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## Weekly Vegetable Update

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### Regional Updates

#### North Country – Clinton, Essex, northern Warren and Washington Counties:

We finally saw a couple days of sunshine last week and crops put out a surge of growth. But then rain returned with some heavy episodes making fields wetter than ever. Lake Champlain is at a record high level for this time of year and rivers and streams are brown with soil runoff. Temperatures have been moderate and the nights not as chilly as in past weeks. Some crops are yellowing from leached nitrogen and/or wet feet, especially corn. Slug and small snail populations are exploding under these wet, lush conditions but many growers report less pressure from cucumber beetles and flea beetles so far this year.

#### Capital District – Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, southern Warren and Washington Counties:

As usual I'll start by complaining about the weather! The last two weeks have not been all that great for getting crops moving along, but I will say that it has been good for replenishing our irrigation reserves. A handful of growers are just starting to pick the first of the sweet corn for this season with a few more expected to come on by the weekend. We are still seeing some European Cornborer activity, but the numbers have been low. We should expect to see some Corn Earworms making an appearance and southern traps indicate the movement of some Fall Armyworm. Be on the lookout for Cucurbit Downy Mildew in cucumbers and other vine crops and Late blight in your potatoes and tomatoes as new reports from around the Northeast seem to keep coming in. Tomato growth has been pretty good, but peppers and eggplant have been slow—but some good hot days like yesterday and today should get them moving right along! And just as a reminder, even though it seems to have rained every day the last couple of weeks, if you are using plastic mulch make sure you spend a couple minutes reaching under that plastic to make sure you've got good soil moisture under there! And as your crop continues to grow and especially when it starts to set fruit, you might need to increase the number of times you irrigate in a week to keep up with the plants demands!

#### Mid-Hudson Valley- Columbia, Dutchess, Greene, Orange, Putnam, and Ulster Counties:

Summer squash harvest is now underway. Early planted sweet corn is maturing and for most, harvest will begin within a couple weeks, though a few fields have already been picked. Several diseases have been identified and are likely the result of the continuing precipitation in our region. Angular leaf spot, caused by the bacterium *Pseudomonas syringae* pv. *lachrymans*, was found infecting pumpkin. A field of peppers was infected with bacterial leaf spot, caused by the pathogen *Xanthomonas campestris* pv. *vesicatoria*. Both of these diseases can spread via rain splash and can become widespread during wet years. A field planted to beans was severely infected with Sclerotinia white mold. This disease can take down plantings quickly and the pathogen has a wide host range which includes tomatoes, potatoes, lettuce, and crucifer crops.



Bacterial leaf spot of pepper. Photo: KB

## Late Blight Update

The weather the last 2 weeks has been ideal for diseases, especially Late Blight and as if right on cue, we received word late last week that Late blight was confirmed on potatoes in Livingston County, New York and then just yesterday it was found in two tomato fields Chester and Valley in County, New Jersey. The potato sample from Livingston County was confirmed to be US 23 strain which has been the one plaguing us the last couple of years and is important to note because it is still sensitive to mefenoxam. (Ridomil). US 23 will infect both tomatoes and potatoes so protection of both crops is important. (Classic symptoms of late blight of potato can be found in Figures 1 and 2).



Figure 1: Note the light olive green border around the darker

At this time we suggest remaining on a protectant program for both tomatoes and potatoes. Growers will need to evaluate the threat to their on scouting, weather, proximity to known outbreaks, materials (protective vs. systemic) and spray intervals. This time, for most growers, is likely protection is adequate using protective materials such as chlorothalonil (Bravo Weather Stik or OLF) or mancozeb (Dithane DF or OLP), and for organic growers copper compounds used with other labeled products such as Double Nickel, Regalia or a new material called Zonix could provide suppression of the pathogen when applied weekly.

Once you see LB on your farm, or if you are downwind of a farm in your area that has LB, you will want to use the systemic or translaminar products such as Curzate + Previcur Flex (or other material) + a protectant. The reason for tank mixing the Curzate and Previcur Flex is because Curzate has a short residual (especially in hot weather), but very good “burn out” activity. Adding Previcur Flex or one of the other labeled translaminar materials will greatly improve control. Because of resistance issues with Ridomil, I would wait until the strain has been identified before using this fungicide. If you would like to know where and when late blight outbreaks are, you can sign up to receive emails or text alerts at <http://usablight.org>. The website tracks the known outbreaks of infections including the crops and the strain identification.

