



## Berry News

### Spring Berry "To Do" List

#### All crops

- The last week of warm weather has pushed growing degrees forward and also moved crop phenology.
- The soil has been relatively warm for a month, and it's drying out in many places. As leaves expand the plant needs water and the first part of the season is when shoot expansion on cane and bush berries is so important – so make sure plants get 1-2" of water per week as the season progresses.
- Check for rodent activity in plantings – burrowing holes, chewing etc. and make a note to place bait stations in planting in early November. Reduce habitat where possible.
- Spring herbicide applications should be applied ASAP. See weed control articles in this newsletter. Please call Jim or Laura if you have an herbicide question. These materials are finicky and weather and crop/weed growth stage effects results directly.

#### Blueberries

- Blueberries are at tight cluster in the south and late bud swell in most locations north of Albany.
- There is still a window of opportunity for pruning if plants really need it. However, if you are concerned about bud damage from early April freeze, I have been advising growers not to prune fruiting wood at this time.
- There is phomopsis showing up in plantings for the first time. This damage is tricky at first because it looks a LOT like winter injury. If you have a canker problem – spray copper sulfate, lime sulfur, Pristine, or Quash according to label directions. This should be done at delayed dormant which most areas are finished with.
- To improve pollination on remaining un-injured flowers, plan on getting bumble bee hives into the planting.
- **Another thing that might help improve viability of buds would be a 'spring tonic'. This foliar nutrient spray is often used by tree fruit growers and was recommended by Dr. Warren Stiles a retired Cornell pomologist for many years. If you are looking at a really weak crop this might help. Mix 1lb Solubor, 3# urea, and 1 qt Zn chelate into 100 gallons of water and apply at tight cluster to pink when leaf surface is present.**
- Green tip sprays for Mummyberry and Botrytis should be applied soon. Abound and Indar are labelled for both diseases, but there are other choices as well. Again – check the Guidelines or the label.

#### Raspberries/Blackberries

- Some raspberry cane dieback from winter injury but pretty minimal.
- Raspberries are at 1" in the south and bud-break north of Albany. Damage from the early April freeze is not evident yet, but if you see sudden wilting the likely culprit is cold injury. The bud is not injured, rather the connective vascular tissue which is a mere 1-2 cells wide is easily damage even while the bud is dormant. See photo 1 for picture of dormant bud with damage at point of connection and also internal bud injury.
- You can still thin floricanes raspberries to the appropriate density – 4-6 canes per square foot of row. Rows should be no wider than 18" preferably 12" wide. Remove small canes that will not contribute to overall productivity.
- Later plantings can still spray for Anthracnose, Spur Blight and Cane Blight. Lime sulfur is labelled for all three, but if you don't like using it there are many other choices. Give Jim or Laura a call if you are wondering about materials.



Photo 1: On left see winter/spring injured blackberry bud with vascular tissue damage right at point of connection to cane. On right there is a photo of later bud with freeze damage to the internal flower. Photo courtesy of F. Zaman, CCE Suffolk Co.

☐ Strawberries

- Straw should be removed from strawberries **now**. There is a lot of discussion that straw removal should be dictated by soil temperatures and that cold damage to some buds from spring frost will result in less yield loss than the 10-20% loss in yield due to leaving straw on for too long. Work done by Marvin Pritts (Pritts, M. P., K. A. Worden and M. Eames-Sheavly. 1988. *Row-cover material and time of application and removal affect ripening and yield of strawberry*. Jour. Amer. Soc. Hort. Sci. 114:531-536) indicated that the best results were from treatments where the straw mulch was applied later in the winter (Dec. to Feb.!) and then removed at the earliest possible time – in the case of this study at the end of February. This consistently yielded best winter survival and best overall productivity likely because it allowed plants to get access to light early.
- Have row cover and/or overhead sprinklers available and ready for frost protection.
- High tunnel strawberries should be on the lookout for mites which thrive in hot, dry conditions. The scouting threshold is 1 mite per leaf on at least 15 leaflets out of 60 samples OR 5 mites/leaf. Don't let mites get ahead of you. Many different pesticides including JMS Stylet Oil which is organic and Agri-Mek, Kanemite and Acramite.

☐ Ribes

- Some spring freeze injury noted in Ribes. Hopefully it won't be a significant loss but it's difficult to tell on the strigs.
- Powdery mildew sprays (many organic options including oil, Kailgreen, sulfur and Actinovate, but also Rally, Cabrio and Rampart) should begin now if this disease has been a problem in the past.

