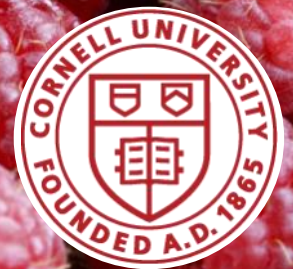


VOLUME 7, ISSUE 11  
AUGUST 2019

# BERRY NEWS



## Berry 'To Do' List

### —ALL CROPS—

- This week would be the **last opportunity** to gather leaves for **foliar testing**. Do it now – don't wait, it's easy! [Click here for newly revised sample sheets](#) from Agro One and [sampling instructions](#).
- **Spotted Wing Drosophila** populations have begun the August climb. Many adults being found in traps and larvae evident in all fields that haven't been sprayed or protected by exclusion netting. Remove infested fruit from planting. Cool fruit immediately upon harvest and inform your customers that cooling helps preserve fruit. Raspberries and blackberries are at serious risk. We visited a blueberry planting in Quebec that had exclusion netting over the entire planting – very impressive. Especially impressive was that grower agreed with anecdotal information suggesting that plant growth and fruit yield may be higher under exclusion netting.

### —BLUEBERRIES—

- Blueberry season has been solid for most growers. Still picking late season berries.
  - After spending a few days with Michigan blueberry specialists, I think I'm realizing that I've been under-identifying canker at the twig stage. Twig blight that occurs on the terminal ends of small twigs will look gray, possibly with some obvious lesions and possibly not (see photo next page). I believe that wide-spread lime sulfur will be necessary in the spring in order to slow canker diseases in a good many plantings.
- Continue to scout for mummyberry, anthracnose and other 'fruit' diseases.



*Exclusion netting over U-Pick Blueberries in Quebec.  
Photo by L. McDermott.*

*(Continued on page 2)*

## Table of Contents

- 1 Berry 'To Do' List
- 3 Leaf Spot Diseases
- 4 Fall Raspberries and SWD
- 4 Red Drupelet Disorder on Blackberries
- 5 Understanding Foliar Analysis
- 6 Upcoming Events

(Continued from page 1)

- Many unusual diseases and insects are appearing in blueberry plantings – red humped caterpillar which is a voracious defoliator and if found in large numbers can defoliate a bush in a few hours
- **August is the time to focus on problem weeds**, especially woody perennials. As perennial weeds begin to move carbon stores to their roots, they will efficiently move systemic herbicide to the root zone, but, so will blueberry plants! Be very careful with your application. A shielded sprayer is a must, better yet would be a wick applicator. A 2% Round-Up solution (41% a.i./gallon) will kill most of your problem herbaceous weeds, but if you have large woody material, you might want to use a higher solution. The Round-Up Pro label gives mixing instructions for many concentrations up to a 50% solution. The cut-stem application method is also listed for problem woody plants. Using a 50-100% solution of Round-Up, apply the material directly to the woody stem using a wick applicator immediately after cutting. Many growers use a roller/wiper application to the edges of their mulched row to keep grass from encroaching. Be sure that your mulch is nice and thick and that no blueberry roots are obvious. For pre-emergent control of fall annuals, Sinbar can be used after harvest in all but 1 year old plantings. Devrinol should be cultivated or watered in within 24 hours of application. Solicam is also a good choice at this time of year, if you did not apply this material in the spring.



*Phomopsis twig blight canker—note grayish area. Photo: Michigan State University.*



*Gloeosporium leaf spot (leaf) and red-humped caterpillar (right). Photos: L. McDermott*

### —RASPBERRIES & BLACKBERRIES—

- In general, the summer red raspberry crop was down due to winter injury. Blackberries did surprisingly well for some growers and are still picking. Fall raspberries are just starting but I'm concerned about SWD pressure.
- Bird damage seen in raspberries – this usually happens when there is a drought or dry spell, but small birds can damage the uppermost berries.
- Scout for **mites** – especially in high tunnel plantings.

- Scout for canes infested by **raspberry cane borer**. These will have wilting tips and two dark rings of punctures on the canes where eggs have been laid. Cut off and destroy the wilted tips below the rings as soon as this damage is noticed.
- **Late summer and fall is an excellent time to control troublesome perennial weeds** like thistle, dock, smartweed, and morning glory by spot spraying with Round-Up, but take EXTREME caution to avoid getting herbicide on bramble canes. For grass control, now is the time to apply the second Poast application. This should be done while grasses are actively growing. The further you get in August, the poorer the control. To suppress winter annual germination, both Sinbar and Devrinol can be used. Solicam, if not applied in spring, is a good choice unless you have a new planting or light soils. Make sure that you read the label as herbicides have caveats re: soil organic matter content and rates. Organic growers and frustrated conventional growers can try to use weed mat if you know that you have well drained soils.



