Cornell University Cooperative Extension

# Eastern NY Commercial Horticulture Program

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# Berry News

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## Berry "To Do" List:

**All crops**

- Adult SWD populations continue to climb, although the high temperatures over the past week may inhibit egg laying. If you are growing fall raspberries, remain vigilant with sprays. Clean pick as much as possible and don't leave fruit on the ground. Harvested fruit should be refrigerated immediately and remain refrigerated while on display.
- Focus on weed management – great time to identify problem weeds.
- Apply lime, dolomite, gypsum and/or fall fertilizer as indicated by your foliar test. See crops below for specific information.
- Scout for vole damage and evidence of tunneling. Poison baits should be placed in a few weeks.
- Seed cover crops now. See the article in this issue about rates and types.

**Blueberries**

- This will likely be the final weekend for all late blueberries in all locations. 90% of farms are done.
- If your soil pH is above 5.0, plan to add 200#/acre of elemental sulfur to help push pH down. This can be done at any point this fall.
- Prune out canker-killed branches and remove them from the field. Although we usually recommend that fungicides be applied at delayed dormant in spring, you can apply copper or Bordeaux for bacterial canker in the fall. This is done frequently in New Jersey with good results.
- Scout for weevils and weevil notching.
- Sinbar, Devrinol, Solicam, Surflan, Princep or Stinger can all be used into October on various problem weeds.

**Bramble Crops**

- Fall raspberries are the most vulnerable to SWD, so protect them now.
- Plenty of reports of sunscald (see picture at right) due to hot and very sunny weather. Not much you can do about it, but assure customers that it's not a disease.
- Hot dry weather is perfect for mites. Keep checking the underside of leaves and use a


*Serving the educational and research needs of the commercial small fruit, vegetable and tree fruit industries in Albany, Clinton, Columbia, Dutchess, Essex, Fulton, Greene, Montgomery, Orange, Putnam, Rensselaer, Saratoga, Schoharie, Schenectady, Ulster, Warren and Washington Counties*

*Berry To Do List, continued from previous page*

hand lens. Acramite, Zeal, Brigade are some of the options for control and Organic JMS stylet oil is labelled for NY.

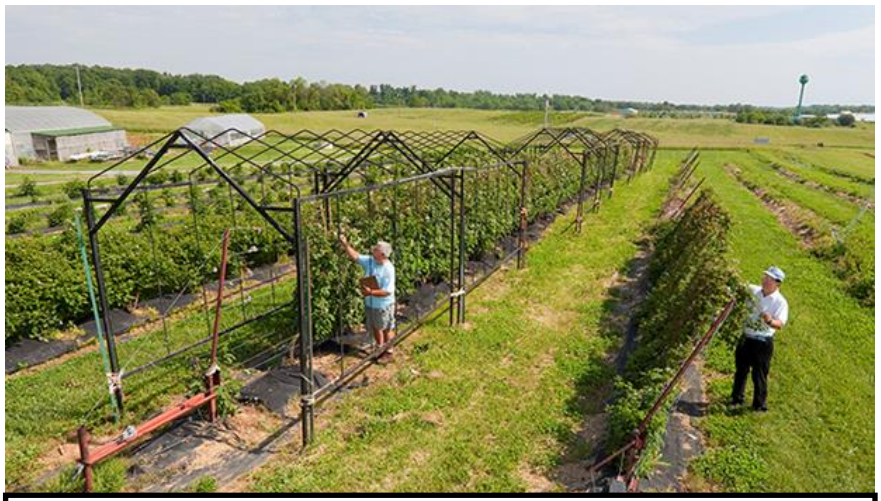
- In summer bearing crops, remove old floricanes now and tie up primocanes.
- Sinbar, Devrionl, Solicam, Surflan and Princep can all be used into October on various problem weeds. Note that there are seasonal limits on a few of these materials, so if you used them in the spring you may not be able to use them now.

