Northern Michigan FruitNet 2014
Northwest Michigan Horticultural Research Center

Weekly Update

May 20, 2014

CALENDAR OF EVENTS

5/20	**IPM Update** Leelanau Co.– Bardenhagen Farm
5/20	**IPM Update** Grand Traverse Co. – Wunsch Farm
5/21	**IPM Update** Antrim Co. – Jack White Farm
5/21	**IPM Update** Benzie Co. – Blaine Christian Church
5/31	**Leelanau Co. Household Hazardous Waste Collection** Maple City
7/2	**IPM Updates End**
7/22-24	**35TH Annual Ag Expo** **Michigan State University**
9/4	**NWMHRC Open House – 35th Anniversary** **Please note change in date from 8/21 to 9/4**

GROWING DEGREE DAY ACCUMULATIONS AS OF May 19 AT THE NWMHRC

Year	2014	2013	2012	2011	2010	2009	24 Yr. Avg.
GDD42	274	393	706	318	588	395	444.0
GDD50	107	213	367	123	269	169	209.7

Growth Stages at NWMHRC (May 19, 2014, 1:00 p.m.)

Apple: Red Delicious – Tight cluster
Gala – Tight cluster
Yellow Delicious – Tight cluster
Pear: Bartlett: Late green cluster
Sweet Cherry: Hedelfingen: 50% bloom
Napoleon: 60% bloom
Gold: White bud
Tart Cherry: Late bud burst
Balaton: Tight cluster
Apricot: Early petal fall
Grapes: Early bud swell

NORTHWEST MICHIGAN REGIONAL REPORT
E. Pochubay, N. Rothwell, and D. Elsner

Sweet cherries are in bloom and growers are actively protecting from apple scab and brown rot infection.

Weather Report. We finally hit a warm and sunny day over the weekend in northwest Michigan. These conditions were much welcomed after we had snowfall on the morning of Friday, 16 May. As we start off the workweek, we are expected to hit the 70 degree F mark again this Monday. Although growers are pleased with the warm and dry conditions, it has been windy for the past three days; most growers have been spraying later into the evening when the winds have died down. Saturday morning was cold throughout the region, and the lowest temperatures were reported at the East Leland weather station—28 degrees F. Based on the

slow start to our spring, our fruit crops are not very far advanced, and the cold temperatures had less impact than if we had been in full bloom. Many growers ran their frost fans during the night of 16 May.

We continue to slowly accumulate growing degree-days, and as of today, 19 May, we have accumulated 274 GDD base 42 and 107GDD base 50. Currently, we are almost two weeks behind a normal year. We have also had substantial rainfall in the past week, and we recorded 1.55" of rain here at the NWMHRC. The rain was spread out over the days of 13 May through 17 May, and we had the most rainfall on 13 May: 0.54".

Table 1. Apple scab spore count

Date	Avg # apple scab spores per rod
5/1/14	50.75
5/2/14	18.5

Crop Report. With the recent warm weather, we are starting to see bloom in sweet cherries. In the warmer areas of the region, we saw some open bloom late last week, but the weekend warmth really advanced the blossoms. The weather forecast for the week predicts warm weather, albeit rain on Tuesday 20 May, which suggests good pollination weather. Growers have been placing honeybees into orchards areas over the weekend, and bee activity was high with the warm conditions on Sunday and Monday.

Most growers are protecting against American brown rot blossom blight as bloom progresses in sweet cherry. In and around the NWMHRC, we have seen no white in tart cherries yet. However, with the predicted warm temperatures, we could move very quickly from bud burst to bloom. The weather forecast predicts we will be in full bloom over the weekend into the first of next week. Apple tissue is evident on all apple varieties, and growers are actively protecting it against the scab fungus. The wet conditions have not allowed apple growers much rest between applications to protect against this disease.

Many growers are still planting across the region. We have heard of many reports of wet orchards, which is not extremely common in our sandy soils in northwest Michigan. Some growers reported that they have never seen such wet conditions for planting.

5/3/14	258.75
5/8/14	368
5/9/14	1,443
5/13/14	1,855
5/16/14	110

Pest Report. Dispersal of **apple scab** spores is ongoing during this primary infection period at our apple scab monitoring field site. The latest potential period for apple scab infection in the northwest followed rain that began the morning of 12 May and ended mid-afternoon on 13 May. During this potential infection period, the average number of spores collected on spore rods made another jump up to 1,855 spores per rod. Moderate temperatures (an average of 58.6 F), 0.52" of rainfall, and a long period of wet, humid conditions resulted in the potential for heavy apple scab infection, which is reflected in the number of spores that we collected on 13 May (Table 1). The snow/rain mix that occurred 15 May into the morning of 16 May was not conducive for an apple scab infection.

New green tissue on apples continues to expand, particularly during this recent warm weather. Keep in mind that new green tissue that has not been protected with a fungicide is susceptible to apple scab infection. Additionally, fungicides may need to be reapplied to green tissue after rain because rain may wash fungicides off of that tissue. At this time, it is important to continue spray to prevent apple scab infection. If predicted temperatures in the coming week remain cool, Scala or Vangard mixed with a protectant are two fungicides with good efficacy against apple scab at cooler temperatures below 70 F.

