

Northern Michigan FruitNet 2013

Northwest Michigan Horticultural Research Center

Weekly Update

July 9, 2013

CALENDAR OF EVENTS

7/10	Last IPM Update
7/12	Parallel 45/MSUE Viticulture Update 2 Lads on Old Mission Peninsula
7/16-18	MSU Ag Expo http://agexpo.msu.edu/schedule
7/22	Parallel 45/MSUE Viticulture Update Winery sanitation workshop L. Mawby Vineyard
7/31	SW Viticulture Field Day SWMREC – Benton Harbor
8/2	Parallel 45/MSUE Viticulture Update Ground Cover Management/Cover Crops with Dr. Matt Grieshop Chateau Chantal – Old Mission
8/7	Hop Production 201 – Beyond the Basics Workshop SWMREC
8/9	Hops Field Day & Tour
8/22	NWMHRC Open House
8/22	Parallel 45/MSUE Viticulture Update New wine cultivars with Dr. Paolo Sabbatini NWMHRC

GROWING DEGREE DAY ACCUMULATIONS AS OF July 8 AT THE NWMHRC

Year	2013	2012	2011	2010	2009	2008	23yr. Avg.
GDD42	1527	2008	1436	1845	1369	1432	1561.2
GDD50	972	1281	859	1127	770	840	945.3

Growth Stages at NWMHRC (July 8, 2:00 p.m.)

Apple: Red Delicious – 40 mm

Gala – 33 mm

Yellow Delicious – 32 mm

Pear: Bartlett: 29 mm

Sweet Cherry: Hedelfingen: 20 mm

Napoleon: 20 mm

Gold: 18 mm

Tart Cherry: 18 mm

Balaton: 16 mm

Apricot: 27 mm

Grapes: Buckshot berry

NORTHWEST MICHIGAN REGIONAL REPORT

N.L. Rothwell, NWMHRC

As sweet cherry harvest starts off, rain moved into the region after three weeks of droughty conditions.

Rain moved into the region following three weeks of hot and extremely dry conditions. The region is in much need of precipitation as soil moisture is very low at this time. Most growers are anticipating beginning sweet cherry harvest at the end of this week, and some early varieties can be found at fruit stands and local grocery stores. We had some local sweet cherries for the National Cherry Festival last week.

This rain is a welcome relief for the tart cherry crop, but we are hoping that it will not result in cracking in sweet cherries. The drought-like conditions will help minimize cracking as the fruit size is small as a result of lack of moisture and drought-stressed trees can take up a fair amount of water without cracking. However, cherries with frost scars and light crops may sustain some cracking damage. The other issue is the amount of rainfall across the region, which varied from site to site. We have had reports of 2-3" of rain in southern Leelanau on Sunday night into Monday morning while the NWMHRC only received 0.5" of rain in that same time frame. Substantial rain is predicted for the region today, 9 July.

Daytime temperatures have been in the 80s with nighttime temperatures only falling into the mid-60s. With the recent hot days, we have moved ahead of our 20-year average for degree day accumulations. So far this season, we have accumulated 1527 base 42 and 972 base 50. The heat coupled with the recent rain and now humid conditions will be a challenge for growers to protect ripening fruit.

Apples. With the recent rains, we can call the end to primary **scab**. The model is still saying we are at 98-99% discharge of apple scab spores, but with the droughty conditions for the previous three weeks which was followed by a decent amount of rain, growers that are scab-free can lighten up on their scab programs for the remainder of the season. Growers with scab lesions on the leaves will need to continue a good scab program to prevent fruit scab. **Codling moth** numbers are down despite the recent warm nights, and this dip in moth numbers is likely the small separation we see between first and second generation. Growers must continue to protect fruit against this internal feeder. **Obliquebanded leaf roller** numbers are also down slightly here at the NWMHRC compared with last week's trap counts; we caught an average of 6.5 moths/trap. No **apple maggot** flies were caught this week.

Cherry. Cherry leaf spot is a disease favored by warm and wet conditions, so growers that had an infection started prior to these recent rains will need to keep new tissue covered. The goal is to keep leaves on well into September to ensure good fruiting and healthy trees for next season. Most orchards are looking good, but some growers have expressed concerns about some CLS in their orchards even with the dry conditions in the past few weeks. We hypothesize that the wet and foggy mornings contributed to CLS infections, even with good spray programs. We have not seen sporulation in orchards with **European brown rot** (EBR) infection. We know little about EBR, but data from other countries showed that EBR can infect ripening fruit. We will keep an eye out for this type of infection as we move closer to harvest in tart cherry.

