

## Spring Berry "To Do" List

All Berries: There is still time to gather samples for foliar tissue testing. For instructions visit the Agro One website at: http://dairyone.com/analytical-services/agronomy -services/plant-tissue-testing-services/

If your blueberries and/or raspberries are softening and falling from the plant, there is little doubt in my mind that they are infested with SWD. This year is different than the last few years. Infestations are being found across the state. The article included in this issue discusses why SWD may need to be thought of with a different mindset – more like a disease rather than an insect. Very tough pest.

## For the current list of NY products for berry

crops, click here. There is a separate page for each berry crop, and the materials and specific details are different for each one, so please read carefully.

### Brambles:

Raspberries are finally looking better in many areas. Ironic because SWD is a true threat to the crop now.

Plants in wet areas and/or with heavy soil are collapsing due to Phytophthora. Raspberries DO NOT like wet soil. So no mulch, raised beds when necessary, don't overwater etc. This is a tough year for them – just too much moisture.

### **Blueberries**

Blueberry harvest is continuing. Many farms have closed due to SWD infestation. If you have been able to protect with insecticides or exclusion netting the crop still looks great!



Powdery mildew symptoms on blueberry look nothing like PM on other plants. Be looking for this in your planting and take note to spray next bloom season.

continued on next page

## Table of Contents

### Berry "To Do".....1-2

**Use Disease Management** approach for SWD ......2-3

| Controlling Leaf Spot     |
|---------------------------|
| Diseases to Improve Fruit |
| Set and Overwintering in  |
| Strawberries4-5           |
|                           |

| Calendar | of Events | 5-6 |
|----------|-----------|-----|
|          |           |     |

For Your Information......6



## VOLUME 5, ISSUEI0

 Powdery Mildew seen on blueberries at several farms. Infections occur at bloom – and this year conditions were perfect. If you are seeing this in your planting, you should make a note because spraying next spring would be helpful. Organic growers can use Oxidate – 3 applications at 5 day intervals around bloom. Quilt, Indar, Quash, Tilt, JMS Stylet Oil – all will help and should be applied before petal fall. Powdery Mildew causes early defoliation and can weaken plants over time.

Blueberry maggot, cranberry fruitworm and cherry fruitworm larvae and damage have all been seen in plantings this year. Perhaps we've been focused on SWD and have forgotten that maggots in berries isn't a new thing......but we would like to keep them out! Petal – fall to pre-harvest is the window for these pests – make a note now if you are seeing them.

### Strawberries:

And the second se

- If you haven't renovated your strawberries you may be too late. I would be nervous to mow my leaves at this late date. If the old leaves look pretty clean of foliar leaf spot, I would just narrow the rows. If you are taking a string trimmer to plasticulture berries, be careful to not cut into the crown.
- Day Neutral strawberries have reached peak but should be protected from SWD. If the nights' stay cool we could see a banner year.

Stay on top of scouting DN's - look for disease – especially leaf spot, but also crown anthracnose. Tarnished plant bug, thrips, leafhoppers and mites are insect pests of these berries. SWD can also be a real problem – pick clean and refrigerate berries immediately.

## Use a Disease Management Approach When Thinking about SWD Management Dave Jones, Michigan State University Extension

Soft fruit growers should think of spotted wing Drosophila (SWD) as a disease rather than an insect pest as this will help in controlling this pest.

I have had numerous discussions on spotted wing Drosophila (SWD) with growers in the past few weeks. The analogy that has worked best for them in understanding the new reality of SWD management in west central Michigan has been an apple scab analogy.

Every year in apples, we set up our spore rods to monitor apple scab ascospores. We observe spore numbers after each rain to determine the start and end of primary risk period for this disease. Nevertheless, as soon as green tissue is exposed on apple trees, we spray. Why? Because we always catch primary apple scab spores ahead of green tip. This is a basic assumption in the apple business.

As a result, we know that our crop is in danger and we take appropriate action. We spray ahead of rain events and we spray regardless of the number of spores caught on the monitoring rods until primary scab is over. We know that spore rod counts are not a tool to gamble on with apple scab sprays. Whether we catch one or 100 ascospores, we know we are at risk until primary scab has ended. Spore catch means only one thing at the beginning of every year: The trees have exposed leaves. We're at risk. We spray. Period.

Let's apply this same train of thought to SWD.

Every year in cherries, we set out traps to monitor SWD.

We begin to catch a few flies and monitor the building population. We observe SWD numbers each week to determine the official start of the risk period. Nevertheless, as soon as we have yellow fruit on trees, we need to spray. Why? Because we always catch SWD ahead of yellow cherry fruit. This has to be a basic assumption in the cherry business. We need to realize our crop is in danger from the moment it turns yellow and we need to take appropriate action. We need to spray every seven days and we need to spray regardless of the number of flies caught in the traps until harvest is over.