**Strawberries**

- June bearing strawberry regrowth looks pretty good, but growers need to **make sure plants are getting watered**. Fruit bud set is occurring now – so if you want a crop next year – make sure they get 1-2" of water per week.
- Make sure to check day neutral berries for mites. The hot, dry weather promotes mite populations.
- June bearing strawberries should have had 70# of actual N per acre applied at renovation and 30# of actual N/acre applied by mid-September. Use urea (46% N), ammonium nitrate (34% N) or calcium nitrate (15% N). Water deeply following application.
- Scout weak areas for root weevil larvae, root disease or soil problems. This is a good time to sub-soil if you can get your hands on that equipment. Sub-soiling breaks the hard pan that almost all continually used soils develop. Doing this every few years will really help alleviate root disease issues.

## Blackberry Trellis System Boosts Profits

Written by Sharon Durham, Agricultural Research Service Information Staff. Source: *AgResearch* Magazine, August 2015



Takeda (above right) inspects blackberry plants on the new trellis system while this echnician inspects blackberry plants trained using a conventional system.

Blackberry crops are becoming more common in the United States, but commercial production is limited in the Midwest and Northeast because the plant's canes (branches) are injured or killed by low temperatures. In the southern parts of the country, the challenges are high temperatures and intense sunlight, which can cause fruit to sunburn.

Agricultural Research Service horticulturist Fumiomi Takeda of the Appalachian Fruit Research Station developed a rotating cross-arm (RCA) trellis and cane-training system to help growers overcome environmental challenges, produce more fruit, and reduce labor costs. This system can increase a grower's income by more than $6,000 per acre—a significant increase.

The system consists of a fixed length of fence and an equal length of fence fitted to the top with hinges, allowing it to be set at different positions. "The RCA system allows the canopy [top part] of the blackberry plant to be rotated so that the canopy can be positioned horizontally, diagonally, or vertically," says Takeda.

"In this system, when the primocanes, or first-year growth, reach a certain length, they are bent and trained to grow horizontally on the wire to the adjacent plant, at which time the tips are cut. The lateral canes that develop from the primocanes are trained on wires on the long cross arm. Once the lateral canes are tied to the wires, the plant canopy can be rotated without breaking the canes to lower the plant canopy closer to the ground in winter and raise it to the diagonal in spring," says Takeda.

Blackberry canes have a 2-year life cycle. "First-year growth is strictly vegetative and then the canes must survive the winter. The overwintered canes, called 'floricanes,' are reproductive and produce fruit from the



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*Blackberry Trellis System Boosts Profits, continued from previous page*

second year onward," explains Takeda.

The fruit of conventionally trellised blackberry plants is harvested from both sides of the plant row and in the middle of the wide plant canopy. Harvesting fruit on one side of the row of plants trained to the RCA trellis was 30 percent faster than harvesting fruit from both sides of the row.

To limit damage from harsh winter temperatures, growers can use the new trellis system to reposition the canopy and protect it.

"When the RCA trellis and cane training system is used, the overwintering canes can be positioned horizontally close to the ground and then the plants can be covered with insulating material to provide an effective method to prevent low-temperature injury," says Takeda. "In spring, while the canes are still oriented horizontally and the insulating material has been removed, the flowering shoots emerge from the canes and grow upward above the canes. Once half of the shoots flower, then the cross-arms can be rotated up and beyond vertical."

In the southern portion of the country, high temperatures and intense sunlight can cause fruit to burn. With the RCA trellis and cane-training system, the fruit can be positioned away from direct sunlight.

"In Georgia, the adoption of the RCA trellis and cane-training system has reduced sunburn damage in the Apache blackberry from about 35 percent in the conventional system to less than 5 percent. It has helped increase the volume of fruit that can be packed and can reduce harvest costs, which resulted in increases in grower income," says Takeda.

Pokeweed and Goldenrod—pretty but tough perennial weeds in berry patches. And pokeweed is toxic when eaten.