## Using Honeybees to Pollinate Blueberries

*Source: [How to Succeed with Blueberry pollination](#), by Rufus Isaccs, Michigan State University*

**Editors' Note:** *This small excerpt is just meant to remind you that bringing in pollinators could really help with fruit set. Blueberries are tough crops for most pollinators – so natural pollination isn't always guaranteed. Prepare NOW to bring some additional help to the patch.*



*Photo 1. Berries with no bee pollination on left; with bee pollination on right. Photo courtesy of J. Wilson, MSU*

Research and experience in blueberries has shown variation across northern highbush cultivars in their needs for bee pollination (Table 1) due to the relative attractiveness of different cultivars and their degree of self-compatibility. If fields are managed for maximum production and have higher flower densities and yield, increased levels of honey bee stocking may be needed. While Table 1 shows 2.5 hives per acre for Jersey and Earliblue, some growers are using up to eight colonies per acre to ensure good pollination, even if spring weather is

**Timing:** Wait until bloom has started to bring in bees. Flowers of blueberries are generally less attractive to honey bees than other flowers due to the relatively low nectar reward. Because of this, it is best to bring in bees once the crop has started to bloom so that bees forage more on blueberries than other flowers. If brought in too early, bees may learn to forage elsewhere, reducing their focus on your crop fields. Move bees into blueberry fields after 5 percent bloom, but before 25 percent of full bloom.

**Renting:** If you are renting honey bee hives, you should expect to receive healthy and vigorous bees. A healthy colony contains around 30,000 worker honey bees and will have six frames of brood. Having weak hives will affect how much pollination the fields receive, so it is worth taking time to ensure you have strong hives. If you suspect weak colonies, talk to your beekeeper about getting additional hives or replacing them. One strong hive of 30,000 bees will provide better pollination than two 15,000 bee hives because there will be more worker bees that fly to visit flowers.

**Stocking densities.** Feral colonies of honey bees and abundant native bee populations used to contribute to blueberry pollination. However, mite pests have decimated the numbers of feral honey bee colonies, and many farms do not provide suitable habitat for native bees to survive in high abundance. This makes fruit production more dependent than ever on managed bees, so it is important to stock fields with sufficient bees to supply enough visits to flowers.

cool and there are only a few good days for honey bee activity. This can be considered a form of pollination insurance to make sure that whatever the spring brings there will be the best chance of good pollination.

For further information on improving blueberry pollination visit Emily May's presentation at the 2015 New England Fruit and Vegetable conference: <http://www.newenglandvfc.org/>

Variety	Honeybee hives/acre
Rubel, Rancocas	0.5
Weymouth, Bluetta, Blueray	1.0
Bluecrop	1.5
Elliot, Coville, Berkeley, Stanley	2.0
Jersey, Earliblue	2.5

*Table 1. Recommended stocking density of honey bees for high-bush blueberry pollination (from Pritts & Hancock)*

## Fertilizing Berry Crops

Laura McDermott, ENYCHP

The beginning of May is the trigger date for fertilization so try to make sure that you have the appropriate materials on hand. Table 3., below, is the chart right out of the Cornell Guidelines.

Remember to measure your plantings if you haven't already done so. It is a common mistake to assume you have a certain size field and then when it's actually measured (not with your paces!) it turns out to be substantially different. When measuring berry plantings, consider that for fertilizer, we measure just the planted row acreage. Measure the width and length of the rows to determine actual acreage.

Also, remember that table 3 is recommending **actual N** – not pounds of total fertilizer material. To determine the actual N in your fertilizer source, look at Table 1 and Table 2. Table 2 lists organic sources – remember that there could certainly be variation in your compost so getting it tested is recommended.

To calculate the amount of fertilizer to apply, divide the desired amount of actual N by the percent N in the fertilizer and then multiply the result by 100. Apply the total amount of fertilizer in a 3-foot band in the row (1 foot band over the row for strawberries).

Example: Calcium nitrate, actual N recommended is 30#/  
 A on strawberries. Calcium nitrate is 15% N.



*Avoid chlorotic symptoms like this by making sure pH is also adjusted in blueberry plantings. No amount of fertilizer will cure soil pH problems.*

A on strawberries. Calcium nitrate is 15% N.

