



Berry News

Spring Berry "To Do" List

All crops

- 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. 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.

- GDD update: It seemed that growing degree days this spring have been accumulating slowly in eastern NY, but NEWA weather data indicates that we are on par for last season. As of Tuesday, April 25th Base 50 GDD accumulation since January 1 are listed alphabetically below. 2016 data, when available, is also listed. Visit the [NEWA](http://newa.cornell.edu/), <http://newa.cornell.edu/> web site – there are MANY additional weather stations listed providing historical and up to the day information for sites that are



Figure 1 — Blueberry flower buds emerging. For great photos of blueberry flower stages, visit [MSU web site](http://MSUweb.site). Photo courtesy of MSU

close to all of our farms in eastern NY. If you need help navigating it, give one of the specialists a call. We can do a lot over the phone to help you access the information that might really help with planning your planting and growing season.

Blueberries

- Buds have pushed in most locations except some sites in the north. If you have green tissue showing your opportunity for lime-sulfur has passed. Early blueberries are at tight cluster in the south and late bud swell in most locations north of Albany.

- *Review foliar nutrient recommendations* and make sure your fertility plan is in line. Foliar sampling should be done in early August. Contact Jim or Laura if you've never done this and need some help.

continued on next page

Base 50 GDD Accumulation – Jan 1- April 25

Site	2017	2016
Accord	89.7	46.5
Albany	117.5	100.0
Amsterdam	76.3	n/a
Crown Point	48.5	35.0
Glens Falls	57.0	59.0
Modena	116.0	122.1
New Paltz	107.6	137.3
Plattsburgh	23.5	n/a

In this issue of Berry News:

New Study Reveals Pesticide Peril in Beehives	3
Berry Crop Fertilization	4
Winter Moth Hatching	5
Set Strawberry "Alarm Clock" for Post-Apple Bloom	6
FYI	7
Calendar of Events	8

continued from previous page

- To improve pollination on flowers, plan on getting bumble bee hives into the planting.
- 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.

Strawberries:

- *Remove straw mulch!* Despite the generally cool weather, the mulch must come off as plants in all regions have started to grow. At this late date, leaving straw on the plants is more detrimental than potential frost might be.
- *Consider strawberry pre-plant herbicide options.* Prowl H2O or Chateau are great options for pre-plant herbicides. But depending on your weed pests you may want to try Dual magnum or Goal 2XL. Both of them have limitations primarily in timing, so read the label carefully. For details see the last edition (4/12) of this newsletter.
- 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. Introduce predators when appropriate.

Brambles:

- *Complete the necessary pruning:* Look for disease or insect issues as you prune. **If you have questions about pruning, attend one of the bramble pruning workshops scheduled in your area. See Calendar of Events in the back of this issue.** You can still thin floricaneraspberries 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.



Figure 2 — If you saw this type of damage last year, you need to take action to prevent Juneberry sawfly. Photo courtesy of Utah State University

- 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.

- *Early season weed control:* Light mulch after pruning will help, but weed control in brambles is a challenge. Herbicide options are limited, but in early March 2017 NYS approved a NY label for Chateau. Get details about pre and post weed emergence application options later in this newsletter, or refer to the NYS DEC Pesticide Information portal to download the supplemental label. <http://www.dec.ny.gov/nyspad/>

Juneberries (Saskatoons):

- According to Duke Elsner, the Michigan State Juneberry specialist, recent studies have shown that a great deal of crop damage can be caused by apple curculio and saskatoon sawfly. The larval stages of these insects feed inside the developing berries, resulting in fruit losses or the presence of insects inside fruits at harvest. Monitor for sawfly damage, treat the following spring if damage to berries exceeds 10%. Products include Molt-X (10 fl oz/A) or SuffOil-X (1 – 2 gal/100 gal) or PyGanic 1.4 ECII (16-64 fl oz/A).
- There are relatively few pesticides registered for use on this crop. Even for products that are registered, there is limited information on the efficacy of the active ingredients against specific saskatoon pests. Therefore, the recommendations are based largely on how well the pesticides are known to work on related pest species on other fruit crops.
- The Cornell Berry Crops Guidelines has a chapter

devoted to Juneberry pest management. Visit the [Cornell Store](#) to order guidelines directly, or order through the [ENYCHP enrollment process](#).

Ribes

- 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.

New Study Reveals Pesticide Peril in Beehives

Honeybees – employed to pollinate crops during the blooming season – encounter danger due to lingering and wandering pesticides, according to a new Cornell University study that analyzed the bee’s own food.

Researchers used 120 pristine honeybee colonies that were placed near 30 apple orchards around New York state. After allowing the bees to forage for several days during the apple flowering period, the scientists examined each hive’s “beebread” – the bees’ food stores made from gathered pollen – to search for traces of pesticides.

In 17 percent of colonies, the beebread revealed the presence of acutely high levels of pesticide exposure, while 73 percent were found to have chronic exposure.

“Surprisingly, there is not much known about the magnitude of risk or mechanisms of pesticide exposure when honeybees are brought in to pollinate major agricultural crops,” said lead author Scott McArt, assistant professor of entomology at Cornell.