## For Your Information:

- **The New York State Department of Environmental Conservation recently approved BioCeres WP (EPA Reg. No. 89600-2) for use in New York State.** This product contains the active ingredient *Beauveria bassiana* strain ANT-03. This is the first product registered in New York State containing this active ingredient. BioCeres is a contact biological insecticide labeled for control or suppression of many foliar feeding insect pests including aphids, white flies, thrips, plant bugs, beetles, and weevils. It is registered for use on numerous vegetable crops, berry crops, field crops, grapes, greenhouse vegetables and ornamentals, herbs and spices, hops, tree fruits and nuts, and shade and ornamental trees.

- **U.S. strawberry production is expected to be up in 2015**. About 31.1 million cwt. of U.S. strawberries will likely be produced in 2015, 4% more than last year, according to the Sept. 4 report from the U.S. Department of Agriculture's National Agricultural Statistics Service. Harvested acreage, however, is projected to fall 2%, to 52,800 acres. Yields should increase 37 cwt. to 588 cwt. per acre.

- **Interested in SWD Exclusion Netting?** If you missed last week's meeting, Dale Ila Riggs, owner of The Berry Patch and cooperator on the exclusion netting project has invited growers to contact her directly to look at the netting and talk to her about the material. Her email is stonewallhill@fairpoint.net. The farm is located at 15589 NY-22, Stephentown, NY 12168, but please email, or call (518) 733-1234 first to make sure someone is there.

# It's a Bug-Eat-Bug World Out There for Strawberry Growers

Source: University of Florida Press Release. www.ifas.ufl.edu

A University of Florida scientist is trying to find an insect that will eat the fly that's damaging such fruit as strawberries and blueberries in the Sunshine State. Such a finding would be critical in Florida, where the strawberry harvest brought in $267 million in 2013, according to the U.S. Department of Agriculture. Justin Renkema, an assistant professor in entomology, recently developed tools to help determine whether he's found a biological control for the Drosophila suzukii, commonly called the spotted wing drosophila.

Among other goals of the experiments, Renkema and his co-authors wanted to detect the DNA of spotted wing drosophila after it's been eaten by a predatory rove beetle. This is a critical test to know whether one insect has eaten another, he said.

"The molecular tools we developed should be useful for testing whether other predators inhabiting fruit and berry fields consume spotted wing drosophila," said Renkema, a new faculty member at the UF/IFAS Gulf Coast Research and Education Center in Balm.

In their experiment, Renkema and his co-authors also wanted to know how many spotted wing drosophila larvae or pupae a rove beetle could eat. Normally, spotted wing drosophila infest fruit, so they also tested the ability of the rove beetle to enter infested fruit, find the flies' larvae and eat them.

They found that the rove beetle ate larvae, or immature flies, but not pupae – a more advanced developmental stage — of spotted wing drosophila, so more research is needed.

"There is ongoing research around the world on parasitic wasps that infect larvae or pupae and beneficial fungi that infect adult flies," he said. "Increasing the abundance and diversity of biological control agents should reduce populations of this pest and help build an integrated approach to management."

Spotted wing drosophila cuts a slit in the skin and lays eggs inside many fruits. The larvae from those eggs damage raspberries, blackberries, blueberries, strawberries, cherries, grapes, peaches and plums. Native to Asia and first found in the continental U.S. in California in 2008, the fly has become common throughout most of the U.S. and North America, as well as in most European countries and southern Brazil.

The study, led by Renkema when he was a post-doctoral researcher at the University of Guelph in Canada, is published in the journal Biological Control. Justin Renkema, an assistant professor in entomology, recently developed tools to help determine whether he's found a biological control for the Drosophila suzukii, commonly called the spotted wing drosophila. Among other goals of the experiments, Renkema and his co-authors wanted to detect the DNA of spotted wing drosophila after it's been eaten by a predatory rove beetle. This is a critical test to know whether one insect has eaten another, he said.