American brown rot (ABR) is the disease of concern at this time. Sweet cherry harvest will begin in earnest this week, and growers will need to keep this fruit protected if this wet and warm weather continues. ABR can move quickly through an orchard as fruit approaches ripening if the conditions are optimal, and we can lose an orchard within 24 hours with the perfect storm. With the high value sweet cherries are predicted to fetch this season, growers should make the best use of the 24 (c) Special Local Need Permit for Indar this season. We can use up to 48oz/season, and the recommended rate per acre is 8-9oz. Growers that had sporulating green cherries infected with canker or June drops that took a long time to drop should pay particularly close attention to this disease. However, all sweet cherry growers need to protect fruit as these current conditions are perfect for ABR infection. For growers that cannot use captan as we approach harvest, Elevate might be a great tank mix partner for Indar for resistance management. Elevate is rated fair against ABR, but data from California rates this product higher. Dr. Sundin thinks that Elevate as a tank mix partner is a good idea at this time.

Cherry fruit fly (CFF) counts are up across the region, and growers will need to protect ripening fruit against this pest. Again, MSUE recommends that each grower trap in his/her own blocks due to the variability in population size. Our first insects were caught last week here at the NWMRHC, and this week, we caught a total of 64 flies on three traps. Cherry fruit fly catches are also widespread throughout the area's orchards. Many insecticides are rated as

good against CFF, but growers should be sure to check the PHI as we are fast approaching harvest. Another issue that growers need to be aware of is the different imidacloprids on the market—the PHIs vary among the products, amounts of active ingredients also varies, and some of the products are not labeled in cherry. All imidacloprid products are not the same, and growers should be sure to read the label of their particular imidacloprid before application.

This week we trapped an average of 19 **obliquebanded leafroller** moths per trap in cherry, and we anticipate summer generation larvae are now hatching. Growers need to add a lepidopteran material to the tank targeting these OBLR larvae. As mentioned in past weeks, OBLR larvae are a contaminant pest as they can end up in a tank at harvest if not controlled, and our crew has been finding larvae here at the NWMHRC and in commercial blocks this season. These pests have contaminated both sweet and tart cherries at harvest. Growers that are sizing and/or coloring fruit need to make sure fruit is protected up through the time of harvest. Multiple new insecticides are rated as excellent against OBLR, but growers need to pay attention to the PHIs. No **spotted wing drosophila** have been caught in NW Michigan yet this season in our 60+ traps.

POST-HARVEST CONTROL OF CHERRY FRUIT FLY

Nikki Rothwell, NWMHRS

Larry Gut, Dept of Entomology, MSU

Data collected in Michigan in the past six years show that cherry fruit fly (CFF) peak emergence occurs after harvest, and some managed orchards have resident populations of this pest (Teixeira *et al.* 2007). The Teixeira (2007) study showed larval infestation in managed orchards was low before harvest and increased immediately after harvest, contributing to increases in resident populations. This work established that the majority of CFF infesting commercial orchards originate from resident populations, rather than populations outside of the orchard; implications of these findings may result in increases in overall population size within orchards and make CFF control more difficult for growers. Additionally, larger populations can lead to increased periods of adult activity extending the management period. Fruit fly-infested fruit that remain on the tree after harvest represent a source for infestation the following season.

This pattern of increased CFF activity after harvest was detected over several years, and research has shown that a post-harvest application of imidacloprid (Admire, Prey, etc.) has the potential to reduce CFF populations in the following year (Gut, unpublished). This work has been expanded, and current research is underway to determine the effectiveness of these post-harvest treatments at three NW tart cherry orchards. Results indicate that a post-harvest imidicloprid application within seven days after harvest reduces pest population size in the following season.

Many growers are already making a post-harvest application for cherry leaf spot control with the fungicide chlorothalonil (Bravo), and adding imidicloprid (at a rate to control CFF) to the tank mix

may be needed in orchards with high post-harvest CFF catches. For instance, in past years, we caught the highest numbers of CFF in the NWMHRS trapline post-harvest, and lots of flies indicate a high population and a post-harvest application would be warranted. To determine if CFF populations are high after harvest, growers should continue to trap for these insects at least two weeks post-harvest. If CFF catch is higher after harvest than pre-harvest, a post harvest application of imidicloprid would be beneficial to reduce the overall population size for the 2012 season. Post-harvest applications should be made within seven days of harvest.

Literature Cited

Teixeira, L. A .F., R. Isaacs, and L. J. Gut. 2007. Habitat-Specific Flight Period in the Cherry Fruit Fly *Rhagoletis cingulata* (Loew) (Diptera: Tephritidae), Environ. Entomol. 36(6): 1339-1348.