*Bird damage on uppermost raspberry fruit. Photo: L. McDermott*

### —STRAWBERRIES—

- June bearing strawberries are growing back really well after renovation.
- Day Neutrals are finally beginning to fruit in dependable numbers. The late spring and super hot weather has delayed them by several weeks. Runner removal becomes less of an issue as plants kick into production mode. **Make sure they are getting plenty of fertilizer** – between 3-5# of actual N per week – moving towards 5-7# N as the fruit starts to ripen.
- **Controlling fall germinating winter annuals** such as chickweed and shepherds purse is critical at this time of year. Devrinol (napropamide) is a pre-emergent herbicide that can cause problems with rooting of daughter plants so this material should be used after early forming daughter plants have rooted. Because daughter plants that form after late August don't usually contribute as much to the yield, Devrinol can be applied without much effect at that time, but BEFORE winter annuals emerge. Devrinol must be moved into the soil by cultivation or water after application. Sinbar (terbacil) is a pre-emergent herbicide with some postemergence activity. Usually Sinbar is applied after renovation or after the berries have gone dormant in the fall. If leaves are present during application, immediately apply 0.5-1 inch of water to wash the chemical off the strawberry foliage. Otherwise severe injury many result. Do not use Sinbar on soils with less than 2% organic matter. Sinbar is limited to 8 oz/A per growing season. Poast (sethoxydim) is a postemergent, grass herbicide. This material works well applied in late summer or early fall to actively growing grasses. Don't waste your time and the product on summer annual grasses.



## Improve Fruit Set and Overwintering by Controlling Leaf Spot Diseases

Laura McDermott, CCE Eastern NY Commercial Horticulture

There are three primary leaf spotting diseases, and their impact on overwintering and fruit set has been severe in the last few years. Late summer is a good time to control leaf spot if your planting has over 10% of leaves with lesions. This is a lower threshold than the spring threshold of 25%, which draws attention to how detrimental the diseases can be to winter survival and fruit set. These two thresholds are found in a Canadian fact sheet that details timing of sprays – see Resource link below.

**Leaf Spot** (*Mycosphaerella fragariae*) lesions on leaves begin as small, irregularly shaped purple spots. Mature lesions become approximately one eighth to one quarter inch in diameter, remain relatively round, and the centers of lesions turn from a purplish brown to grayish white. The pathogen primarily infects young, expanding leaves and petioles, and occasionally fruit (this expression of the disease is called “black seed”).

Resistance and tolerance reports seem very unreliable. During some years I see cultivars looking really bad that supposedly have some resistance to leaf spot.

Cultural management techniques are very important. Improving air circulation in the field by reducing weed population will promote leaf surface drying and reduce infection periods. Destroying infected leaves during renovation will help limit inoculum.

Organic fungicides include, NuCop, Cueva, Badge X2, and copper sulfate. Conventional fungicides include Captan Gold, Rally, Pristine, Mettle, Cabrio, along with copper.

**Leaf Scorch** (*Diplocarpon earliana*) symptoms are spots about one eighth to one quarter inch in diameter and are scattered over the upper leaf surfaces or petioles. These spots differ from those of leaf spot in that they are purple throughout (no light centers). Numerous infections can cause a leaf to appear red or light purple and eventually to dry up and appear to have been burned (scorched). Heavy leaf infections can inhibit the production of flower buds for the following year, predispose a plant to winter injury, and provide inoculum for infection of the fruit caps. Although I’ve not sent

samples to the lab, I think we have primarily leaf scorch in many plantings.

Again, there are few agreed upon resistance ratings for cultivars. Cultural control techniques are the same as they are for leaf spot.

Organic products include Cueva, Badge X2, and conventional products include copper products and Topsin-M.

**Leaf Blight** (*Phomopsis obscurans*) lesions begin as small, circular to irregular, reddish, or purplish spots. As they expand, lesion centers become necrotic and turn light brown with a dark purple halo. Older lesions along major leaf veins develop into large V-shaped lesions that eventually kill the leaf. Again, heavy leaf infections can inhibit the production of flower buds for the following year, predispose a plant to winter injury, and provide inoculum for infection of the fruit caps.

There are no reports of cultivar resistance to leaf blight. Cultural control techniques are the same for leaf blight, scorch and spot.

Early season fungicides are recommended when inoculum from the previous year is abundant or when conditions are favorable for the disease – ie: this spring and summer!

Organic fungicide options include NuCop, Cueva or Oxidate.