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# Late Season Cover Crops

*Editors' Note: Rainfall would be extremely helpful in order to guarantee cover crops taking hold and getting a good jump on the cool weather that will inevitably follow this heat wave. Seeding before a rain is preferred, but a cover crop, even if weaker than hoped, will still be helpful for soil improvement. Also, not all of these covers are good choices for every situation. It takes consideration to figure out the optimal cover for your farm. But rye works in almost every situation – but it's not always the best choice – just the easiest..*

Good late season cover crops grow organic matter, scavenge any remaining nitrogen or other nutrients, choke out weeds, and make sure soil will not erode during fall and winter rains. Grains and grasses can provide all of these functions. Legumes can add additional nitrogen. Each has strengths and weaknesses. Below is a list of several good choices, depending on your specific goals and field conditions.

**Rye** is easily the most common cover crop used by growers in Massachusetts, and for good reason. It is inexpensive, easy to get and establish, and can be seeded fairly late into the fall and still take. It overwinters here and will continue to grow in the spring, producing lots of organic matter. Rye may also be referred to as "winter rye" or "perennial ryegrass."

Application. Plant before September 15 if possible. Planting rye after September 15 dramatically reduces the ability of the roots to reach the available N in the soil and

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*Late Season Cover Crops, continued from previous page*

to produce enough canopy to protect soil from erosion. Cover crops planted in August develop larger, deeper roots and more canopy – providing better nitrogen uptake, less leaching, and more protection of soil from erosion. Seeding rate: 90 – 120 lbs/acre.

**Oats** can be seeded in the late summer or fall and will come up quickly, similar to winter rye. Fall-planted oats grow some organic matter, crowd out weeds, prevent erosion, and provide winter-killed ground cover that is easily incorporated for early spring vegetables. Because it winter-kills and will not re-grow in the spring, it is easy to manage for early spring crops, and some growers prefer it over winter rye. To maximize nitrogen provided to the following crop, mix oats with a legume that will overwinter, such as hairy vetch. Note that in winter 2011-2012 oats did NOT winter kill in many areas of New England. Be sure to check for winter survivors that need managing in spring.

Application. Oats are more easily established than some other cover crops. Seed is usually easily and cheaply available. Make sure the oats have not been cooked (used as an animal feed); cleaned, bin-run seed is fine. Prepare a weed-free seedbed from mid-August – mid- September. Try to seed by Sept. 1 or no later than 40 days before killing frost. Growers along the coast can plant later. For seeding after vegetables, or when using oats as a nurse crop with legumes, no nitrogen fertilizer is required. Drill 80-110 lb/A oats; broadcast 110-140 lb/A. Increase the rate 10% in late September. When seeding oats with a legume use a lower rate of oats (for hairy vetch or clover, 35-75 lb/A is appropriate). Soil crusting after heavy rain will affect the stand and the cover crops may require reseeding.

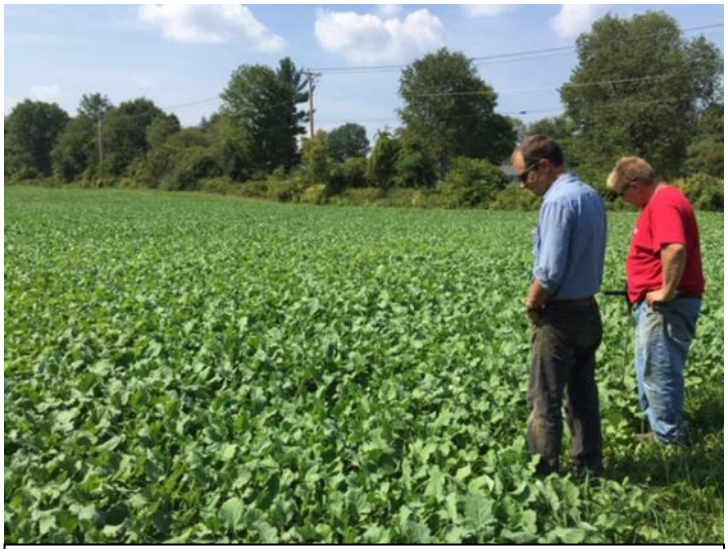
**Ryegrass** is used by some growers because of its thick root system that is thought to mop up more nitrogen than rye or oat. It makes a dense sod which improves soil aggregation and reduces surface soil compaction. While ryegrass seedlings look weak compared to wheat or rye, they grow rapidly and are good for fall weed suppression.

