Northern Michigan FruitNet 2018
Northwest Michigan Horticultural Research Center

Weekly Update

FruitNet Report – May 8, 2018

CALENDAR OF EVENTS

5/8 – 6/27 **IPM Updates**

What's new?

- **Northwest Michigan Fruit Regional Report – May 8, 2018**
- **Correcting blind wood in apples**
- **Some simple tips for reducing pesticide risk to pollinators**
- **Hives available for lease**

New articles

Northwest Michigan Fruit Regional Report – May 8, 2018

With the recent rains and warming temperatures, tree development is starting to move along; growers are finishing pruning and removing brush. Dormant apple sprays went on late last week.

Nikki Rothwell and Emily Pochubay, MSU Extension

GROWING DEGREE DAY ACCUMULATIONS AS OF May 7, 2018 AT THE NWMHRC

Year	2018	2017	2016	2015	2014	2013	28 Yr. Avg.
GDD42	178.1	278.9	271.6	281.3	130	250	288.1
GDD50	80.2	111.5	107.8	125.5	31.1	131.1	126.3

2018 Growth Stages – NWMHRC May 7, 2018

Bartlett Pear – Bud burst
Potomac Pear – Bud burst
Mac – 1/4'" green
Gala – ½" green
Red Delicious – Ear. tight cluster
HoneyCrisp – ½" green
Montmorency – Side green
Balaton – Early bud burst
Hedelfingen – Early bud burst
Gold – Early bud burst
Napoleon – Early bud burst
Riesling – Scale crack

Weather Report

The warm weather has increased the number of growing degree days (GDD) at all Enviroweather stations in northwest Michigan. As of Monday, 7 May, we have accumulated 178.1GDD base 42 and 80.2GDD base 50; these jumps are significant compared to last week's accumulations. We are still behind GDD accumulations of the 2014 season, when we had only accumulated 130GDD base 42 and 31GDD base 50. We also had a sizeable rain event on Friday, 4 May where the station received 1.4" of rainfall. We also had a minor rain event on Sunday, and temperatures were cold and wet, which was concern for bacterial canker infections in newly pruned sweet cherries. Temperatures were into the 70s on Monday and Tuesday, and more rain is in the forecast for Wednesday and Thursday, 9 and 10 May and into the weekend. Temperatures will also drop from the 70 down to the 50s over the weekend.

Crop Report

More spring-like temperatures have hastened tree development across the northwest region. Green tissue is evident on both apples and cherries, and growers are starting to make applications to protect the new leaf tissue in apples. Pruning is still ongoing but many growers are finishing up. Growers are trying to find a good window for sweet cherry pruning as we have had cold and wet weather interspersed with warmer and drier conditions. Many growers applied Promalin late last week to try and break buds in sweet cherries; conditions were warm but on the edge if they were warm enough for good PGR activity.

We have had some reports of damage in young tart cherries, even those on good sites. We hypothesize that some of these orchards lost leaves early as a result of the many wetting events and cherry leaf spot infections last season. This early defoliation combined with cold temperatures in December and January are the likely culprits of young tree loss in the region. Those damaged trees are easy to spot as the bark color is dark to blackish, and the damage is apparent as tip and branch die back. When we cut into the trees, there is damage to the cambium layer but also in the heartwood of the trees. Other than those young isolated tart cherry blocks, we have observed very little bud damage in tree fruits.

Pest Report

Following rain and relatively warmer temperatures, several apple varieties at the station were at green tip by the end of last week, and our green tip biofix date (110 DD base 42 after 1 Jan) for McIntosh was on 1 May. As mentioned in Friday's FruitNet report, our team is using two web-based apple scab models, RIMpro-Venturia and Enviroweather, to assist with management decisions this season. While Enviroweather provides a good summary of when wet weather could have resulted in an infection whereas RIMpro-Venturia provides a detailed look at forecasting apple scab spore releases during a predicted rainfall. Therefore, the predictive capability of RIMpro allows growers to better assess their management strategy prior to possible infection periods.

Recent warmer weather has matured more apple scab ascospores, and RIMpro is currently forecasting the potential for high spore release in this week's predicted wet weather beginning Wednesday 9 May in the evening. While evening rains do not typically result in high spore discharge, mature spores will be ready to discharge following this recent stretch of warmer temperatures. The weekend is also predicted to be wet and as a result, RIMpro is predicting the possibility of a major scab infection event. However, we anticipate spore discharge and maturity to slow this weekend with the cool temperatures predicted. Growers should continue to monitor the weather to assess if and when to make applications to protect growing tissue from scab infections. In areas with predicted prolonged periods of wet weather, growers should consider using a tank mix of a fungicide with systemic activity plus an EBDC.