**Calculation:**

$$\frac{30 \text{ lbs/A actual N}}{15\% \text{ N in Ca nitrate}} \times 100 = 200 \text{ lbs/A calcium nitrate}$$

**Table 1. Nitrogen sources and calculation of actual N**

Fertilizer	% actual N in fertilizer
Ammonium nitrate	34.0
Ammonium sulfate	20.5
Calcium nitrate	15.0
Diammonium phosphate	17.0
Potassium nitrate	13.0
Urea	46.0

**Table 2 – Organic Nitrogen sources**, source: Vern Grubinger, UVM; <http://www.uvm.edu/vtvegandberry/factsheets/organicN.html>

Organic Source	% N	C/N ratio	Lb N/ton	Example FOB cost/ton	\$/lb N	Release Rate
Finished field compost	1.2	17	24	\$25	\$1.04	slow
alfalfa meal	2.7	15	54	\$348	\$6.44	medium
poultry manure compost	4	15	80	\$251	\$3.13	slow
soybean meal	6	7	120	\$314	\$2.62	medium
feather meal	10	4	200	\$968	\$4.48	Very slow
'Pro-Gro' 5-3-4 5	5	3	100	\$340	\$3.40	medium
'Pro-Booster' 10-0-0	10	2	200	\$375	\$1.87	medium

**Table 3 - Nitrogen guidelines for berry crops.** Source: 2016 Cornell Pest Management Guidelines for Berry Crops

Crop	Age of planting	Amount/timings (actual N)	N source	Comments
<b>Strawberries (June-bearing)</b>				
	0	30 lb/A, <i>early June</i> 30 lb/A, <i>early September</i>	ammonium nitrate or calcium nitrate	Be sure plants are growing well prior to application.
	1+	70 lb/A, <i>at renovation</i> 30 lb/A, <i>early September</i>	ammonium nitrate, urea, calcium nitrate	Adjust fall amount based on leaf analysis.

*continued on next page*



Crop	Age of planting	Amount/timings (actual N)	N source	Comments
<b>Strawberries (day neutral)</b>				
	0	3 lb/A weekly, beginning 4-6 weeks after planting	calcium nitrate	Water soluble product applied through drip irrigation system. Be sure plants are growing well prior to first application.
	0	5 lb/A weekly beginning at green fruit through the end of harvest	potassium nitrate	Water soluble product applied through drip irrigation system.
	1	3 lb/A weekly, beginning 4-6 weeks after planting	calcium nitrate	Water soluble product applied through drip irrigation system.
	1	5 lb/A weekly beginning at green fruit through the end of harvest	potassium nitrate	Water soluble product applied through drip irrigation system.
<b>Raspberries and Blackberries (summer-bearing)</b>				
	0	25-35 lb/A, 4 weeks after planting	calcium nitrate	Avoid touching plants with fertilizers after planting.
	1	35-55 lb/A, in May or split between May and June	urea or ammonium nitrate	Use higher amount on sandier soils or if irrigation is used.
	2+	40-80 lb/A, in May or split between May and June	urea or ammonium nitrate	Use higher amount on sandier soils or if irrigation is used.
<b>Raspberries (fall-bearing)</b>				
	0	25 lb/A, 4 weeks after planting	calcium nitrate	Avoid touching plants with fertilizers after planting.
	1	50-80 lb/A, split between May and June	urea or ammonium nitrate	Use higher amount on sandier soils or if irrigation is used.
	2+	70-100 lb/A, split between May and June	urea or ammonium nitrate	Use higher amount on sandier soils or if irrigation is used. Adjust with leaf analysis.
<b>Blueberries</b>				
	0	Do not fertilize newly planted blueberries	–	Soil should be adjusted to pH 4.5 prior to planting.
	1	15 lb/A, split between May and June	ammonium sulfate or urea	Use ammonium sulfate where soil pH is >5.0.
	2	20 lb/A, split between May and June	ammonium sulfate or urea	Use ammonium sulfate where soil pH is >5.0.
	3	25 lb/A, split between May and June	ammonium sulfate or urea	Use ammonium sulfate where soil pH is >5.0.
	4	35 lb/A, split between May and June	ammonium sulfate or urea	Use ammonium sulfate where soil pH is >5.0.
	5	45 lb/A split between May and June	ammonium sulfate or urea	Use ammonium sulfate where soil pH is >5.0.
	6	55 lb/A split between May and June	ammonium sulfate or urea	Use ammonium sulfate where soil pH is >5.0.
	7+	65 lb/A split between May and June	ammonium sulfate or urea	Use ammonium sulfate where soil pH is >5.0.