Ryegrass is a species closely related to rye, but it is an annual, while rye is a perennial. Because the two plants are related, rye is sometimes referred to as "perennial ryegrass" and ryegrass as "annual ryegrass," which can cause confusion. Despite these designations, "annual" ryegrass may overwinter and "perennia'l rye may winterkill -- depending on when you seed them. Some varieties of "annual" ryegrass are also more resistant to winter-kill than others. If you have not seeded them before and would like to evaluate a particular variety, plant a little in order to see its growth habit. Ryegrass can also be used as a cover crop in the early spring. The seed is small and light, so specialized equipment will be needed if seeding a large area.

Application. Ryegrass should be planted from late August to mid-September. For weed control, rapid and vigorous growth is essential, and dependent upon good soil moisture and adequate nitrogen. There is often enough nitrogen left in the soil after vegetables. If there is not, 30 lb/A of N can double fall growth of the ryegrass. Under dry conditions, drilling is necessary. If the soil surface is moist, broadcasting without covering is effective. Seed ryegrass at 10 lb/A if drilled into reasonably moist soil, and 15 lb/A in dryer soil. Broadcasting requires 15-20 lb/A.

In the spring, leave plenty of time for the ryegrass sod to decompose after tillage or herbicide application. Don't plan on planting an early vegetable crop after it. Glyphosate is not effective until average daytime temperatures have reached the 50s and the ryegrass is actively growing. Ryegrass volunteers are particularly undesirable in small grains, so special care must be taken if they are part of your rotation.

**Winter Wheat** is a crop of increasing interest both as a cereal grain and as a cover crop. It is easier to manage in the spring compared to winter rye; it does not grow as tall



Don McLean of Thompson Finch Farm and Chuck Bornt standing in a beautiful mustard stand on a future strawberry field. LGM

or mature as quickly so there is no rush to kill it in early spring and risk compacting soils. Wheat is excellent for erosion control, for scavenging N, P and K in fall (takes up N slowly in fall, heavily in spring), suppressing weeds in spring and fall, and building soil organic matter and tilth. In spring, it can be grazed or tilled under. Best growth will be in well-drained soils with moderate fertility; wet or heavy

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*Late Season Cover Crops, continued from previous page*

soils are tolerated but flooding is not. Rye is a better choice on poor soils.

Application. Plant in late summer to early fall, before mid-September. As a cover crop, use 60-120 lbs/A if drilled or 60 to 160 lb if broadcasted. Seed depth should be about ½ to 1.5 inches. Wheat also works well as a nurse crop for legumes such as hairy vetch or clover, either fall seeded or frost seeded in spring.

**Buckwheat** establishes quickly and provides a weed-smothering canopy within two to three weeks. It is one of the best cover crops for filling a short niche during the growing season. It scavenges phosphorus from soil and makes it available to subsequent crops. It does well in poor or worn-out soils and newly tilled land, likes light or sandy soil, but does not grow in wet heavy soils. The dense fibrous roots take up nutrients and leave top soil loose and friable. It is easy to incorporate. If mowed before 25% bloom it will re-grow. Pollinators as well as natural enemies of insect pests thrive on the shallow white blossoms. It is frost sensitive and will winter kill. An important caution: buckwheat can become a weed. Kill within 7 to 10 days after flowering begins, before the first seeds begin to harden and turn brown. Earliest maturing seed can shatter before plants finish blooming. Some seed may overwinter in milder regions.