Also, if late blight has been identified on your farm you should also destroy the infected area including an additional border area by either mechanical means (mowing, disking, flaming or rouging by hand and putting the plants in a garage bag and disposing of them properly or with a burn-down herbicide to reduce the amount of inoculum being produced. Before doing any of that, be sure that you apply a fungicide to the field first in order to reduce the chances of spores moving into uninfected areas. And as always, if you have questions or think you may have LB, please let one of the educators know. —CB



Figure 2: In this picture you can see the white “fuzzy” growth on the underside of the leaves along the border of the lesions.

## Cucurbit Downy Mildew

As mentioned last week, Cucurbit Downy Mildew (CDM) was found in Erie County, NY and this week in Delaware and Maryland on watermelon and Alabama and Michigan on cucumber. I would also highly recommend going to the Cucurbit Downy Mildew Forecasting site for more information on outbreaks, our local risks for DM spore deposition and pictures. The site is also allowing you to sign-up for alerts to be emailed, texted, called etc, when a DM outbreak is near (you get to choose a radius of 50 – 100 miles). Once an outbreak is reported within that radius an immediate alert will be sent to you. The website is: <http://cdm.ipmpipe.org/> You can also search for “Cucurbit Downy Mildew forecasts”. I would also be happy to walk you through how to read the forecast and interpret the results. And as always, if you suspect

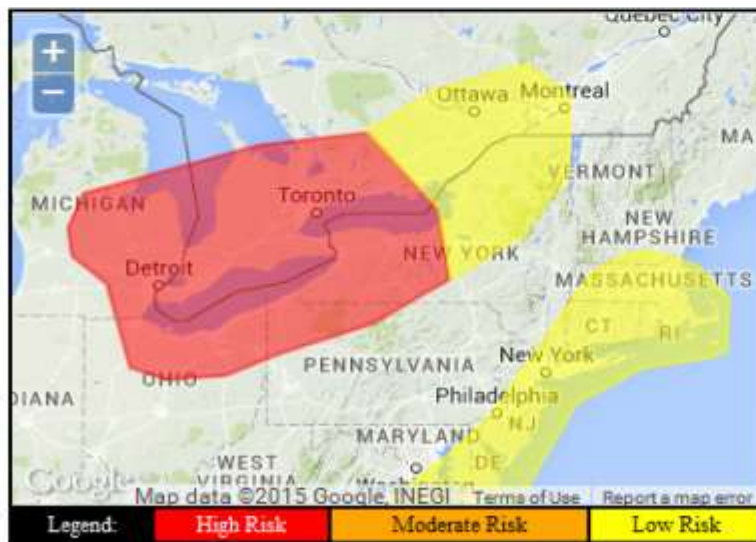
*Cucurbit Downy Mildew, continued from last page*

DM contact one of vegetable educators on the sidebar of this newsletter for correct diagnosis.

**This Week's Forecast:** HIGH Risk for eastern lower MI, southern ON, northern OH, northwest PA, and western NY. Moderate Risk to cucurbits in far southern / west-central / northern FL, southern GA, central and eastern SC, and southeast NC. Low Risk for west-central and northern NY, eastern southern ON and nearby areas of Quebec, southern AL, the FL panhandle, far southwest GA, central and eastern NC, central and eastern VA, eastern MD, DE, NJ, Long Island, and southern New England. Minimal Risk to cucurbits otherwise.

For control options, please see last weeks Vegetable Update as it had a comprehensive list of conventional and organic fungicides to use. -CB

**Risk prediction map for Day 2: Tuesday, July 7**



Forecaster: TK at NCSU for the Cucurbit ipmPIPE - 2015

## 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. And in fields treated with halosulfuron (Sanda or Profine), although very effective, this material has a fairly short residual of 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 and second, there cannot be any female flowers visible 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). And lastly, do not be surprised if after the application you notice the growing points on your pumpkins and squash turning slightly yellow and not really growing to fast—this is somewhat typical of post emergent halosulfuron applications and plants normally grow out of it within 3-5 days.