“Beekeepers are very concerned about pesticides, but there’s very little field data. We’re trying to fill that gap in knowledge, so there’s less mystery and more fact regarding this controversial topic.”

More than 60 percent of the found pesticides were attributed to orchards and surrounding farmland that were not sprayed during the apple bloom season, according to the study. McArt said that persistent insecticides aimed at other crops may be surrounding the orchards. In addition, pre-bloom sprays in orchards may accumulate in nearby flowering weeds.

“We found risk was attributed to many different types of pesticides. Neonicotinoids were not the whole story, but they were part of the story,” he said. “Because neonicotinoids are persistent in the environment and accumulate in pollen and nectar, they are of concern. But one of our major findings is that many other pesticides contribute to risk.”

The study, “High Pesticide Risk to Honeybees Despite Low Focal Crop Pollen Collection During Polli-

nation of a Mass Blooming Crop” was published April 19 in *Nature Scientific Reports*.

The New York Farm Viability Institute funded this research.

Source: Fruit Growers News, April 20, 2017



Figure 3 — Photo courtesy of National Geographic ‘Your Shot’

Berry Crop Fertilization

May is when you need to start thinking about feeding berries. Make sure to measure the plantings accurately (in perennial crops you only consider the planted row, not the middle of the aisle). Also remember that the recommendations below is of actual Nitrogen – so depending on the fertilizer material that you use – that will change.

Table 3 - Nitrogen guidelines for berry crops.

Source: 2017 Cornell Pest Management Guidelines for Berry Crops

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

Winter Moth Hatching

Heather Faubert, Univ. of Rhode Island

Editors' Note: We still haven't found winter moth in eastern NY but growers should remain on the lookout. This insect is a challenge as it has a wide host range.

About 25% of winter moth eggs have hatched in southern RI in Kingston and Charlestown. At least 50% of eggs have turned blue (eggs turn blue about 2 days before they hatch). I expect the rest of the orange eggs to hatch over the next week. In cooler areas, such as along the coast, eggs have started to hatch, but not as many have hatched yet. So there are still many eggs



Close-up of Monitored Eggs: one orange and two blue eggs

waiting to hatch.

For apple, pear and blueberry growers protecting fruit buds, I think a second insecticide should be applied about one week after your first application. Use Imidan or spinosad (either Captain Jack's Deadbug Brew for backyard growing, or Delegate or Entrust). This application will also help protect fruit buds from caterpillars blowing in from surrounding trees.



Black circle around winter moth eggs, very hard to see



Figure 4 - What do you think of this?! Posted by Mark Bolda of the UC Davis on April 13th on his Strawberry and Canberry blog. He notes that San Andreas and Sweet Ann are clear leaders in the 'giant' category, but doesn't mention what this specific berry is. The berry is from the CBC breeding program and the photo was contributed by manager Kyle. Mark discusses the possibility that this is a "fused fruit" meaning it is derived from two flowers and thus not truly a single berry, but there are some fruit of this size and shape which come from a single flower. If any of you find anything even close – send me a picture! I would love to share it with the California folks.

Set Strawberry "Alarm Clock" for Post-Apple Bloom

Krishna Ramanujan

Editors Note: This work, when viewed along side the other article in this issue on impact of pesticides on honeybees illustrates how inter-related, but precarious these relationships are. Just interesting!

Growers who time their strawberries to bloom just after apples do can reap a better harvest, according to new research.

When apple trees blossom, the sheer abundance of flowers attracts most of the pollinators, which leaves fewer bees for other nearby crops such as strawberries and lowers their yields. However, if growers time their strawberries to flower directly after a neighboring apple bloom, strawberries produce higher yields than they would if there were no apple trees nearby.

The findings, published in the March 27 issue of Nature Scientific Reports, offers growers a sustainable method for boosting yields of crops that bloom around the same time as apples.

Previous research showed that strawberries can have as much as 40 percent yield increase when bees and other pollinators visit, compared with relying on wind pollination alone.

"We are trying to figure out ways that growers can use ecosystem services to promote crop yield rather than relying on external inputs, such as fertilizers and pesticides," said lead author Heather Grab, a doctoral student in the lab of co-author Bryan Danforth, professor of entomology.

Planting natural habitats around farm fields can lead to improved health of pollinators and a boost in their services, according to research. However, for many growers in agriculturally dense areas, increasing natural habitats is not an option.

"Those growers need some more sustainable agriculture options," Grab said. "If growers pay attention to timing of when crops are blooming and manipulate that by planting apple varieties and strawberry varieties that don't overlap, you can get a boost in yield that is almost equivalent to having natural habitat nearby." Growers often also use mulching systems to delay strawberry blooms.

The researchers, who conducted the study in the Finger Lakes region of Upstate New York, discovered diverse pollinator communities in the area, with at least 65 species visiting either apples or strawberries, with substantial overlap in species that visited both crops. The most abundant apple pollinators – ground nesting bees – were also the most abundant strawberry pollinators.