Application: Drill at 50 -70 lb/A, 0.5 to 1.5 inches deep or broadcast at 60-100 lb/A on a firm seedbed and disk or tine lightly. If left to overwinter, it can provide adequate soil cover with easy spring management, but it may be best used to fill a window between early and late crops.

**Sorghum-sudangrass hybrids (sudex)** is one of the best for building organic matter, penetrating and loosening compacted layers in subsoil competing with weeds. If left to overwinter, the dead residue protects soils and is easy too manage in spring. It provides the most organic matter for the cost of seed of any cover crop.

Application. This cover crop establishes and grows best in hot weather; for the best biomass production, it is best to seed before late August. However, it can still be planted later and will grow until frost-killed, which may be well into October in some years and locations. Drill seed 35-40 lb/A at 2 inches deep if needed to reach moist soil, or broadcast at 40-50 lb/A. Mowing at 3-4 feet stimulates root depth (from 6-8 to 10-12 inches) and root mass as well as production of more tillers. Incorporate while green to obtain nematode suppression.

**Legume cover crops**: hairy vetch and red clover - If well managed, legume cover crops can provide good quantities of nitrogen to the following crop. Hairy vetch and medium red clover are both reliable and economical options. Hairy vetch over winters and has the potential to fix up to 150 lbs/A nitrogen. Most of the nitrogen is fixed during May, however, so seed it where a mid-June cash crop planting will go.

Application. Mid-August through early September is the best time to establish a legume cover crop. Vetch seedlings grow slowly so get it planted by September 15th to give it time to develop a strong root system to ensure over-wintering. Vetch needs to be drilled into a soil with good moisture for a reliable stand. Seed it at 40 lbs/A and be sure to inoculate to ensure N fixation. (Vetch can be sown at rates as low as 25 lb/A, but the additional weed suppression and N fixation from the higher rate can make it cost effective.) Vetch should be seeded with a grass nurse crop to reliably overwinter. The grass will also reduce weed growth and will provide support to reduce matting of the vetch under snow. Wheat (40 lb/A) overwinters and is likely the best nurse crop in most situations, although oat (40-50 lb/A) and rye (30-40 lb/A) can also be used. The vetch and grain seed can be mixed together in the drill. In the spring incorporate at early bloom of the vetch, typically late May, for maximum N fixation and minimum vetch seed production. Medium red clover is sown at 8 to 10 lbs per acre if drilled and 10-12 lb/A if broadcast or sown onto prepared ground. Clover be overseeded at the last cultivation in fall crops, or seeded with a nurse crop of small grain. Clover may be incorporated in spring or allowed to grow through a full season. Allow a couple of weeks for breakdown before planting your vegetable crop.

Caution: If you raise small grains don't plant hairy vetch. It has hard seed that will germinate in future small grains producing vetch seed that contaminates the grain.
Note: Seeding rate recommendations may vary with regional differences.

For seed sources, costs, and more details on these cover crops go to the Cover Crops for Vegetable Growers website at: www.covercrop.net [1] Scroll down the left menu for the various crops.

Source: adapted from articles by R. Hazzard & F. Mangan, UMass; and Carol MacNeil and Thomas Bjorkman, Cornell Vegetable Program (see www.covercrop.net [1]).
Resources: Managing Cover Crops Profitably, 3rd edition, published by Sustainable Agriculture Network available in hard copy and online; New England Vegetable Management Guide, www.nevegetable.org [2].