For post-emergent grass control we have two pretty good materials which include 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 2 EC 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.**-CB

## Garlic Update

It looks like we are about two weeks from harvest and overall the garlic is looking pretty nice, though the tip browning that happened earlier in the season has progressed in some areas and is colonized by black mold, or *Aspergillus*. Low spots in fields are suffering due to the wet periods we are having, and size might be a touch on the small size on average (thought this can change with perfect weather over the next few weeks). As we head into the home stretch, there are a few things you can do to prepare for a better harvest.

### Weed control:

It seems counterproductive to worry about weeds in these last two weeks to some people, but this is a critical time to keep up weed control if you have been vigilant through the season or to kill as many weeds as you can leading to harvest. There are two main reasons this is true. One, weeds compete aggressively for water, and water is what will give you size at this point. **The garlic has all the cells it's going to make, and it's currently expanding them like thousands of tiny water balloons.** You want the plant to have access to all the water it can get.

Two, weed pressure at harvest is a serious pain. **It makes it harder to find and harvest the garlic. It's amazing how much garlic people leave in weedy fields just because they can't see it. At a bare minimum, go mow the weeds down low between the rows.** Do it for the garlic!

### Field culling:

Hopefully you did a good field culling when removing scapes. This is one last opportunity to remove any garlic showing damage from disease or insects. Walk the fields and pull anything that looks stunted, yellow, or sickly. Doing so now when you can see the whole plant is much more accurate than bringing it into the drying area, where damaged bulbs can start to look ok, despite harboring problems which could spread to your other garlic.

While you are pulling up sickly garlic, if you could keep a bunch (10-15) heads which look like they will not break down in storage and dry them somewhere isolated from the rest, I would be very, very grateful! We are working hard to get a Fusarium study funded, looking at what kinds of Fusarium we are battling every year and what the **best controls are. I'll be asking for samples later in the season, but this is the best time to collect them.** If you pull a **sample, just let me know and I can come get it when it's dry. Or if you don't want to dry it, I will do so for you.**  
Irrigate:

IF we have a dry spell (no concerns so far) in these last couple weeks, make sure you provide your garlic with adequate moisture. See above water balloon reference. IF possible, letting garlic dry out for a few days before harvest is better for the soil and for getting the dirt off the bulbs. We are not always luck in this regard, but looking at the forecast, shooting for a few dry days prior to harvest is always best.

Look for another article on harvesting and drying in **next week's newsletter. As always, if you see something strange, give me a call.** Crystal (518-775-018).



Flagging garlic should be removed from the field prior to harvest.  
Image: CLS

## Attend a mock GAPS audit

There are many rumors about GAPS. Some people hear that it's going to cost \$50,000 to be able to pass a GAPS audit, and others hear you're not allowed to have a single deer walk through the field. A lot of the things you might hear about GAP audits are exaggerated. If you already have a plan and are getting used to it, or if you have been thinking about GAPS but just keep putting it off, we have the perfect solution for you. We are planning to schedule one or two mock audits in the Hudson Valley. This will be (most of) a full day event where we get to walk the fields, packinghouse, storage area, and office of a farm with a New York State Department of Agriculture and Markets GAPS auditor. These mock audits have been put on in the past at local farms, and some of the attendees have since gone on to get their own GAPS audits. During the mock audit, you will get to see exactly the types of questions that the auditor asks, and you will become familiar with the grading system. You will get an idea of what the packinghouse can look like (no, it doesn't need to be an enclosed building), and finally understand what all the record keeping is about and how the auditors monitor it.

Attend a mock GAPS audit, continued from last page

We are in the early stages of planning this event, and we have yet to determine a location. We are looking for a farm who fits our profile – **one where there is a food safety plan in place that is somewhat being followed, but you’re not ready to request an audit because you have a few nagging questions in the back of your mind.** Although it might be a bit intimidating to show the back side of your barn to a group of strangers, the big benefit is that you will know exactly what you have to overcome to pass the audit. If you fit the bill and are interested in hosting this event, please contact Erik Schellenberg at 845-344-1234 or jk2642@cornell.edu.