RIMpro-Venturia Outputs
Bear Lake (Biofix 1 May) - www.rimpro.eu/faces/venturia.xhtml?id=SBX4czs

Benzonia (Biofix 1 May) - www.rimpro.eu/faces/venturia.xhtml?id=W8AATqc
East Leland (Biofix 1 May) - www.rimpro.eu/faces/venturia.xhtml?id=bQVk0LY
Eastport (Biofix 2 May) - www.rimpro.eu/faces/venturia.xhtml?id=nK5Jcqr
Elk Rapids (Biofix 1 May) - www.rimpro.eu/faces/venturia.xhtml?id=hCoaC6M
Kewadin (Biofix 1 May) - www.rimpro.eu/faces/venturia.xhtml?id=Oa4COcX
Northport (Biofix 5 May) - www.rimpro.eu/faces/venturia.xhtml?id=Bsrm7WU
NWMHRC (Biofix 1 May) - www.rimpro.eu/faces/venturia.xhtml?id=HJzr7Kn
Old Mission (Biofix 1 May) - www.rimpro.eu/faces/venturia.xhtml?id=xPCzX8i
Williamsburg (Biofix 1 May) - www.rimpro.eu/faces/venturia.xhtml?id=wBe9zhP

Black stem borer are tiny (<2mm) boring beetles that can attack all tree fruits grown in Michigan as well as ornamental and forest plant species. These beetles typically only infest small diameter trees (<4") and while they can infest trees that appear healthy, the beetles are attracted to scent cues (i.e. ethanol) produced by stressed trees. In northwest Michigan, we have observed black stem borers infesting young/dwarf apple trees in recent years; trees that are infested often appear unhealthy, but if populations are high enough, they can attack healthy trees. The best option to mitigate black stem borer infestation is to identify and remedy tree stress. In some cases, growers may want to treat trees for black stem borer, which can be difficult because the beetles spend a majority of their life cycle inside of the tree. Historically, the beetles have been reported to begin emerging from trunks at ~100 degree days base 50 starting from 1 Jan which often aligns with forsythia bloom. If growers are planning to take action against this pest, this emergence timeframe is the best chance to target black stem borer. We are trapping for black stem borer, and we have not caught any flying beetles as of yet; these beetles were found in traps in southwest Michigan, We anticipate flight to begin with the warm temperatures, and forsythia is starting to bloom.

In tart cherries at the station, Montmorency was at early bud burst and bract leaves were visible on Balatons on Monday 7 May. We remind growers that bract leaves are susceptible to cherry leaf spot infection, and if these leaves are present, they should be protected prior to the coming rain. If these leaves become infected early and the fungus gets a foothold, battling leaf spot for the remainder of the season will be a challenge. Last season was a tough leaf spot year, and some orchards defoliated early. We have observed young orchards with substantial tree losses this season, and we suspect that early defoliation played a significant role in reduced winter hardiness resulting in tree death this spring.

Sweet cherries buds developed quickly last week making delayed-dormant applications for San Jose scale a challenge for some growers. Growers had to weigh their options to determine if the possibility of some phytotoxicity with specific chemistries was worth the risk to take advantage of the first opportunity to manage this pest. The next opportunity will be to target crawlers.

Based on degree-day accumulation estimates, we could be in cherry bloom next week. The forecast is for warm temperatures in the upper 60s and 70s with slight chances of rain. If we receive wet weather in these warm temperatures, these conditions will be

ideal for American brown rot. Last season was very challenging for brown rot near harvest time and some orchards have a substantial inoculum load going into bloom. The fungicide Rovral continues to be the best option for American brown rot during bloom, both for resistance management and also because new data suggests that Indar is not as effective as it used to be even at higher rates allowed by the special use label.

Correcting blind wood in apples

Blind wood is a problem on some young apple trees.

Posted on **May 1, 2018** by **Philip Schwallier**, and Amy Irish-Brown, Michigan State University Extension and Denise Ruwersma, Horticultural Technician, MSU Clarksville Research Center

Introduction

Blind wood is a problem on some young apple trees such as Fuji, Granny Smith, Jonagold and Honeycrisp. Blind wood can occur on the leader and laterals especially with high tree vigor and high apical dominance. Paradormant buds are controlled by auxins flowing away from the shoot tips through the phloem downward in the plant. The auxins causes lower buds to remain dormant.