Conventional products include many formulations of copper (but check the label and make sure this disease is listed before apply it), Rendition, Agristar Sonoma, Mettle, and Topsin-M. topsin-M should be mixed with copper to prevent fungicide resistance.

*Resources:*

2017 Cornell Pest management Guidelines for Berry Crops. STRAWBERRY LEAF SPOT Control strategies; Brodeur, C., O. Carisse, and G. Bourgeois; Agriculture and Agri-Food Canada, Research Branch. <http://publications.gc.ca/collections/Collection/A42-87-1997E.pdf>



Leaf spot (left), leaf scorch (middle), and leaf blight (right).  
Photos from Ohio State University.

## Recommendation for Fall Raspberries Infested with SWD

**Laura McDermott, CCE Eastern NY Commercial Horticulture**

If SWD populations follow a pattern similar to previous years, populations may rise very dramatically during the next few weeks – right as fall raspberries come into peak production. Regular spraying (5-7 day spray schedule) has reduced infestation to manageable levels, although it has not eliminated the threat.

If you decided to forgo spraying for SWD and are considering mowing primocane raspberries early, STOP!!! There is no evidence that mowing canes early will have an impact on next year's populations. What we DO know is that mowing those canes now, before the plants move carbohydrates to the crown of the, will have a serious negative impact on the ability of the raspberry plant to overwinter.

Carbohydrates move from the leaves into the crown during the fall, then back up from the crown into the buds in the spring. Removing canes early essentially removes the stored food available to the canes and can result in winter injury or weak canes the next year. Conversely if you wait until the spring – say March – and it turns warm quickly (like this past spring) the carbohydrates will move into the buds and then you remove those canes with the stored food leaving the new canes with no reserve.

The best time to remove canes on fall bearing raspberries is from December to February when most of the carbohydrates are in the crown of the plant. Prune the old canes as close to the ground as possible so that the buds for new canes will break below the soil surface. If you don't do this, the fruiting laterals may form on the remaining cane and could be very low, unproductive and at risk of insect and disease.

In the past some growers topped the raspberries – removing the ripening fruit clusters. Again, there is little evidence that this action will have any impact on the population of this pest next year. As for spraying the abandoned canes, there is no information to indicate that this is a good strategy and may likely be a waste of money and time. This also applies for spraying fruiting plants in hedgerows. Both of these strategies are considered illegal pesticide applications and should not be done.

---

## Red Drupelet Disorder in Blackberries

**Laura McDermott, CCE Eastern NY Commercial Horticulture**

*Editors' Note: Although we normally don't have much problem with blackberries except actually getting fruit (!) this year has been an exceptional year for blackberries. Still, there have been a few calls about coloring etc. The following is edited from a blog post by Dr. Gina Fernandez at North Carolina State University. You can see the entire post, and access other Team Rubus posts at: <http://teamrubus.blogspot.com/2016/07/red-drupelet-disorder.html>*

Now that we are reaching peak harvest and peak summer temperatures, red drupelet disorder is starting to appear in harvested fruit. After the fruit is harvested, individual black drupelets will revert back to a red color. Red drupelet disorder is also called reversion, reddening or red cell. Here are some of thoughts from Penny Perkins-Veazie, a researcher that has worked on this problem for years:

- Harvest before 10 am, get to cooler within an hour of harvest.
- Remove heat quickly or delay field heat development.
- Forced air cool may need to be set 5 F higher than usual to avoid excess coldness at top of pallet.
- Least susceptible variety continues to be Navaho. Those showing problems are Natchez, Tupi. Ouachita can be problematic if rainfall has been high and harvest is going into afternoon.
- Trellising or using E-W row orientation helps to keep fruit in shade longer, decreases exposure to light/heating. (GF: our shift/RCA trellises seem to have less red and white drupelets in general)
- We are not yet sure of production practice issues on red drupe although some reports with tunnel grown blackberries indicate keeping nitrogen rates lower and avoiding heat buildup help with the problem.
- Environmental possibilities for exacerbating the problem seem to be water stress (high rainfall within a few days of harvest, or high rainfall in spring followed by very hot temperatures), nitrogen imbalance, and possibly calcium/potassium availability.



*Red drupelet disorder on blackberries.  
Photo: [Team Rubus Blog](#)*

## What Your Foliar Analysis is Telling You

Laura McDermott, CCE Eastern NY Commercial Horticulture

A combination of soil testing and tissue analysis is important for understanding and managing nutrients in perennial and semi-perennial berry crops. Soil tests help growers understand the potential of the soil, and to maximize that potential prior to planting as much as possible. Foliar analysis allows growers to see how well those nutrients are making it into the plant. Many of you should be receiving your foliar analysis reports in the next few weeks. (For those of you who have yet to send the sample – there is still time but try to gather the sample soon.) Tissue testing should be done annually.