# Extending Local Strawberry Production Using Low Tunnel Technology

***Wednesday, September 16th, 2015***
***3:00 – 5:00pm at Stanton's Feura Farm***
***210 Onesquethaw Creek Road, Feura Bush, NY 12067***

**New York Farm Viability Institute (NYFVI)** awarded a grant for demonstrations of day neutral strawberries under low tunnels. Day neutral strawberries are challenging to grow, but can yield great rewards for direct market growers. Low tunnels have been shown to reduce disease problems. Tim and Colleen Stanton have joined several other growers statewide to demonstrate this technology.

In addition, we will look at a June bearing field that has been thriving after being installed in a zone tillage system and we'll look at bramble and blueberry production systems.

Cornell Professor and Berry Specialist, Marvin Pritts will be attendance to answer questions, about this technique and Dubois Agrinovation representatives will also be present.

**Please register by calling Marcie at 518-272-4210 or registering the ENYCHP website, http://enych.cce.cornell.edu/** – there is no fee, but it will help us provide the appropriate number of handouts etc. If you get a machine, leave the number attending, your name and a phone number. **This event will happen rain or shine.**

*If you have questions, please contact Laura McDermott: 518-791-5038 or lgm4@cornell.edu.*

Research Supported by funding from the New York Farm Viability Institute.

NY farm viability INSTITUTE

**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

| | Growing Degree Information Base 50$^{O}$ F | | | Rainfall Accumulations | | |
|---|---|---|---|---|---|---|
| **Site** | **2015 Weekly Total** 8/31– 9/7 | **2015 Season Total** 3/1 - 9/7 | **2014 Season Total** 3/1 - 9/7 | **2015 Weekly Rainfall** (inches) 8/31- 9/7 | **2015 Total Rainfall** (inches) 3/1 - 9/7 | **2014 Total Rainfall** (inches) 3/1-9/7 |
| **Albany** | **177.0** | **2677.5** | **2425.5** | **0.00** | **17.38** | **19.74** |
| **Castleton** | **169.4** | **3166.6** | **2293.8** | **0.04** | **18.28** | **20.90** |
| **Clifton Park** | **176.9** | **2580.2** | **2201.6** | **0.07** | **15.35** | **20.93** |
| **Fishkill** | **164.7** | **2549.4** | **Na[1]** | **0.00** | **6.11** | **Na[1]** |
| **Glens Falls** | **153.5** | **2312.6** | **2167.5** | **0.00** | **14.87** | **24.66** |
| **Griffiss** | **161.2** | **2162.0** | **2041.0** | **0.00** | **22.33** | **27.55** |
| **Guilderland** | **177.3** | **2447.0** | **2218.5** | **Na** | **Na** | **Na[2]** |
| **Highland** | **171.4** | **2681.6** | **2439.0** | **0.00** | **17.83** | **23.32** |
| **Hudson** | **173.9** | **2673.3** | **2448.7** | **0.00** | **16.06** | **26.61** |
| **Marlboro** | **168.6** | **2586.6** | **2346.7** | **0.00** | **15.19** | **21.65** |
| **Montgomery** | **166.5** | **2625.1** | **2382.5** | **0.00** | **17.36** | **19.03** |
| **Monticello** | **140.8** | **2065.4** | **1869.0** | **0.01** | **13.93** | **8.52** |
| **Peru** | **147.7** | **2193.6** | **2076.9** | **0.00** | **17.28** | **20.05** |
| **Red Hook** | **168.0** | **2550.9** | **2383.7** | **0.00** | **17.73** | **12.36[3]** |
| **Wilsboro** | **1952.1** | **2151.9** | **2014.1** | **0.03** | **21.33** | **11.08** |
| **South Hero, VT** | **163.0** | **2306.4** | **2178.5** | **0.00** | **19.90** | **22.11** |
| **N. Adams, MA** | **139.5** | **2088.5** | **1945.5** | **0.00** | **18.40** | **20.65** |
| **Danbury, CT** | **156.5** | **2452.0** | **2219.0** | **0.00** | **18.25** | **23.10** |

Na[1]: The Fishkill site is new for 2015 so there is no historical data to report.
Na[2]: 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.