## HT Tomato nutrient update-pH management

Working with collaborating farms and extension educators across New York State, the Cornell Vegetable Program is gaining valuable insight into the dynamics of soil and plant nutrient status coupled with on-farm management. Our focus has been on high tunnel tomatoes, due to their high return per square foot. On these farms we conduct pre-season soil tests then work with farmers to fine-tune amendments both to reduce over application of nutrients, and at the same time maximize yield and return. In season we take regular foliar tests to help make decisions for optimal nutrient levels in the plant. We have data from over 40 farms across the state reflecting different management approaches, including both certified organic and conventional.

In this first installment we’ll look at a problem common to all types of high tunnel operations-escalation of root zone pH and alkalinity. As most irrigation water in New York is high in pH and bicarbonate, high tunnel soils generally climb the pH scale without precipitation to leach through the profile. The result of is lower nutrient levels in the plant foliage, ultimately decreasing vigor and yield. Manganese (Mn) deficiency is often the first sign of this problem. Mn deficiency often occurs mid-level in the canopy as bright yellow margins leading to marginal necrosis (see pics). There is no lack of Mn in the soil, but the pH prevents its uptake. Chelated Manganese is available to raise the level in the plant, but this is treating the symptom instead of the underlying cause of pH and alkalinity.

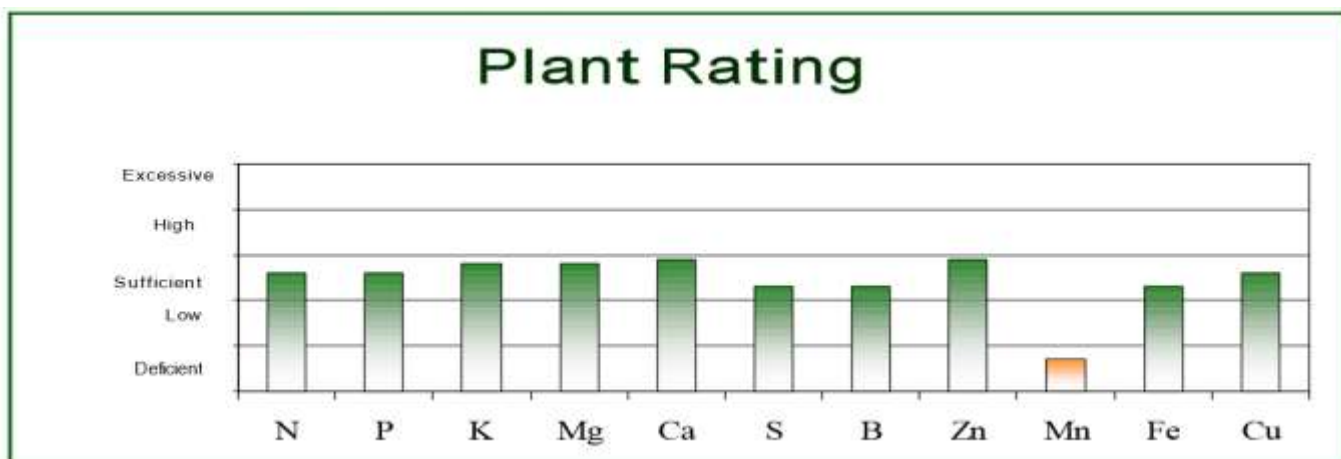


Figure 1. All plant nutrient are in optimal range in this high tunnel tomato sample except manganese. This farm is now injecting citric acid to combat the problem.

What can be done about pH/alkalinity? The first step is to test irrigation water for both pH and bicarbonates. Water pH can be measured with a digital meter, but alkalinity requires a lab test. With these two figures we can then use an online calculator from University of New Hampshire to calculate a quantity of acid to inject into our irrigation water ([https://extension.unh.edu/Agric/AGGHFL/alk\\_calc.cfm](https://extension.unh.edu/Agric/AGGHFL/alk_calc.cfm)). The two common acids are phosphoric and sulfuric.



Mn deficiency on tomato transplants

Continued on next page

*HT Tomato nutrient update-pH management, continued from last page*

Organic growers can use citric acid, however there is no tool to calculate the quantity needed. A gradual addition of citric acid to the system while monitoring irrigation water pH is the common approach. Another important step is to acidify the soil profile prior to planting with elemental sulfur. Sulfur is slow to react so fall applications are advised. Rates will vary based on soil levels of calcium and pH.