We need to realize that trap catch numbers are not a tool to base our sprays on. Whether we catch one or 100 SWD, our cherries are at risk until harvest has ended. Catching SWD means only one thing if the cherries are yellow or later. We're at risk. We spray. Period.

Growers ask about weekly trap numbers because they assume the block with the most SWD in a trap is most likely to have SWD larvae in the fruit. Unfortunately, this is not necessarily true. This highlights the risk of treating trap counts as spray guides. In the three conventionally managed tart cherry blocks where we detected larvae in fruit this season, none had the highest SWD counts in traps the weeks that larvae were found in the fruit. One site was actually the lowest the week larvae were detected. The other two sites were in the middle of the pack.

Watching the SWD population increase each season still gives us valuable insight on where the pest is and what it *continued on next page* 

#### **VOLUME 5, ISSUEI0**

is doing, but it does not help us determine relative risk in the orchard. The sad reality is that SWD is so-well established in Michigan at this time that all blocks are at risk once yellow fruit is present, regardless of population counts.

This July, SWD numbers are higher than anything previously recorded at this point in the growing season. There is a good chance this may be the new "normal" as this pest becomes established in the region. Battling our way through this high-pressure year has taught us several important lessons as an industry in west central Michigan.

Programs that use products rated "excellent" for SWD at seven-day intervals are generally getting very good management. Challenging as it is for growers to meet the high demands of this aggressive spray schedule, those who have risen to the challenge are generally seeing very good control and high grades at the processing plant. It is evident you should either be using this level of aggression towards SWD or not bother to spray at all. Anything less than an outstanding management program will result in contaminated fruit.

Products rated "good" for SWD that get pushed past four to five days consistently result in larval contamination of fruit. Every report of sweet cherry contamination and the majority of tart cherry contamination reports we received at the Michigan State University Extension office this season all had one thing in common: Every spray schedule included a product that was not rated "excellent," and these applications were used as four to five day stopgaps in the program. We cannot emphasize enough at this time that this simply will not work in a management program targeting this pest. Even with an "excellent" product, seven days is pushing the limit.

Trap counts in a block are not an indication of the relative risk for fruit contamination. We still do not know if "high" versus "low" pressure means anything regarding risk to the crop. The risk to an orchard is not necessarily proportional to the number of SWD adults caught in a trap. I have seen SWD larvae in fruit from blocks where as few as three adult SWD were caught in five traps in a week and I have seen clean fruit in blocks with over 200. Trap counts are nice. They tell us when the insect starts flying in the spring and allow us to watch populations ebb and flow, but we do not know if there is a difference between 50 and 500 SWD adults in terms of relative risk. For all intents and purposes, we cannot assume there is a marked difference at this time in terms of management considerations.

Growers using only a single cup trap in a block to determine if they need to spray for SWD risk being burned with bad information. SWD catches are highly inconsistent between traps in a single block. Furthermore, scouts who are only looking for males are not going to be able to give an accurate read on SWD populations. To demonstrate this, look at this example of the male and female counts from one week at a site in west central Michigan.

#### There are two points here.

•There were two traps that caught no flies out of the five traps. This means there was a 40 percent chance of catching no flies in a trap. This type of result is common, particularly early in the season when fruit first begin to change color. It is not hard to imagine that a single trap in an or-chard might catch no flies in a week, particularly early in the season before populations build. In this example, a grower using trap 3 or 4 would assume no flies were present in their block, and would not feel the need to spray.

•Additionally, no males were caught in any of the traps. A scout looking for "spotted winged" males in the trap with their naked eye would assume the count is zero. The count is actually 18 flies. This is common, particularly early in the season, and demonstrates all flies, both male and female, need to be counted.

| Trap/Fly<br>gender | Males | Females |
|--------------------|-------|---------|
| Trap 1             | 0     | 2       |
| Trap 2             | 0     | 8       |
| Trap 3             | 0     | 0       |
| Trap 4             | 0     | 0       |
| Trap 5             | 0     | 8       |

Rotating insecticides is critical to maintaining

our ability to manage this pest when we look at the "long game" of SWD management. We are getting excellent control of this pest right now because the cheaper pyrethroid insecticides such as Mustang Max are working extremely well for us. We know from experience with other insect pests such as oriental fruit moth that pyrethroids can quickly become ineffective if they are over-applied. The scary thing from a resistance management standpoint is that oriental fruit moth's reproduction rate is miniscule compared to SWD.

We need to be extremely conscious of rotating our insecticides each season, mixing multiple modes of action into a program to ensure adequate management. Diamides (Exirel, Harvanta), pyrethroids (Mustang Max, Warrior) and organophosphates (Imidan) should all be used in rotation going forward to help preserve the efficacy of our best products.

