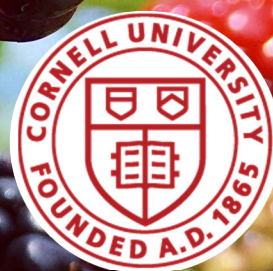


VOLUME 7, ISSUE 3  
MAY 2019

# BERRY NEWS



## Berry 'To Do' List

### —ALL CROPS—

Deer and rabbit damage on blueberries, ribes and brambles appears to be widespread this year. Make sure you know how to tell the difference. The damage caused in woody plants is different in that rabbits will often browse lower shoots and can also girdle trunks and large canes. Most often I see the sharply angled bite from rabbits on smaller shoots of blueberry and even brambles. Deer will cause browse damage higher in the canopy and leave a ragged edge where they bite the wood. (See photos below) Another way to determine which species is most prolific would be to look at the poop left behind. Both animals are vegetarian and produce lots of poop piles – all virtually the same size and pellet shape. Rabbits tend to have a rounder pellet and deer a more oval pellet with one slightly narrower end. More on wildlife control in future issues.

*(Continued on page 2)*



Deer damage to the branches of an apple tree (left) is ragged on the terminal end, while a clean, angled bite is the tell-tale sign of rabbit damage (right). Photo credit: Bert Cregg, MSU

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### —STRAWBERRIES—

- **Plan for frost protection** – inspect irrigation equipment and row cover. Make sure you have some type of adequate temperature detection system at the field level. Please see information about frost protection in the last newsletter.
- **Phytophthora control** – Red stele, the common name for root and crown rot of strawberry is caused by the fungus *Phytophthora fragariae* while Leather Rot of the fruit is caused by *Phytophthora cactorum*. Earlier in the season Ridomil and phosphorus acid products were recommended as soil drenches in fields where flooding was a problem last fall. Likewise, those same products (ie Ridomil Gold and ProPhyt) can be added to bloom sprays if extended wet fields, or overhead irrigation because of frost were problems, or if leather rot has been a problem in past years. Add these products at first bloom. Straw mulch helps to minimize water splashing that will spread leather rot.
- **Spray early for best leaf spot control** – If leaf spot incidence has been climbing, spring is the time to spray plants.
- **Consider strawberry pre-plant herbicide options.** Prowl H2O or Chateau are great options for pre-plant herbicides. 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.

### —BLUEBERRIES—

- **Green tip sprays for Mummyberry and Botrytis** should be applied now. Abound and Indar are labelled for both diseases, but there are other choices as well. Again – check the Guidelines or the label.
- **Prepare for nutrient applications in May and again in early June.** Review foliar tests. More on blueberry nutrition in next issue. Apply sulfur if soil pH is higher than 5.2 – 200#/A is the maintenance rate that should be applied 1-2 times annually to prevent soil pH from creeping up. Remember that the target pH is 4.5. Make sure soil Boron or foliar boron tests show that those levels are appropriate.
- **To improve pollination** of blueberries, plan on getting bumble bee hives into the planting. Stocking density of hives varies greatly depending on the variety of berry you are growing. For more specific information, [check out this MSU fact sheet.](#)

### —BRAMBLES—

- **Brambles are breaking dormancy in all but most northern locations.**
- **Complete the necessary Pruning-** keep cane density at no more than 4 canes per square foot. There may be some winter injury so look for that and prune it out.
- **Bud Break** is the trigger for **sprays to control Anthracnose, spur blight, and Cane blight.**
- **Apply early season herbicides-** Casoron 4G (granular) can be used in caneberrries. The same caveats listed in the blueberry section of this ‘To Do’ list apply. Casoron CS can be applied a bit later but still needs to be incorporated by rainfall before weed germination; it is labeled for blackberry and raspberries if applied before new shoot emergence. The take home point is don’t delay—you are running out of time and the southern-most counties are likely too far along to use Casoron safely and effectively.
- **Watch for raspberry fruitworm** feeding on new leaves.

### —JUNE BERRIES (SASKATOONS)—

- Now is the time to **spray for apple curculio and/or saskatoon sawfly** if you’ve had damage in past years. The larval stages of these insects feed inside the developing berries, resulting in fruit losses or the presence of insects inside fruits at harvest. Treat if damage to berries exceeded 10% last season. 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 **2019 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 has been a problem in the past.