POST HARVEST SPRAYS FOR CHERRY LEAF SPOT

Nikki Rothwell, NWMHRC

George Sundin, Plant Pathology, MSU

Cherry leaf spot is the most important fungal disease of tart cherry in Michigan. The leaf spot fungus *Blumeriella jaapii* infects leaves with symptoms first appearing on upper leaf surfaces as small purple spots. As spots accumulate on leaves, the leaves turn yellow and fall. The amount of lesions required causing leaf yellowing and drop is variable. Defoliation that begins before early September reduces the ability of trees to store photosynthate in roots leading to an overall loss of vigor and leaving trees more susceptible to killing by winter injury. Early-defoliated trees also typically exhibit reduced flower bud formation and often set less fruit the following season.

As harvest is ramping up for sweet cherries and tarts soon after that, many growers will be considering post-harvest applications for cherry leaf spot (CLS). Substantial precipitation fell early this season, which was followed by four weeks of hot and dry, we are now back to warm and wet conditions that favor CLS as we head into harvest. With the recent weather forecast of continued warm and wet, disease pressure may be high in many blocks, even with the four weeks of dry conditions. We have observed CLS symptoms in our test blocks at the NWMHRC, and we anticipate leaf drop in the UTC in the next few weeks. To keep leaves on well into September, growers should be applying a post-harvest application for CLS.

Leaves typically fall from branches a few weeks after they begin to show disease symptoms. Thus, the goal of a cherry leaf spot management program is to maintain a healthy canopy on trees at least through the end of September. This recommendation ensures an adequate amount of leaves on trees into late October and beyond. If the predictions are correct, and we continue to see warm and wet conditions, most growers, particularly those with CLS symptoms

already present in the orchard, should be using a post-harvest spray to prevent early defoliation.

The fungicide of choice for leaf spot control after harvest is chlorothalonil (Bravo or some equivalent product). Chlorothalonil provides excellent leaf spot control and is a broad spectrum fungicide, making it a good choice for mitigating fungicide resistance.

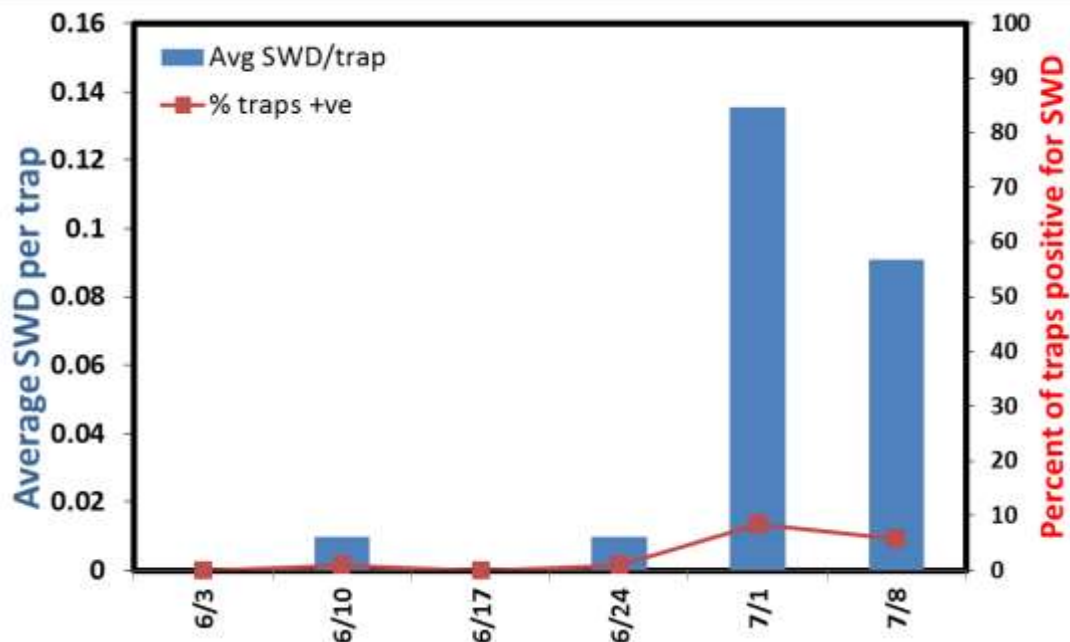
MICHIGAN SWD REPORT FOR JULY 9, 2013

Spotted wing drosophila catches remain low throughout the state, and all but one SWD caught this week were trapped in small fruits and one in tart cherry