Notching and scoring is known to disrupt the auxin flow and free the paradorment buds to grow and develop. Cutting through the cambium just above a paradormant bud is called scoring and sometimes doesn't work. Notching is a more aggressive form of scoring by removing a small amount of cambium just above the paradormant bud disrupting the flow in the cambium. This can be done by taping two hacksaw blades together and sawing out a small 3 mm strip just above the paradormant bud. A box-cutter knife makes a better notch by pressing the blade straight into the hardwood and then a second cut being brought down on a 45-degree angle to meet the straight cut and the angled notch being removed.

The old belief is that scoring and notching will break buds only on young wood for example: notching on 1-year-old will break about 90 percent, 2-year-old, 50 percent and 3-year-old, 10 percent, and no break will occur on 4+ older wood. But with the addition of PGR's to the notch research has shown effect on paradormant buds on wood up to 7 years. Be patience because it can take two to three extra weeks for the effect to show up.

PGR's

Apply just a mist to the notch and do not flood the buds with excessive PGR mist. Treatment of notched wood with PGR's, MaxCel and Promalin, proved to be the best combination to promote bud break and shoot extension. Numerous trials of various rates of these 2 PGR's indicate that a mixture of 1500 ppm of MaxCel and 500 ppm Promalin with 1% v/v Regulaid seemed to work consistently with high success. The 6-BA in MaxCel encourages bud break and the gibberillins in the Promalin promote shoot extension. Together 90 percent will break buds and 80 percent will extend into and long shoot.

PGR Solution for 1 quart spray bottle **Just a mist, not a stream running down the tree.** **Worked in cooler temperatures.**	
1500 ppm MaxCel	4.8 Tablespoons
500 ppm Promalin	1.6 Tablespoons
.25% v/v Regulaid	2.36 ml

Timing

The timing of this Notching+PGR treatment is best from green tip to tight cluster, but can be done 2 weeks before bud break to after full bloom. The sweet spot is at half inch green. Warm temperatures at that time will help increase the response of the PGR.

Risks

There are risks with this technique of Notching+PGR.

- **Fireblight.** Be careful when considering notching during Fireblight conditions. Warm temperatures are the target for best PGR response, but this is when fireblight is also developing.
- **Flooding.** Flooding out the notch can kill the bud. Apply just a mist of the solution to the notch.
- **Flooding with excessive runoff.** Flooding out the notch and excessive runoff down the stem can crack the wood under the bud.

Some simple tips for reducing pesticide risk to pollinators

With fruit crop bloom season kicking in, it's a good time to review these recommendations.

Posted on **May 1, 2018** by **Rufus Isaacs**, and Julianna Wilson, Michigan State University Extension, Department of Entomology

If the drive rows of your fruit crop contain flowering weeds, it is important to mow them off before applying plant protectants to protect pollinators. Photo: Emily Pochubay, MSUE

We are finally seeing some warm conditions this spring, so honey bee colonies are being brought back to Michigan by commercial beekeepers. We are also seeing wild bumble bees, mason bees, and digger bees starting to emerge from their overwintering. These are all welcome signs of spring, as are the reports of apricot bloom starting in southwestern Michigan.

With bloom season approaching for our fruit crops, we want to remind growers of the main tactics for reducing the risk of pesticides to bees. A lot more detail on this topic can be found in our free Michigan State University Extension publication E3245 "Minimizing pesticide risk to bees in fruit crops". This is a 16-page bulletin available from the MSU Extension bookstore. It contains a series of tables that show the relative risk of the common fruit crop insecticides and fungicides.

The bulletin goes into depth on these topics, but here are some of the basic ideas behind the recommendations for reducing pesticide risk to bees.

Use integrated pest management (IPM) to reduce the need for sprays. Disease models are available at the MSU Enviroweather website and extension recommendations highlight the periods of infection risk that require fungicide applications during bloom. This can potentially reduce the need for treatment during dry springs. Using traps, degree day models, and thresholds for insect pests can also reduce the need for insecticide sprays. Encourage biological control and increase the use of cultural controls where possible.

Avoid pesticide sprays during crop bloom. Diseases and insect pests require active management in commercial fruit production. But orchards and fields of many fruit crops also need bees for pollination, and weakened hives will not provide the same level of pollination as strong ones. So consider the effects on pollinators when selecting pesticides.