Many growers use it to identify problems in crops, others use it as a way to monitor the progress. Tissue testing should be done when the nutrient load has the least amount of fluctuation. This time period has been identified by research to be late July to early August. As fall progresses, nutrients in the leaves are moving towards the crown and root system. Leaves gathered in late August and September will give an artificially low reading.

When the report arrives, compare the levels of nutrients in your crops to the sufficiency levels below. This will help explain the recommendations for future nutrient applications. Some nitrogen can be applied in the fall for strawberries, but for caneberrys and blueberries, nitrogen should wait for spring applications. Another common requirement is Boron. That element can be applied at any time. Please call Laura if you have any questions.

Nutrient Nitrogen (%N)	Blueberry 1.7 - 2.1	Caneberry 2.0 - 3.0	Strawberry (JB) 2.0 to 2.8	Strawberry (DN) 3.0-4.0
Phosphorus (%P)	0.1 - 0.4	0.25 - 0.40	0.25 – 0.40	0.2 – 0.4
Potassium (%K)	0.4 - 0.65	1.5 - 2.5	1.5 - 2.5	1.1 – 2.5
Calcium (%Ca)	0.3 - 0.8	0.6 - 2.0	0.7 – 1.7	0.5 – 1.5
Magnesium (%Mg)	0.15 - 0.3	0.6 - 0.9	0.3 - 0.5	0.25 – 0.45
Sulfur (%S)	0.12 - 0.2	0.4 - 0.6	0.4 – 0.6	
Manganese (ppm Mn)	50 - 350	50 - 200	50 – 200	30 - 100
Boron (ppm B)	30 - 70	30 - 70	30 – 70	25 - 50
Iron (ppm Fe)	60 - 200	60 - 250	60 - 250	50 - 150
Zinc (ppm Zn)	8 - 30	20 - 50	20 - 50	15 - 50
Copper (ppm Cu)	5 – 20	6 - 20	6 - 20	4 - 15

# Calendar of Events

## Willsboro Farm High Tunnel Twilight Meeting

August 27, 2019 - 5:00pm-7:00pm

Cornell Willsboro Research Farm, 48 Sayward Lane, Willsboro

Join vegetable specialists Elisabeth Hodgdon, Jud Reid, and farm manager Mike Davis for a high tunnel and field tour at Cornell's Willsboro Research Farm, where they will share research results for the following projects:

- Striped cucumber beetle management using netting and row cover
- Varietal differences in cucumber susceptibility to striped cucumber beetle
- Ground cherry and goldenberry production in field and high tunnel environments
- Overwintered high tunnel spinach nitrogen fertility

Depending on availability, a taste-testing of the different cucumber, ground cherry, and goldenberry varieties will be held. This free program is made possible through funding by the Northern NY Agricultural Development Program.

## New England Fruit and Vegetable Conference

December 10-12, 2019

Manchester, NH

This 3-day meeting has become a major event for diversified growers. Check out the conference program and register at: <https://newenglandvfc.org/>

## Great Lakes EXPO

December 10-12, 2019

Grand Rapids, MI

Another great conference! Register and review program at <https://glexpo.com/>

## Empire State Producers EXPO

January 14-16, 2020

Syracuse, NY

Back at the Oncenter venue. More information at <http://nysvga.org/expo/information/>

## NOFA-NY Annual Winter Conference

January 17-19, 2020

Syracuse, NY

This year at the Oncenter venue in Syracuse.

## Mid-Atlantic Fruit and Vegetable Convention

January 28-30, 2020

Hershey, PA

Information at <http://www.mafvc.org/>

## Eastern NY Fruit and Vegetable Meeting

February 25-26, 2020

Albany, NY

Save the Date!



*Find out more about this potential crop at the Willsboro Field Meeting.*

## Berry Specialist

Laura McDermott

Phone: 518-791-5038

Email: [lgm4@cornell.edu](mailto:lgm4@cornell.edu)

## Business Specialist

Liz Higgins

Cell: 518-949-3722

Email: [emh56@cornell.edu](mailto:emh56@cornell.edu)

## ENYCHP Office

Chelsea Truehart

Phone: 518-746-2553

Email: [ct478@cornell.edu](mailto:ct478@cornell.edu)

Newsletter Design:

Chelsea Truehart

Editor: Laura McDermott

[www.enych.cce.cornell.edu](http://www.enych.cce.cornell.edu)



Find us on  
Facebook & Instagram