Nikki Rothwell, Karen Powers, and Statewide SWD Monitoring Team

Spotted wing drosophila (SWD) numbers remain quite low throughout the state, and the majority of catches have been trapped in southwest Michigan. All catches this week were reported in small fruits: strawberries, raspberries, grapes, and blueberries. In Van Buren County, we trapped four males and four females in raspberries outside of high tunnels and two males and three females in raspberries in high tunnels. Also in Van Buren, we trapped one female at the edge of a vineyard adjacent to a woodlot. Two females were trapped in blueberry, three flies in unsprayed blueberry field, and an additional 4 females were all found in Allegan County. In Berrien County, we trapped one male in raspberry, two females in high tunnel strawberry, and one male at a woods' edge near strawberries and grapes. One female was caught in Oceana County in tart cherry. Overall, we are catching 0.91 flies/trap and 5.8% of all the traps in the state are catching flies.

As raspberries and blueberries are ripening, growers need to be sure to keep this fruit protected through harvest. Much of the strawberry harvest is finished in SW Michigan, and females are likely attracted to fruit remaining in the fields. Growers should make their decisions to spray based on the presence of SWD flies and ripening or ripe fruit that are susceptible. Growers should maintain a monitoring program in these crops through harvest. We have had two reports of SWD in tart cherry in the past two weeks. As cherries are at high risk for infestation, growers with ripening tart cherries should continue monitoring for this pest through harvest.



OBLIQUEBANDED LEAFROLLER IN CHERRY

Nikki Rothwell, NWMHRC

As we move into cherry harvest, growers should be aware of obliquebanded leafroller (OBLR) in orchards. Our crew has been scouting for this insect all season, and larval numbers have been high, especially compared to last year when we found very few in cherry orchards. We hypothesize that since organophosphates (OP's) have been the backbone of many of our cherry programs, OP resistance in OBLR is the reason for high OBLR numbers in cherry. We are strongly recommending a caterpillar material (not OP's or pyrethroids) in the spray tank for both tart and sweet cherry.

OBLR overwinter as larvae, feed in the spring and into the summer and pupate in late June. These adults mate and lay eggs, and the larvae present in sweet and/or tart cherry orchards are just newly hatched or large late overwintering generation larvae. As we had cool conditions this spring, there is potential for both overwintering and summer generation larvae to be present in orchards at this time. The noticeable difference, obviously, is the size of the larvae, and from past experience, smaller larvae are easier to kill than larger ones. However, growers will still need to control these caterpillars, no matter what the size, before harvesting their fruit. OBLR in cherry are contaminant pests rather than pests that feed on fruit as they do in apple; orchards with high OBLR populations can have larvae in the tank at harvest time. Growers that did not treat for OBLR at the petal fall timing should be sure to control these contaminant pests prior to harvest.

Again, we can make the assumption that if larvae are present in fairly high numbers in the orchard, growers should assume they have no efficacy from OP's against OBLR. Therefore, growers will need to apply a chemistry with a short PHI that will be effective. We have four Lepidopteran materials that are rated excellent against OBLR: Delegate (7D PHI), Belt (7D PHI), and Altacor (10D PHI), and Voliam Express (14D PHI). Anecdotal evidence suggests that Belt is more effective against the overwintering generation larvae rather than this summer generation timing, but we have no empirical information to back up that assumption. Delegate is also rated as excellent against spotted wing drosophila (SWD), but we have not caught any SWD in our 60+ traps throughout NW Michigan. Sevin and the pyrethroids have a three-day PHI, but older data tell us that these chemistries will not be effective due to cross resistance with the OP's.

AMERICAN BROWN ROT CONTROL

Nikki Rothwell, NWMHRC

A Special Local Need [EPA 24(c)] registration has been granted for the use of increased rates of Indar 2F for American brown rot control, and this material should be saved for when fruit is ripening—now!

- ❖ Fungal sensitivity/resistance to sterol inhibitor (SI) (ex. Indar, Elite, Orbit, etc.) fungicides acts in a quantitative manner, meaning that a fungus with a decreased sensitivity to one rate can be controlled by a higher rate of the same fungicide.
- ❖ MSU survey results indicate that there is clear shifting in the ABR population, and that some orchards had isolates that were close to the resistance threshold.
- ❖ The use of higher rates of SI fungicides act as a hedge against resistance development. The higher rates are effective against fungal isolates that show decreased sensitivity; controlling these isolates then decreases the chance of further shifting to resistance.
- ❖ Currently, the use of Indar 2F at the original label rate of 6 fl. oz. per acre should provide excellent control of ABR in most orchards.
- ❖ However, as a hedge against further shifting of the ABR population in most orchards, we recommend a **rate of 8-9 fl. oz. per acre** for control of fruit infections.
- ❖ Inoculum levels of the ABR pathogen may be higher than anticipated due to bacterial canker on green fruit and/or long-hanging June drop fruit: both types of cherries have been observed sporulating earlier this season.