This work is the result of funding from New York Farm Viability Institute, Specialty Crops Research Initiative and Federal Formula Funds. In future installments we will look at macronutrient management in conventional and organic high tunnels.

*Written by Judson Reid, Cornell Vegetable Program*



Mn deficiency including marginal necrosis on tomato

### Organic Guides updated for 2015.

For vegetables, guides for beans, carrots, cole crops, cucurbits, lettuce, peas, potatoes, and spinach have been updated. For fruit, blueberries, grapes, and strawberries have been updated.

Updates include adding additional cultural practices where available, removing products no longer listed on OMRI or PIMS, adding products newly listed on OMRI, adding product efficacy information where available, and fixing broken links.

They can be viewed or downloaded at: [http://www.nysipm.cornell.edu/organic\\_guide/default.asp](http://www.nysipm.cornell.edu/organic_guide/default.asp)

Sweet Corn Pest Trap Catches										
(Last Week ending 6/29/15, This Week ending 7/7/15)										
Location	ECB-E Last Week	ECB-E This Week	ECB-Z Last Week	ECB-Z This Week	CEW Last Week	CEW This Week	FAW Last Week	FAW	WBC Last Week	WBC
Central Clinton	0	2	0	0	0	0	N/A	0	N/A	1
South Clinton	0	0	0	0	0	0	N/A	0	N/A	0
Columbia	N/A	5	N/A	6	N/A	0	N/A	N/A	N/A	N/A
Orange	2	0	4	3	3	6	0	0	0	2
C. Ulster	0	0	3	0	0	0	0	2	0	N/A
N. Ulster	7	3	6	3	1	0	N/A	N/A	N/A	N/A

## Calendar of Events

Tuesday, July 21st – Blueberry Variety Review Field Day, 3-5pm at **Winney's Farm, 113 Winney Road, Schuylerville, NY 12871**. Byron Winney has one of the largest plantings of blueberries in the state. Look at and taste more than a dozen different varieties and learn about winter hardiness, plant form, fruiting characteristics, plant longevity and pest tolerance first hand. There is no charge for this workshop, but please help us plan and register by calling Marcie at 518-272-4210. If you have questions, give Laura a call at 518-791-5038. The workshop is a rain or shine event.

July 20-21, Produce Safety Alliance Grower Training Course & Farm Food Safety Plan Writing Workshop, **St. Augustine's Parish 3035 Main St, Peru, NY 12972**. This two-day training will walk growers through the basics of food safety during day one and will help them write a food safety plan during day two. This training course will result in receiving the certificate which satisfies the training requirement for the FSMA Produce Safety Rule which states "At least one supervisor from the farm must complete food safety training at least equivalent to the standardized curriculum recognized by the FDA." Registration is required and will be on a first come first serve basis. Cost for this event is \$110 per participant which includes: PSA manual (\$50), AFDO certificate (\$35), coffee & lunch both days. *The first 25 farms registered will receive a bag of additional resources including a flash drive with preloaded templates, Farm Worker Training CD, and more (\$60 value). Additional bags will be available for purchase.* For more information contact Anna Wallis 443 421-7970 or [aew232@cornell.edu](mailto:aew232@cornell.edu) [Click her for full program details](#)

**Saturday, July 25th, The First Annual Eastern NY Equipment Demonstration Day: This Year's Focus: New and Innovative Cultivation Tools**, 1:00—5:00 pm (rain or shine) at the Hudson Valley Farm Hub, 1875 Hurley Mountain Road, Hurley, NY 12443. Come and see some of the most innovative cultivation tools being produced by the world's leading manufacturers in action on a variety of vegetables and field crops! Find out if these tools are right for your operation before you purchase them. Not only will we be looking at these units for vegetables, but also field corn and soybeans- so there is something for everyone. There is no fee or registration for this meeting. [Click here for full program details.](#)