## Pollination of Strawberry

Dr. Heather Grab, Department of Entomology, Cornell University

Strawberry is traditionally thought to be a crop that does not require insect pollination in order to set fully formed fruit. However, recent studies in the New York region as well as in Europe, Canada, and elsewhere have consistently found that insect pollination can reduce malformations and improve berry size by 40% or more. The benefits of insect pollination extend well beyond fruit size alone. Insect pollination has been found to improve sugar-acid ratios, extend shelf life, and even reduce the prevalence of grey mold (*Botrytis cinerea*). Some strawberry varieties are more dependent on pollination than others, but a larger survey of varieties is needed before we can say definitively which varieties are the most and least pollinator dependent.

In New York State, strawberries are visited by a diverse community of insects comprised mostly of bees. While flies and beetles and butterflies visit strawberry flowers, their contribution to pollination is thought to be minimal compared to bees. Female bees actively collect large quantities of pollen from strawberry flowers which they use to provision their offspring. In the process, their bodies become covered in pollen grains which they spread from flower to flower in the strawberry field.

To date, we have recorded more than 90 species of bees providing pollination services in NY strawberry fields. Pollination services are provided mainly by wild bees as honey bees make up only around 10% of the flower visitors. The most common species are the Mining Bees and the Sweat Bees. Mining Bee nests are located in the ground and some species including the most common strawberry visitor, *Andrena nasonii*, place their nests right among the strawberry plants in the field. Mining Bees are active for only a few weeks in the spring and are solitary, with only a single female building a nest and caring for her offspring. In contrast, Sweat Bees display a range of social behavior from individual nest building to large colonies with a queen and many workers. Sweat Bees come in an array of sizes and metallic colors and are active for the entire season, providing pollination to many other crops after strawberry has finished blooming.

With so many visitors, you might be wondering who is best? Surprisingly, the answer is that the all bee species are about equal. But different species display a range of behaviors so that the best pollination is achieved when many species are working together. For example, large species like Bumble Bees and large Mining Bees approach the flowers from the top providing good pollination to the part of the flower that

will develop into the tip of the strawberry fruit. Smaller species, like the Sweat Bees and Small Carpenter Bees approach the flowers from the side and work around the flower pollinating the area that will develop into the base of the fruit. Supporting a diversity of bees can help to ensure a well-pollinated crop.

To learn more about crop pollination in New York, check out [www.landscape-agroecology.com](http://www.landscape-agroecology.com)



Photos by H. Grab, Cornell University

## Grey Mold Management

(Berry Note included in the May 1st ENYCH Vegetable Podcast)

Laura McDermott, ENYCHP, Cornell Cooperative Extension

**Transcript:** “Hi all – I’m Laura McDermott, the berry specialist with the Cornell Cooperative Extension Eastern NY team.

Each year, growers wrestle with the challenge of controlling grey mold, which is that fuzzy gray fungus that loves strawberries. There are some cultural things we can do to help lower the fungal pressure – like reducing plant populations, controlling weeds and even using the low tunnels that I’ll likely be talking about in future episodes, but our rainy wet weather makes it hard to control grey mold without the use of fungicides. Fortunately, there are materials available for organic and conventional producers that will help with reducing the impact of grey mold.

### A couple of important notes:

**First** – I want to make sure farmers check product labels before applying chemicals – even if the products are OMRI approved for organic production. Rates, uses and formulations change every year – so please do check.

**Secondly** – The best way to prevent disease resistance is to rotate classes of fungicides each time you spray. Fungicide classes are indicated by FRAC codes – and if you have no idea what I’m talking about right now – PLEASE give me a call at 518-791-5038.

**Last, but not least** - Make sure your sprayer is calibrated. Grey mold sprays are some of the first sprays of the season – don’t assume your sprayer is still calibrated from last year.

Botrytis sprays start when you have 5-10% bloom. Obviously if there is bloom you will need to time your sprays when pollinators are least likely to be visiting the plants – dusk is usually best but early morning will also work and both of these times of day usually have lower wind to reduce drift. The normal spray interval is 7-10 days but if the weather is very wet, that interval might need to be condensed to 4-5 days.