- ❖ Good fungicide coverage is key and will help to provide uniform exposure of the fungus to the higher rate of fungicide; growers should also slow down the tractor when making applications.
- ❖ ABR is a very fast growing fungus, and we can lose an orchard in 24 hours when the fruit is near ripe, so covering up as soon as possible is recommended under the current warm and wet conditions.
- ❖ We save Indar, our best fungicide for the pre-harvest window and a total of 48oz can be used per season.
- ❖ At 8-9oz of Indar/acre, we can make 5-6 applications of Indar. If growers use a higher rate, such as 12oz/acre, they only can make 4 applications.
- ❖ Based on the survey data, an 8-9oz rate will be effective in controlling ABR.

FREE LUNCH and LAST IPM UPDATE – July 10, 2013

Area growers are invited to attend a *free* lunch starting at noon at the NW Michigan Horticultural Research Center. The lunch is co-sponsored by the Leelanau Horticultural Society and Beau Shacklette, Trickl-Eez Compnay, and will be followed by a short presentation on the MAEAP Phase I program. The last IPM Update of the season will start at 1:00 p.m.

HOP PRODUCTION 201 – BEYOND THE BASICS WORKSHOP SCHEDULED FOR AUG. 7

Materials presented in this hands-on and classroom-based workshop will provide valuable information for established hop producers as well as those new to growing hops.

Posted on **July 3, 2013, MSUE News**, by **Diane Brown**, Michigan State University Extension

The [Hop Production 201 workshop](#) will be at the [Southwest Michigan Research and Extension Center](#) in Benton Harbor, Mich., on Aug. 7, 2013 from 8:30 a.m. to 3:15 p.m. It is the perfect complement to the [Michigan State University Extension hops field and grower tour](#) to be held in Traverse City, Mich., on Aug. 9, 2013.

Our keynote speaker is University of Vermont's (UVM) [Heather Darby](#), who has been leading a [USDA Organic Agriculture Research and Extension Initiative](#) grant in partnership with [Washington State University](#), [Colorado State University](#) and [Michigan State University](#) since 2009. The goal of this grant is to develop agronomic recommendations for organic hops production for the Northeast. Much has changed since hops were last grown in the Northeast in

the 1800s, with many new disease resistant varieties available and a better understanding of pest lifecycles.

In August 2010, UVM Extension planted a hops variety trial at Borderview Farm in Alburgh, Vt. The UVM Extension hopyard is evaluating 19 widely available hop varieties. One goal of this project is to determine hop varieties that demonstrate disease and pest resistance in combination with high yields, and also present desirable characteristics to brewers. Another goal of the project is to develop outreach materials that will assist new growers with successfully growing hops. These materials include information on how to construct and maintain a hopyard, how to properly fertilize and how to identify and manage pests of hops.

Topics to be covered at the workshop in southwest Michigan include:

- How not to grow hops! Everything you need to know, so you don't screw it up – Heather Darby, University of Vermont
- Beyond 'Cascade' – hop varieties we should be considering for Michigan – Lynne Kemme, [Great Lakes Hops](#)
- Tracking irrigation – how much water is enough? – Ron Goldy, MSU University Extension
- Pest scouting in your hopyard – Erin Lizotte, MSU Extension
- Pesticides registered for hops in Michigan – Diane Brown, MSU Extension
- Hop cost of production estimates for new growers – Rob Serrine, MSU Extension
- Constructing hop pickers, dryers and balers for small scale operations – Heather Darby, University of Vermont

Space is limited, so register early to avoid disappointment. The **registration deadline is Aug. 2**. Registration fee is \$45 per person which includes lunch, refreshments and handouts. [Download the registration form](#). Make checks payable to Michigan State University.

Contact the [Berrien County MSU Extension office](#) at 269-944-4126 for additional information.

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WEBSITES OF INTEREST

Insect and disease predictive information is available at:

<http://enviroweather.msu.edu/homeMap.php>

This issue and past issues of the weekly FruitNet report are posted on our website

<http://aqbioresearch.msu.edu/nwmihort/faxnet.htm>

60 Hour Forecast

<http://www.agweather.geo.msu.edu/agwx/forecasts/fcst.asp?fileid=fous46ktvc>

Information on cherries is available at the new cherry website:

<http://www.cherries.msu.edu/>

Fruit CAT Alert Reports has moved to MSU News <http://news.msue.msu.edu>