Monday, July 27th, Wash Station and Food Safety Workshop, 10:00am -2:00pm at Free Bird Farm, 497 Mckinley Rd. Palatine Bridge, NY 13428. Join the Eastern New York Commercial Vegetable Program and Robert Hadad from the Cornell Vegetable Program on Monday, July 27th to learn about the process of designing, building, and operating a small-scale, post-harvest handling system. This workshop will focus on proper washing and handling practices, as well as food safety. The wash system we will examine is designed to work best for new and small growers. The workshop will start with a discussion and hands-on demonstration about designing and setting up your wash line, tables, and packing shed and will cover efficient standard operating practices and a range of methods for washing produce. Dunking, spraying, and aerating will all be discussed along with using organic sanitizers. The session will finish with an examination of clean-up procedures and post-harvest handling considerations, including re-cooling, packing, and storage. Cost for this program (includes lunch) is \$10.00 for ENYCHP enrolled members and \$15.00 for non-enrolled. [Click here for full program details](#)

Wednesday, August 19th— Limiting Bird Damage in Fruit: State-of-the-Art Pest Management Tactics (A Vertebrate Damage Management Workshop), 4H Training Center, 556 Middleline Rd, Ballston Spa, NY 12020. This comprehensive class will feature results and speakers from a multi-year, multi-state project that looked at several different fruit crops. Registration details to follow.

### Eastern NY Commercial Horticulture Website

For event announcements and registrations, previous issues of our newsletters and more, please visit the Eastern NY Commercial Horticulture Team's website at <http://enych.cce.cornell.edu/>. We hope you bookmark it on your computer and begin using it as your 'go to' website for production and marketing information. Email or call any of the educators with questions or comments on the website – we want to make it work for YOU!

2015 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.

2015 Weekly and Seasonal Weather Information						
Site	Growing Degree Information Base 50 <sup>o</sup> F			Rainfall Accumulations		
	2015 Weekly Total 6/29– 7/5	2015 Season Total 3/1 - 7/5	2014 Season Total 3/1 - 7/5	2015 Weekly Rainfall 6/29-7/5 (inches)	2015 Season Rainfall 3/1 –7/5 (inches)	2014 Total Rainfall 3/1 - 7/5(inches)
Albany	119.2	1150.0	1079.0	0.48	10.66	13.29
Castleton	112.3	1080.8	1022.8	1.16	11.79	13.38
Clifton Park	113.5	1098.1	974.1	0.69	11.72	14.42
Fishkill	126.1	1109.4	Na <sup>1</sup>	0.14	5.10	Na <sup>1</sup>
Glens Falls	106.9	958.0	958.0	0.61	10.45	17.47
Griffiss	95.4	904.0	914.5	0.90	17.45	21.48
Guilderland	109.5	1026.0	986.0	0.68	11.95	Na <sup>2</sup>
Highland	123.5	1172.8	1098.7	0.46	15.44	18.32
Hudson	127.3	1169.7	1099.3	0.76	12.29	19.75
Marlboro	122.2	1112.8	1039.0	0.92	12.05	17.19
Montgomery	121.0	1147.6	1063.5	0.98	13.97	15.86
Monticello	99.2	870.1	801.0	0.0	7.78	6.82
Peru	103.2	884.9	917.3	1.30	13.11	14.30
Red Hook	121.6	1105.6	1077.9	1.03	13.91	8.01 <sup>3</sup>
Shoreham, VT	95.0	934.7	943.7	Na <sup>4</sup>	Na <sup>4</sup>	12.34
Wilsboro	106.1	860.3	874.3	2.25	17.09	9.76
South Hero, VT	115.8	915.4	921.7	1.19	15.18	14.61
N. Adams, MA	70.4	866.6	853.0	1.61	12.20	14.79
Danbury, CT	123.0	1021.9	948.0	0.82	11.23	16.33

Na<sup>1</sup>: The Fishkill site is new for 2015 so there is no historical data to report.

Na<sup>2</sup>: The Monticello station is not properly recording data at this time.

Na<sup>3</sup>: The Guilderland weather station was not properly reporting precipitation data in 2014 so no data will be shown for this site.

\*: Precipitation data for this site did not began until May of 2014.

Cornell Cooperative Extension and the staff assume no liability for the effectiveness of results of any chemicals for pesticide use. No endorsement of any products is made or implied. Every effort has been made to provide correct, complete, and current pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly and human errors are still possible. These recommendations are not substitutes for pesticide labeling. Please read the label before applying any pesticide. Where trade names are used, no discrimination is intended and no endorsement is implied by Cornell Cooperative Extension.

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