### Early Season Weed Control in Cane and Bush and Caneberries

Laura McDermott, ENYCHP

This year our soils are already much warmer, so for many of you the opportunity window for applying some of these early season herbicides has passed. Please read this closely and make sure to determine the situation at your farm before choosing a strategy.

One of the earliest herbicides that can be used is Casoron. Casoron has two different formulations: Casoron 4G

(granular) can be used in bushberries, caneberries, and cranberries. The granular material should be applied before May 1st but the earlier the better. If you are applying it in April, make sure to apply before soil temperatures exceed 45 degree F and before any annual weed seeds germinate. Casoron CS (not labeled for Ribes) can be applied a bit later but still needs to be incorporated by rainfall

*Weed Control, continued from previous page*

before weed germination; it is labeled for 1 year old blueberries, as well as blackberry and raspberries if applied before new shoot emergence. Casoron controls annual grasses and broadleaves, as well as some perennial grasses. Follow Casoron with a post-emergent such as paraquat to kill pre-emerged weeds or apply glyphosate when weeds are actively growing.

Another pre-emergent is Surflan AS or Surflan XL 2G. Surflan AS can be used in non-bearing and bearing brambles at a rate of 20-40 gallons per acre. To broaden the spectrum of weed control, tank mix Gramaxone, Princep or Solicam. Irrigate product in to activate material. Surflan XL 2G can only be applied to non-bearing brambles.

Princep, Devrinol, Axex, Solicam or Sinbar can all be applied for pre-emergent weed control in brambles and blueberries. These herbicides generally do not do a great job on all weeds and need to be evaluated as to your weed population and which tool makes the most sense.

Sandea and Velpar are two products that are only labeled

for blueberries. They can both be applied in early spring although Sandea's real strength is that it controls nutsedge. This can only be accomplished as a post-emergent directed spray.

Velpar can be applied to bushes that are 3 years or older. It should be applied before the foliage on the lower limbs break bud. Effects of Velpar L vary from one soil type to another. I've seen growers use Velpar to control annual weeds, but it also seems to have some effect on perennial weeds as well.

Poast is a good material for post-emergence grass control. This herbicide works best if applied on small grass (now!) 4-6" in height. The other caveat is the grass needs to be actively growing and if it's dry the grass may not respond well to an application.

**Check 2016 Berry Pest Guidelines for details of material applications. If you don't have a new Guideline, please call Laura McDermott or Jim O'Connell.**

## Ransomware— A Serious Threat to Small Business

### Ransomware – A Serious Threat to Small Business

Several farms in the Capital District and MANY other Small Businesses throughout the region and country have fallen victim to Ransomware over the past several years with the threat intensifying in recent months. Here are some facts about this criminal problem.

#### What is ransomware?

Ransomware is malicious software that uses encryption to lock computer files preventing your access to them. An actual monetary ransom is demanded for the decryption key that allows you to unlock the code. Usually the ransom is low enough that it's easier to pay the amount demanded than spend the time and money attempting to unlock the code yourself. The thieves target files that are valuable to individuals, like photos and videos – or to a business, like business records, spreadsheets etc.

The files are not actually stolen from your computer – everything is still there but the owner of the file cannot access them. The cyber thief wants the ransom – not your files.

The average ransom is \$500, but often the file owner is forced to pay using untraceable cybercurrency (bitcoins). There may be a time limit — typically 12 hours — before the ransom doubles.

#### How can you protect your business from ransomware?

Instruct employees to never open email attachments or download software apps unless you are confident of the source. Malware attaches to these files and infects your computer.

The target is predominantly Windows-based computers and Android phones. But Apple devices are expected to

increasingly targets.

Make sure you have virus protection that it is up to date. Malware changes daily so security updates should be daily as well.

Back up all your files on a hard drive that is not connected to your computer.

#### What should you do if you become infected?

You can't remove the malware without destroying the infected files. If you have those files externally backed up, you can remove the files and the malware, and reinstall uninfected files from the backup.

If you pay the ransom, you will regain access to your files. But this may not remove the malware itself. Wiping your system and changing your IP address will help insure that your computer is not harboring the virus. Paying the ransom helps fund a criminal and may encourage more attacks.

If you pay the ransom, the cybercriminal provides a code, which triggers the decryption process. That can take days or weeks. Once files are decrypted, you'll be able to access them again.

