english/crops/facts/14-013.htm>

## Check for Lurkers

Amy Ivy, ENYCHP

As you harvest the last of the asparagus crop take a close look at the spears for signs of asparagus beetle feeding injury. The larvae are out in full force now but are mostly tucked away out of sight. Look for their characteristic feeding injury to the spears (photo left) and check for any lurking larvae in the clusters of developing fronds (photo right).

The larval stage is the most vulnerable so a well-timed spray could help knock back the population. Conventional options include Sevin XLR Plus, Lan-nate and Ambush. The organic option is Entrust, but you need to wait for the ferns to open, it is not to be used on the spears. *Resource: Chapter 12, Cornell Pest Management Guidelines for Commercial Vegetable Production.*



photos: Amy Ivy



## Onion Growth in Orange County

Maire Ulrich, ENYCHP

Now that they have had an adequate drink and temperatures will be moderate this week, I expect to see significant growth, especially in the smaller fields planted after the 2 week planting hiatus due to rain in April.

In the past week, I have seen a range of stress. Most of which, I believe, is the result of herbicide application, both pre- and post-emergent chemicals. Then, compounded by the hot and dry conditions, onions have been displaying tip burn, leaf scorching, and stunting on even very small onions. If you have leaf die-back where more than 20% of the leaf is dead on anything but the outer 2 leaves you may consider beginning your fungicide program to prevent diseases from setting in on that weakened/dead tissue.

As for our usual cast of characters...there are a few botrytis lesions out there, especially in the larger (6+ leaves) onions. Depending on leaf wetness this week keep an eye out for those onions to reach the spray threshold of 1 lesion per leaf. Thrips, again, in the larger onions, were not hard to find before the rains on Sunday and have not disappeared entirely. Keep an eye on those too. The cooler temps will slow population growth but soon will be the time to start with Movento while populations are relatively low and mostly immature.

## Selling Bagged Greens: What Dept. of Ag & Mkts. Expects

Robert Hadad, Regional Vegetable Specialist, CVP, Cornell Cooperative Extension

It seems like every spring I get questions on retail sales of bagged greens. The questions usually stem from rumors about the legality of selling bags of greens.

- ⇒ Can we sell mixed greens?
- ⇒ Can we sell washed greens?
- ⇒ Do the bags have to have a label?
- ⇒ Do the bags have to remain open or can they be closed?

I contacted the person in the know concerning these and other questions and hopefully this will shed some light on the topic. I talked with John Luker, Asst. Director of Food Safety Inspection with Ag & Mkts. He said the center of the bagged greens issue is whether or not the product is being sold as **“ready-to eat”** (RTE). If the greens are RTE then under the NY State regulations, an Article 20-C Food Processing license is required and the produce must be handled, according to all the guidelines (handling product with gloves, triple washed etc.) in a **certified facility**.

Then based on these standards, for most growers, greens can be sold through farmers markets or CSAs as not RTE if there is a label stating so (i.e. “Wash thoroughly before using”). The label also needs to have the farm name and

address (which also is part of the new regulation under FSMA), name of product and quantity of contents.

Washing produce with the purpose of removing field dirt, grit, and other organic debris, is not considered the same as washing for consumer consumption. So when following food safety guidelines for post-harvest handling with wash water, using sanitizer and triple washing in tanks/basin/sinks etc. the end product is for the removal of soil etc. and keeping the water from contaminating the produce.

There is one other point of clarification. Bags of greens that are not RTE and being sold at farmers markets, through CSAs etc. do not have to be left open. The bags can be closed with a twisty or other method. Shelf life of the product may be affected by the type of bagged used (perforated or not) but as for sale requirement, bags can be closed.

So “intent” of the consumer package is everything. Farmers need not to wash for RTE cleanliness but to wash with the intent to remove field soil etc. The label information on the bag is the key ingredient for customer awareness.



## Exploring Prices and Opportunity

Jesse Strzok, ENYCHP



This summer you may see a new face running around collecting pricing data from farmers' markets in ENY. Lindsey McMahon is a summer intern working on a project we designed to evaluate prices and opportunities to realize greater income. The goal is to provide farmers' market vendors with timely price data summaries and examine regional variations in pricing of products.

Each week we will be travelling to markets and recording price information before aggregating and summarizing for publication. This data can be used by vendors to adjust prices during the season and, hopefully, increase revenue and profit. Keep your eyes out for Lindsey and upcoming price summaries!