Apply pesticides after sunset or before sunrise, or when air temperature is below 50°F. This is one way to reduce direct exposure of pollinators to pesticides. It can be challenging on large farms or when spring weather provides a slim window of suitable conditions, but some beekeepers have reported improved colony health at farms that have adopted this practice.

Select the least toxic pesticides and formulations when possible. The MSUE Fruit Pest Management Guide (E154) provides information on relative risk to pollinators, natural enemies and predatory mites in some tables. This information is based mostly on toxicity to honey bees, and it can be a good way to compare among products. Also, see the tables in the E3245 mentioned above. When there are multiple formulations of the same product available, select the liquid or dissolvable formulations over dusts as those can be picked up with pollen by bees and taken back to the hive.

Reduce drift onto areas outside crop fields. Reducing drift is part of the state pesticide training, because it is critical for avoiding unintended effects on wildlife, water sources, etc. Bees will gather pollen and nectar from flowers outside crop fields, and the wild bees will also nest there, so it is important to keep the application where it was intended. Springtime sprayer calibration, targeted application, and nozzle selection to reduce fine droplets can all help keep sprays where they are intended.

Remove flowering weeds from crops. Access to a diversity of food sources is helpful for bee development, but if the drive rows in your fruit planting contain a carpet of blooming dandelions, clover or other bee-attractive flowers, plan to mow them before spraying to help reduce pesticide exposure – **not just during bloom, but through the entire growing season**.

Provide bee-friendly habitat away from crops. These can be trees, shrubs, wildflower plantings, or unsprayed flowering cover crops that bees like to visit. Wild bees also need places to nest and develop their offspring. A separate guide on this topic is online in another free bulletin available for free download at Establishing Wildflower Habitat to Support Pollinators of Michigan Fruit Crops.

Develop and implement a pollination contract with your beekeeper. Pollination contracts are often sealed with a handshake agreement. But a written agreement can clarify how many colonies will be delivered, where and when by the beekeeper and what the grower should do to alert the beekeeper if there are treatments being applied nearby. Example contracts are easily found online as a way to get started.

Hives available for lease

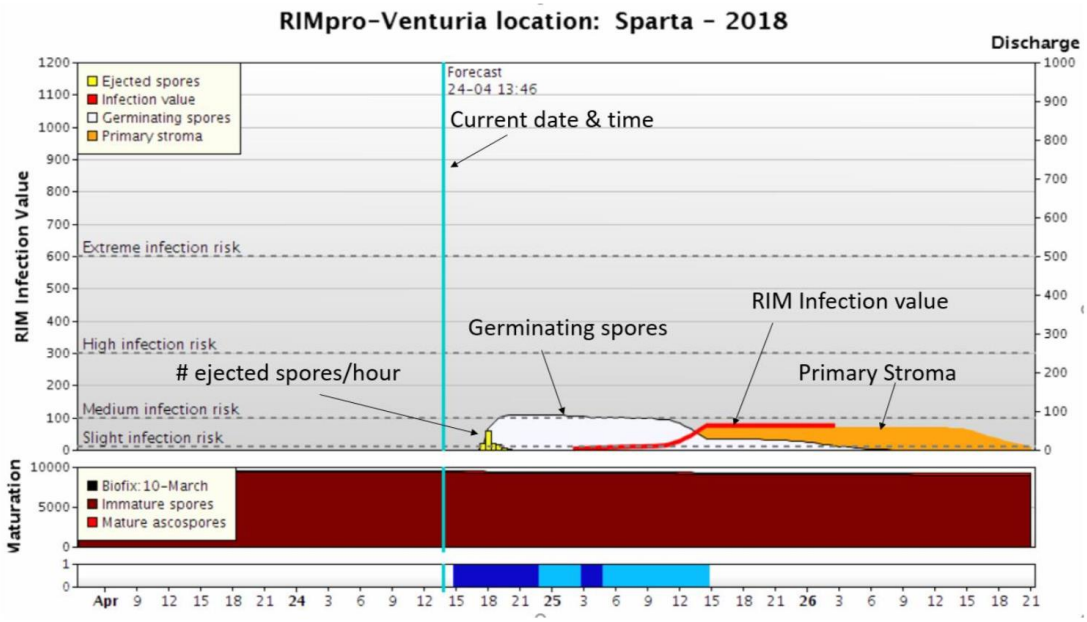
Chris Oslobamu is a beekeeper that his interested in leasing hives out to Michigan fruit growers. If growers are in need of bees, he can be reached at 941-720-6025.