Grab and her colleagues set up experimental plots of potted strawberry plants in commercial strawberry fields, so they could control water, soil quality, deer herbivory and the timing of strawberry blooms. These plots were located across a gradient with apple orchards nearby in some locations and with no apples present in others. They also set up bee traps in these plots. They put out the pots of strawberries at three distinct time periods; during early apple bloom, at full-peak apple bloom, and just as apple blooms were dying out.

Future work will investigate whether this strategy also holds benefits for the pollinators, as food sources are spread out over time rather than having a large glut of food that is followed by less availability.

Co-authors included Greg Loeb and Katja Poveda, both Cornell faculty members in entomology, and Eleanor Blitzer, a biologist at Carroll College.

The study was supported by Smith Lever and Hatch funds and the United States Department of Agriculture.



F Y I

- For a directory of **how to navigate the tax rules for Food/Crop Donations**, visit this great guide from the Newberry Foundation: <http://www.nwberryfoundation.org/calinfo/Food-Donation-Fed-Tax-Guide-for-Pub-2.pdf>

- **Seniors at Skidmore College are conducting a research project on farming in the Capital Region.** They are interested in learning:

- What products farmers in the region produce
- Where they sell their products
- Why they do or do not sell locally

The survey only takes 3 minutes, and participants will be entered to win a 50\$ gift card to Tractor Supply. Your information will be kept completely confidential. Here is the link to the survey https://skidmore.qualtrics.com/jfe/form/SV_0i9CJFR0h7ZECFf

- **NYS Ag Mediation** received a NE SARE grant for a project to help new farmers and existing landowners navigate a land lease situation. They are recruiting farmer/landowner pairs that might like to take part in the project. Contact Claudia Kenny, NYS Agricultural Mediation Program, Statewide Director at claudia@nysdra.org or 518-687-2240 ext. 15 if you are interested.

- **Two New Farmers Market Opportunities in the Saratoga/Glens Falls area:**

- The Fort Edward Canal Street Marketplace farmers' market will be on Thursdays 4-7pm, June 1- Sept. 28. Contact Steve Hadcock, 518-828-3346 x106 or seh11@cornell.edu for an application.
- Saratoga Senior Center is looking for a few vendors to sell produce 1 day a week through the season. Contact Colleen Kelley, 518-584-1621 ext. 203 or seniorcenterprogram@gmail.com.

Attention Strawberry Growers!!

Are you having problems with berry field longevity, winter hardiness or just general poor stand establishment? If you think that some of the problem may be due to pests of the root system – including strawberry or black vine root weevil, plant parasitic nematodes or one of the soil born fungi - please contact Laura McDermott, 518-791-5038 or lga4@cornell.edu or Jim O'Connell, 845-943-9814 or jmo98@cornell.edu . We have financial support for diagnostic services and if, after an examination of your field, we think it would be helpful we can send the samples to the Cornell Diagnostic lab for confirmation of problems – an important first step to managing the problem. **There is NO COST to you!**



Strawberry field showing symptoms of verticillium wilt. Photo courtesy of Ohio State

CALENDAR OF EVENTS



Bramble Pruning Workshops

Focus will be on pruning to increase production and help control Spotted Wing Drosophila. General pest management and culture will also be discussed. There is no charge for these workshops, but we would like folks to register so that we know how to contact you.

Please go on-line and register at: <https://enych.cce.cornell.edu/>
or call Marcie at 518-272-4210.

May 4th

3:00 pm – 5:00 pm

Rulf's Orchard

531 Bear Swamp Rd, Peru, NY
12972.

May 11th

3:00 pm – 5:00 pm

Bowman's Orchard

141 Sugar Hill Rd., Rexford,
New York 12148

May 9th

3:00 pm – 5:00 pm

Cashin's Farm

225 Argersinger Rd,
Fultonville, NY 12072

May 16

3:00 pm – 5:00 pm

Story Farms

4640 NY-32, Catskill, NY
12414

ENYCH Program Educators:

Fruit

Dan Donahue
Phone: 845-691-7117
Email: djd13@cornell.edu
Tree Fruit

Anna Wallis
Phone: 443-421-7970
Email:
aew232@cornell.edu
Tree Fruit & Grapes

Laura McDermott
Cell: 518-791-5038
Email:
lgm4@cornell.edu
Berries

James O'Connell
Phone: 845-691-7117
Email:
jmo98@cornell.edu
Berries & Grapes

Vegetables

Chuck Bornt
Cell: 518-859-6213
Email: cdb13@cornell.edu

Amy Ivy
Phone: 518-561-7450
Email: adi2@cornell.edu

Teresa Rusinek
Phone: 845-340-3990 x315
Email: tr28@cornell.edu

Erik Schellenberg
Phone: 845-344-1234
Email: jk2642@cornell.edu

Crystal Stewart
Cell: 518-775-0018
Email: cls263@cornell.edu

Maire Ullrich
Phone: 845-344-1234
Email: mru2@cornell.edu

Ethan Grundberg
Phone: 617-455-1893
Email: eg572@cornell.edu

Business and Economics

Elizabeth Higgins
Phone: 845-691-7117
Email: emh56@cornell.edu