For more information contact Jesse Strzok – [js3234@cornell.edu](mailto:js3234@cornell.edu) or Lindsey McMahon – [lm679@cornell.edu](mailto:lm679@cornell.edu).



## Worker Protection Standard Mock Inspection—Tuesday June 21

Pavero Farms  
185 Ridge Road, Marlboro NY 12542  
10 am-noon

As many of you already know, the EPA passed legislation in 2015 that institutes changes to the Farmworker Protection Standard. **The new rules will be in effect and enforced as of January 1, 2017.** “The Worker Protection Standard seeks to protect and reduce the risks of injury or illness resulting from **agricultural workers**’ ( those who perform hand-labor tasks in pesticide –treated crops, such as harvesting, thinning, pruning) and **pesticide handlers**’ ( those who mix, load, and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover persons working with livestock.” *source: <https://www.epa.gov/sites/production/files/2015-09/documents/worker-protection-factsheet.pdf>*

**The WPS does apply to farms using Organic OMRI listed Pesticides who have workers and handlers. The only exemption is for farm owners and their immediate families.**

On Tuesday, June 21 the DEC will be conducting a mock WPS inspection at a local fruit farm in the Hudson Valley in an effort to help farmers in the area understand the WPS regulations, changes that will soon be in effect, and what farmers need to do on their farms in order to comply. We encourage all growers to attend as the information will be relevant whether you are a large-scale conventional fruit farm with 60 workers or small scale organic vegetable producer with 2 workers. ENYCHP educators/specialists will be on hand to help facilitate the meeting. *Registration will begin at 9:15. The start time for the program is 10 am through noontime.*

**The DEC will be issuing 2 pesticide applicator’s recertification credits in the following categories – commercial 1A, 1D, 10 and private 21, 22, 23, 24, 25.** You must be in attendance for the full two hour course/mock inspection in order to receive credits. Please arrive early to register and sign the roster for credits. Please bring your pesticide applicator’s license. There is no charge. (just a heads up that Ridge Rd from Prospect to Lattintown Rd in Marlboro will be under construction later this month, give yourself extra time for detours). You can call Teresa Rusinek or Dan Donahue for more information at 845 691-7117.

## 2016 Weekly and Seasonal Weather Information

Site	Growing Degree Information Base 50° F			Rainfall Accumulations		
	2016 Weekly Total 6/1-6/6	2016 Season Total 3/1-6/6	2015 Season Total 3/1-6/6	2016 Weekly Rainfall (inches) 6/1-6/6	2016 Total Rainfall (inches) 3/1-6/6	2015 Total Rainfall (inches) 3/1-6/6
Albany	124.6	543.1	608.0	1.29	6.08	5.75
Castleton	117.8	516.1	581.3	1.32	8.98	4.94
Glens Falls	115.1	454.7	484.5	1.8	7.91	8.1
Griffiss	104.5	415.7	445.0	1.89	11.26	12.59
Guilderland	110.5	484.5	521.0	1.38	11.04	11.25
Highland	114.7	595.3	626.0	1.53	11.09	11.66
Hudson	125.6	571.8	627.5	2.78	10.46	10.46
Marlboro	112.6	551.2	572.1	1.34	7.76	8.89
Montgomery	119.0	538.1	594.5	0.87	7.13	8.67
Peru	103.3	413.5	445.6	1.49	6.46	7.26
Red Hook	113.4	542.4	581.4	1.35	6.64	7.36
Willsboro	102.6	404.0	423.2	1.82	6.86	9.31
N. Adams, MA	100.1	397.2	419.0	0.88	9.58	7.92

**2016 Weather Table**—The weather information contained in this chart is compiled using the data collected by Network for Environment and Weather Applications (NEWA) weather stations and is available for free for all to use. For more information about NEWA and a list of sites, please visit <http://newa.cornell.edu/> This site has information not only on weather, but insect and disease forecasting tools that are free to use.

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## MEETING NOTICE

Join ENYCHP for a twilight meeting with Andrew Landers of Cornell to discuss Sprayer Efficiency. Two meetings will be held, one in the Capital District (Wednesday June 15th, Melrose NY) and one in Orange County (Thursday, June 16th, Goshen NY).

**Please Pre-Register by June 13th to receive the pre-registered rate.**

**Online:** <http://enych.cce.cornell.edu/events.php>

**Phone:** Call Abby Henderson at 518-746-2553

**Meeting Fee:** \$10 PER FARM if pre-registered by 6/13 for ENYCHP members, \$20 for non-enrolled \$15 at the door PER FARM for ENYCHP members, \$25 for non-enrolled