For organic growers Oxidate can help reduce your grey mold pressure. Other Organic or OMRI listed fungicides include a variety of Copper products, plus Serenade and Sonata.



*Botrytis cinerea* is a necrotrophic fungus that affects many plant species, although its most notable hosts may be strawberries and wine grapes. In viticulture, it is commonly known as "botrytis bunch rot"; in horticulture, it is usually called "grey mould" or "gray mold". Photo and definition courtesy of Wikipedia.

For conventional growers I would encourage using Captan to start as it’s a good broadspectrum and relatively inexpensive material. Don’t mix any oil-based material with Captan EVER as it will cause leaf burn. Rotate other labelled fungicides as needed. As our season is short in the northeast we usually don’t need too many sprays – an average of 3 sprays a season is typical. This is a great reason our customers should be buying locally grown berries!

The last thing I wanted to mention is a product called Botrystop which can be used in organic and conventional spray programs. This material is a preventive biofungicide intended for the control of the fungal plant pathogen *Botrytis cinerea*, that’s what causes grey mold. The organism in Botrystop is called *Ulocladium oudemansii*. *U. oudemansii* is another fungus that controls the pathogen by occupying the same

ecological niche in the strawberry field. In this case that means that both the grey mold fungus and the BotryStop fungus are trying to colonize dead plant material, but the BotryStop fungus out-competes the Botrytis grey mold fungus for space and nutrients, thus reducing the overall level of inoculum in the field.

That’s all I’ve got from the berry side of things! If you subscribe to the berry newsletter this information plus more options for fungicide programs will be included there.”

### Newsletter Addendum:

It’s hard to explain the complex job of managing Botrytis Grey Mold in June bearing strawberries, so the above 3 minute Berry Note for the podcast is simplified to say the least. There are many fungicides that will help control Grey Mold. Many growers will add several materials to one spray tank. The challenge with that approach is that you will still have to rotate FRAC codes – so make sure you plan it out ahead of time. Other fungicides approved in NYS include Switch, Merivon, Elevate, and Scala.



## For Your Information:

- Need information on growing **cold climate berry crops** like honeyberries or juneberries (also known as honeyberries and saskatoons in Canadian parlance)? Check out the University of Saskatchewan website:  
<https://research-groups.usask.ca/fruit/index.php>.

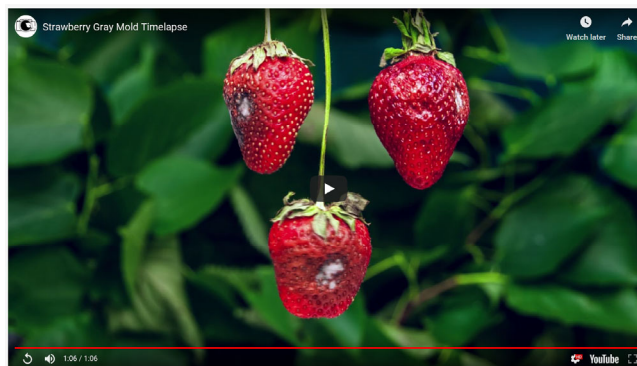
- **Overhead Irrigation Equipment For Sale**

- ◆ Each aluminum pipe is 30 feet in length
  - \* Thirty 4" sections with sprinkler attachments
  - \* Thirty-three 4" straight pipe with no attachments
  - \* Twenty two 2" sections with sprinkler attachments
  - \* 13 attachments – Elbows, Straight, etc. Four are 4"; nine are 2"
  - \* Homelite 160 HP pump. Hasn't been used for ~10 years
- ◆ Best offer. For more information, contact C. Orton at 518-583-2335 or corton9339@aol.com. Location just north of Saratoga Springs near Exit 16. Buyer must come to pick equipment up.

- **Gray Mold like you've never seen it before!**

Madeline Dowling, a post-doctoral researcher at Clemson University under Guido Schnabel, created artwork to communicate complex scientific topics in an intuitive and engaging way. Time-lapse and slow-motion videography, photography, animation, and illustration all combine to communicate the complexities of plant disease to a broad audience. To view her work, visit

<http://www.phytographics.com/>



- **Blueberry maggot model on NEWA** will alert growers when to hang traps to monitor for this insect. Monitoring is an excellent approach because this insect is spotty in its occurrence in NY and not finding it would eliminate the need to spray. Knowing it's arrived will greatly improve spray timing, as well.