If your computer is infected with ransomware, report the event to the local police.

For more detailed information about ransomware, read the brief at this website: <http://icitech.org/wp-content/uploads/2016/03/ICIT-Brief-The-Ransomware-Report2.pdf>

Source: This article was adapted from a report by CBC news, March 11, 2016 edition: <http://www.cbc.ca/news/technology/ransomware-what-you-need-to-know-1.2976248>

## ENYCHP Canada Bus Tour

**Date:** Tuesday, June 28, 2016

**Departure:** Leaving Albany at 6:00 am, with pick-ups along the Northway (Saratoga, Queensbury, Plattsburgh)

**Return:** Arrive in Albany at 9:00 pm.

*Details are being finalized but we plan to visit at least 2 large vegetable operations, 1 on muck soil, the other a greenhouse operation as well as an equipment manufacturer, all south of Montreal.*

More information to follow

## Sustainable Spotted Wing Drosophila Management for U.S. Fruit Crops

Your help needed to quantify the impact of SWD – please participate in this survey. [Click take the survey.](#)  
For more information about why your help is important – visit [North Carolina State University Cooperative Extension.](#)



### ENYCH Program Educators:

#### Fruit

Dan Donahue  
Phone: 845-691-7117  
Email: [djd13@cornell.edu](mailto:djd13@cornell.edu)  
Tree Fruit

Anna Wallis  
Phone: 443-421-7970  
Email: [aew232@cornell.edu](mailto:aew232@cornell.edu)  
Tree Fruit & Grapes

Laura McDermott  
Cell: 518-791-5038  
Email: [lgm4@cornell.edu](mailto:lgm4@cornell.edu)  
Berries

James O'Connell  
Phone: 845-691-7117  
Email: [jmo98@cornell.edu](mailto:jmo98@cornell.edu)  
Berries & Grapes

#### Vegetables

Chuck Bornt  
Cell: 518-859-6213  
Email: [cdb13@cornell.edu](mailto:cdb13@cornell.edu)

Amy Ivy  
Phone: 518-561-7450  
Email: [adi2@cornell.edu](mailto:adi2@cornell.edu)

Teresa Rusinek  
Phone: 845-340-3990 x315  
Email: [tr28@cornell.edu](mailto:tr28@cornell.edu)

Erik Schellenberg  
Phone: 845-344-1234  
Email: [js3234@cornell.edu](mailto:js3234@cornell.edu)

Crystal Stewart  
Cell: 518-775-0018  
Email: [cls263@cornell.edu](mailto:cls263@cornell.edu)

Maire Ullrich  
Phone: 845-344-1234  
Email: [mru2@cornell.edu](mailto:mru2@cornell.edu)

#### Business and Marketing

Jesse Strzok  
Phone: 608-556-4365  
Email: [js3234@cornell.edu](mailto:js3234@cornell.edu)

Content Editor: Laura McDermott  
Layout: Abby Henderson

*Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide. .*

2016 Weekly and Seasonal Weather Information						
Site	Growing Degree Information Base 50° F			Rainfall Accumulations		
	2016 Weekly Total 4/5-4/18	2016 Season Total 4/5-4/18	2015 Season Total 4/5-4/18	2016 Weekly Rainfall (inches) 4/5 - 4/18	2016 Total Rainfall (inches) 3/1 - 4/18	2015 Total Rainfall (inches) 3/1-4/18
Albany	18.4	65.9	39.0	0.73	2.46	2.61
Castleton	4.7	50.7	41.4	0.7	3.26	2.33
Glens Falls	14.1	34.6	16.0	0.82	3.38	1.43
Griffiss	12.7	35.7	10.0	1.5	5.35	1.37
Guilderland	18.5	49.5	27.5	0.95	7.11	2.68
Highland	27.6	96.4	55.9	0.99	2.67	4.59
Hudson	19.8	76.4	45.9	1.32	3.48	3.37
Marlboro	58.8	79.4	48.2	0.66	2.34	3.8
Montgomery	14.0	72.0	46.0	0.75	2.47	4.12
Peru	2.3	18.7	25.3	0.97	2.94	1.89
Red Hook	13.9	69.4	43.8	0.65	1.92	2.36
Willsboro	0	19.2	21.4	0.51	2.35	0.23
N. Adams, MA	5.6	40.6	9.5	1.54	4.35	1.81