#### **VOLUME 5, ISSUE 10**

## Improve Fruit Set and Overwintering by Controlling Leaf Spot Diseases Laura McDermott, ENYCHP

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. This year Jewel looks terrible, and in the Cornell Guidelines it is noted to possibly 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 X<sub>2</sub>, 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 BERRY NEWS 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 X<sub>2</sub>, 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.



Leaf Spot

PAGE 4

#### 

PAGE

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.

AUTO PROPERTY AND ADDRESS OF ADDRESS AND ADDRESS ADDRES

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. <u>http://</u>

publications.gc.ca/collections/Collection/A42-87-1997E.pdf



Cornell University Cooperative Extension Eastern New York Commercial Horticulture

# Berry Crops Field Workshop



### Come and learn from experts!

- Dr. Greg Loeb, Cornell
- Dr. Juliet Carroll, NYS IPM and NEWA
- Dale Ila Riggs, The Berry Patch
- Laura McDermott, CCE ENYCHP

## Tuesday, August 29th, 2017

5:00 – 7:00pm at The Berry Patch 15589 NY-22, Stephentown, NY 12168

### This workshop will cover the following topics:

- Plasticulture strawberry production for June berries and Day Neutral
  - Low tunnels on strawberries
  - High tunnel raspberry production
  - Exclusion netting to control SWD in blueberries
- Using computer models to improve pest management of berry crops
  - Collaboration between NEWA and NYS Mesonet

These workshops are directed at the commercial berry grower. Monitoring for pests, designing an effective pest control program, understanding cultural and chemical SWD management strategies and general troubleshooting will all be part of this workshop. **There will be plenty of time for questions and discussion**.

Please register by calling Abby at 518-746-2553 or registering the ENYCHP website, <u>http://enych.cce.cornell.edu/</u> – there is no fee, but it will help us provide the appropriate number of handouts etc. This event will happen rain or shine. *If you have questions, please contact Laura McDermott: 518-791-5038 or lgm4@cornell.edu* 

## **For Your Information**

2018 SARE Farmer Grants – NESARE Farmer Grants offer up to \$15,000 in support or innovative ideas for growers and producers in the Northeast. Applications can be downloaded from the NE-SARE website at <u>http://www.nesare.org/Grants/Get-a-Grant/Farmer-Grant</u>. The application deadline is November 28, 2017. NE SARE provides an excellent guidance video at: <u>http://www.nesare.org/Dig-Deeper/Grant-Workshop-PowerPoints-and-Webinars/</u> Farmer-Grant-narrated-PowerPoint.

### Oregon State University offers on-line blueberry production course

Learn the fundamentals of blueberry plant growth, species and types grown and cultivar adaptation, planting establishment, production systems, and important pests to develop successful new plantings or improve the yield and production efficiency of existing planting in this online, instructor-led program offered by the Oregon State University.

The target audience is growers of small- to large-sized conventional or organic farms, crew leaders, farm managers, advisors, packers, shippers, and consultants. The course is designed such that those new or well-versed in blueberry production will benefit.

https://pace.oregonstate.edu/catalog/online-blueberry-physiology-productionsystems-management

## **Calendar of Events**

- August 15-16, 2017 North American Strawberry Grower's Association Summer Tour. Minneapolis MN. Join us for our 2017 NASGA summer tour as we head to Minneapolis, Minnesota to explore some of the wonderful farming operations of the area in a two-day adventure! For more information or to register, go to <a href="http://nasga.org/namerican-strawberry-growers-summer-tour.htm">http://nasga.org/namerican-strawberry-growers-summer-tour.htm</a>.
- August 29<sup>th</sup>, 5-7 pm Using weather and climate information and protected culture to perfect berry crop production, The Berry Patch, 15589 NY-22, Stephentown, NY 12168. See registration information on page 5 of this newsletter
- December 5-7, 2017 Great Lakes Expo. Devos Place Conference Center and The Amway Grand Plaza Hotel, Grand Rapids, MI. Registration opens September 25, 2017. Go to <u>http://glexpo.com</u> for more details on program and registration.
- December 12-14, 2017 New England Vegetable & Fruit Conference. This is the premier fruit and vegetable conference in the New England with over 30 information sessions over 3 days, many Farmer-to-Farmer information sharing sessions each day, over 150 vendors in an expansive trade show, and networking opportunities with and expected 1,500 participants. This conference offers valuable information for growers of all levels of experience from prospective growers or new entry beginners to well seasoned experienced growers, different sized operations from homestead to large commercial farms, and a range of growing systems including organic, IPM, conventional, greenhouse/tunnels, and many others. This year's conference has incorporated some new programming that will expand the value of . Come see what's doing and how attending this conference can help your farm. See the website for program and registration information as it becomes available. Go to <a href="https://newenglandvfc.org">https://newenglandvfc.org</a>.

BERRY NEWS

## Berry Specialist

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

## Business Specialist

Liz Higgins Cell:518-949-3722 Email:emh56@cornell.edu

## Food Safety Specialist

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

### Editor: Laura McDermott