Go to NEWA, [newa.cornell.edu](http://newa.cornell.edu), <http://newa.cornell.edu/>, click on Pest Forecasts menu item and choose Blueberry Maggot from the drop down list. On the left or via the hamburger menu on a phone, choose the state, weather stations, and date of interest to get the model results. The model will default to today's date.

This model is a hybrid between the new website rebuild and the old website, so don't worry if it doesn't look like the NEWA you are used to.

## A New Approach to Newsletters for 2019

**Ethan Grundberg**

Over the years, growers have mentioned that there is great content in our weekly newsletters, but that there isn't always time in the growing season to read them. In response, we are trying something new this year. The veg team will send out a written newsletter every other week, opposite the berry news, but on the off weeks (same week as berry news), the vegetable, berry and business management specialists will contribute to an audio newsletter or "podcast" that will be made available through a number of sources. If you have a smartphone, you can download apps like Apple Podcasts, SoundCloud, or Apple iTunes where you can subscribe to the Eastern New York Veg News. You can also always listen to episodes that we have released right on our website (look on the bottom left of the front page) at <https://enych.cce.cornell.edu/> or on our SoundCloud page at <https://soundcloud.com/easternnewyorkvegnews>. The berry contribution in the podcast will also be written out in the newsletter, so if you cannot access the podcasts, rest assured you aren't missing a thing!

If you have vegetable or berry production issues or questions that you'd like us to address on the podcast, please do send your suggestions to me at [eg572@cornell.edu](mailto:eg572@cornell.edu). We hope that this new format will allow you to receive the time sensitive production information you need while driving to market, seeding in the greenhouse, or cultivating the squash!



# Calendar of Events

## May 7-9 - Berry Health Benefits Symposium

Portland, Oregon

An international conference dedicated to showcasing the latest scientific research into berries and health, it will feature cutting-edge findings in many areas, including breast and colon cancer, leukemia, diabetes, gut health, metabolism, brain aging, and heart health.

More information and register at [berryhealth.org](http://berryhealth.org).

## May 27 - Last Monday Grant Webinar for Fruit and Vegetable Growers

The webinar will be limited to grants that are relevant to fruit and vegetable farmers in Eastern New York. More information and register at <https://enych.cce.cornell.edu/events.php>.

## June 24 - Last Monday Grant Webinar for Fruit and Vegetable Growers

The webinar will be limited to grants that are relevant to fruit and vegetable farmers in Eastern New York. More information and register at <https://enych.cce.cornell.edu/events.php>.

## July 15 – FSMA/PSA Grower Food Safety Training Course

CCE Warren County office, Schroon River Road, Warrensburg, NY

A grower training course developed by the Produce Safety Alliance (PSA) that meets the regulatory requirements of the Food Safety Modernization Act (FSMA) Produce Safety Rule. This one-day training is a requirement for farms growing more than \$25,000 worth of fruits and vegetables. Cost: \$35/person.

Register here:

## July 29 - Last Monday Grant Webinar for Fruit and Vegetable Growers

The webinar will be limited to grants that are relevant to fruit and vegetable farmers in Eastern New York. More information and register at <https://enych.cce.cornell.edu/events.php>.

## August 8 – VT Berry Growers Workshop

Sunshine Valley Berry Farm, 129 Ranger Rd, Rochester, VT—4pm-7pm

Rob Meadows and Patricia Rydle invite you to a tour of their 6-acre PYO organic blueberry and raspberry farm. Come see, and possibly try out, their new Easy Harvester for blueberries. Rob will explain his laser and distress call systems for bird control, and we will see their farm store and cool room setup. The farm is open until 6 pm so please park so as not to compete with customers. Attendance is free for members of the Vermont Vegetable and Berry Growers Association. The cost is \$10 per-person for non-members, payable on-site. Refreshments will be served. For more information:

[www.uvm.edu/vtvegandberry/meetings/2019VegandBerryFarmWorkshops4-16-19.pdf](http://www.uvm.edu/vtvegandberry/meetings/2019VegandBerryFarmWorkshops4-16-19.pdf)



Photo courtesy of Rob Meadows of Sunshine Valley Berry Farm

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