Articles featured in past FruitNet Reports

How to interpret a RIMpro apple scab forecast when making a management decision on your operation

Authors: Dave Jones and Amy Irish - Brown, MSU Extension

MSU Extension's apple group has adopted the usage of RIMpro apple scab modeling this season in order to help growers with management decision making. This software is an improvement over former apple scab information that has been shared because it evaluates upcoming risk based on short term weather forecasts, allowing growers to make a plan to address each situation as it arrives. While this comes with huge potential, interpreting RIMpro output can be confusing at first. Below is a typical RIMpro apple scab forecast output with labelling on all key components. We will discuss the elements that are most important for farmers to take note of when using this tool.



When reading this graph, start by finding the light blue vertical line, which is your current date and time. You can see that the line goes all the way down to the bottom of the graph to show you the date. This graph reads April 14th. Once you have located your position, the most important thing to take a look at when considering what you should be doing to address an approaching rain event is the solid red line, labelled “RIM infection value.” This is the visualization of the infection risk associated with an approaching rain event (indicated by the dark blue bars on the very bottom of the graph. Light blue bars are wetting events that follow). Notice on the left-hand side of the graph that there are dotted lines running horizontally across the graph which are labelled “slight infection risk,” “medium infection risk,” “high infection risk,” and “extreme infection risk.” Management should be considered any time we climb above the “slight infection risk” line.

Another useful measurement for a grower are the little yellow bars, labelled “# ejected spores per hour.” This indicates when the spores are released. Note that they correspond with the solid blue bar at the bottom of the graph, which indicates a rain event.

If you are a farmer looking to make a decision, use the following thought progression: After the rain starts (blue bar) the apple scab spores are released (yellow bar). Their probability of infecting your apple tree is then calculated based on environmental data (solid red line), and the risk is summarized by the dotted gray lines running horizontally across the graph (“slight infection risk, “moderate infection risk,” etc.). The severity of the rating gives you the information needed to make a decision about management ahead of the approaching rain. We manage when the value climbs above “slight infection risk,” and need to exercise increasing caution as the value rises up to the maximum rating of “extreme infection risk.” Use your best combinations of systemic and protectant fungicides during the “high” and “extreme” events each year, and focus on protectants during “slight” and “moderate” events.

2018 IPM Update Schedule

Please join us for 2018 season Tree Fruit IPM Updates beginning the second week of May. These meetings highlight timely discussions of pest challenges and management options dictated by weather and pest biology. Attendees are encouraged to bring examples of pests and damage found on the farm to these workshops for identification and discussion. Additionally, we will host invited speakers from local organizations and MSU at this year's meetings. Workshops will be held weekly in Leelanau, Grand Traverse, Antrim, and Benzie counties. Tree fruit growers and consultants are welcome to attend meetings at any of the locations and times that are most convenient (see below). These workshops are free and do not require registration. Restricted use pesticide applicator recertification credits (2 credits per meeting) and Certified Crop Advisor credits will be available. We are looking forward to seeing you in a few weeks! For more information, please contact Emily Pochubay (pochubay@msu.edu), 231-946-1510.

Leelanau County

Location: Jim and Jan Bardenhagen, 7881 Pertner Road, Suttons Bay
Dates: May 8, 15, 22, 29; June 5, 12, 19, 26
Time: 12PM – 2PM

Grand Traverse County

Location: Wunsch Farms, Phelps Road Packing Shed, Old Mission
Dates: May 8, 15, 22, 29; June 5, 12, 19, 26
Time: 3PM – 5PM

Antrim County

Location: Jack White Farms, 10877 US-31, Williamsburg (south of Elk Rapids on the southeast side of US-31)
Dates: May 9, 16, 23, 30; June 6, 13, 20, 27
Time: 10AM – 12PM

Benzie County

Location: Blaine Christian Church, 7018 Putney Rd, Arcadia, MI 49613
Dates: May 9, 16, 23, 30; June 6, 13, 20, 27
Time: 2PM – 4PM

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WEB SITES OF INTEREST:

Farmer to Farmer – Connecting farmers, cultivating community
http://www.f2fmi.com

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://www.canr.msu.edu/nwmihort/nwmihort_northern_michigan_fruit_net

60-Hour Forecast:
http://www.agweather.geo.msu.edu/agwx/forecasts/fcst.asp?fileid=fous46ktvc

Information on cherries:
http://www.cherries.msu.edu/

Information on apples:
http://apples.msu.edu/

Information on grapes:
http://grapes.msu.edu