Powdery mildew infection is also of concern at this time. Growers should consider incorporating management options for powdery mildew into their apple scab program if the orchard had powdery mildew infection last season and the apples have reached tight cluster. Powdery mildew overwinters in the buds and data have shown this fungus is killed when temperatures reach -10 degrees F. This year's winter temperatures reached much colder than -10 degrees F throughout the region, therefore, we may see reduced inoculum due to these conditions. However, we cannot guarantee that all powdery mildew inoculum were killed during those cold weather events. The SDHI fungicides provide efficacy against both powdery mildew and apple scab. Growers who need to spray for both powdery mildew and apple scab can use an SDHI and then move back to the protectant strategy.

Sweet cherries are in bloom, and growers in northwest Michigan have been protecting blossoms from **American brown rot blossom blight** infection. For resistance management, we are recommending that Rovral be used at this bloom timing. In tart cherries, several growers have reported that Balaton variety trees are farther along in development compared with Montmorency trees. At the research station, Balaton tart cherry trees are in the tight cluster stage and Montmorency are at late budburst. Development of tart cherry trees will likely move quickly as a result of warm temperatures that are forecasted for the coming week. Therefore, growers should be mindful of this hastened development to adequately time the first **European brown rot** spray at the whitebud or popcorn stage. Progress from whitebud or popcorn to bloom

will likely move quickly, and a second application may be needed shortly after the first to protect tart cherry blossoms from European brown rot infection. Bract leaves are unfolded, particularly in Balaton tart cherries, and are susceptible to cherry leaf spot infection. Michigan State University is recommending that growers protect bract leaves from **cherry leaf spot** infection to reduce inoculum and prevent a cherry leaf spot epidemic from occurring later this season.

A slow start in accumulating degree-days this spring has delayed insect activity, but we are starting to see slightly more activity in the region. In particular, we have noticed that wild pollinators and honeybees are actively foraging. Many growers are now receiving honeybee hives. Insect pests are also active, and this is our third week of monitoring for them at the research station. **Green fruit worm** moth captures are higher compared to last week with an average of 17.6 green fruit worm moths per trap; this is the third consecutive week of green fruit worm moth capture. This is our second consecutive week of spotted tentiform leafminer moth catch with an average of 12 moths per trap. **Plum curculio** adults are also beginning to emerge. We have not captured **Oriental fruit moth** or **American plum borer**; the first emergence of American plum borer moths typically occurs around 118 growing degree days base 50ºF and adult Oriental fruit moths typically emerge around 174 GDD base 50ºF, and we have accumulated 114.8 degree days at this time.

USING RETAIN® TO IMPROVE FRUIT SET IN CHERRY

N.L. Rothwell and E. A. Pochubay, NWMHRC
Data provided by J. Rosco and D.D. Miller, Ohio State University, and Valent®

ReTain is a plant growth regulator that has been shown to extend flower viability in cherry. With flowers that last longer, they have a higher likelihood for successful pollination and an opportunity for increased fruit set and yield. Initial research has shown that ReTain works best if used at early bloom before poor pollinating conditions (wet, cool, windy weather or low honeybee activity) or on varieties that tend to be shy-bearing, such as Cavalier or Regina. All of the current work of ReTain in cherries has been conducted in sweet cherry, but ReTain may also be effective in Balaton.

Washington State University researchers showed that one pouch of ReTain in 100gal water per acre improved the number of fruits per trunk cross sectional area by 49% at harvest in var. Bing compared to the UTC. Rosco and Miller 2011 found that ReTain reduces ethylene evolution in cherry flowers and delays flower and stigmatic senescence. Due to this effect, cherry flowers have a better chance for pollination and fertilization under poor pollinating and fruit setting conditions. Researchers showed that ethylene production was delayed in var. Regina, and this delay resulted in extended flower viability.

The rate of ReTain is one pouch per acre (11.7oz/acre) applied at early bloom: popcorn to first bloom. The more tissue on the tree, the better the response, but the key timing is early bloom. The spray volume is recommended at 100 gal/acre through an orchard sprayer. Adjuvants are not recommended as some of these products may decrease fruit set. ReTain cannot be used after petal fall, and it is not recommended if rain is expected within 8 hours of application. Temperature needs to be carefully monitored during application timing as the effectiveness of plant growth regulators decline at low temperatures. Also, applying under slow drying conditions is recommended so application should be made early in the day before temperatures rise. Do not apply if rainfall is expected within eight hours after application. According to the Valent representatives, they have found that treating a larger block is more effective than treating rows within a block; the overall effectiveness of the active ingredient in ReTain is improved with broad coverage.

We are conducting ReTain trials at two Balaton sites and two Regina sites in northwest Michigan this season. This information will be available to growers next season.

USDA REAP grant applications sought to implement energy conservation practices, bioenergy projects

Attention REAP applicants, installers, partners and grant writers – it's time to apply for grant dollars and low interest loans to implement energy conservation practices.

Posted on **May 9, 2014, MSUE News,** by **Charles Gould**, and Al Go, Michigan State University Extension

The Fiscal Year 2014 Notice of Funding of Availability (NOFA) for the Rural Energy for America (REAP) Guaranteed Loan and Grant Program was released May 5, 2014. For Michigan farmers, this means it is time to apply for grant dollars and low interest loans to implement energy conservation practices. Conserving energy puts money back in the farmer's pocket.

Most practices have a payback period of less than 4 years as shown in Table 1. For example, on average, dairy farms who have conducted energy audits by the Michigan Farm Energy Program have identified energy conservation measures amounting to a potential reduction of 49 percent in their energy costs. The average potential energy savings is 40 percent for farm operations and rural businesses.

Table 1. 2010 – 2013 Average Potential Energy Efficiency Saving (Michigan Farm Energy Program).

Operation Type	Ave. % Energy Cost Savings	Ave. Pay-back (Yrs)	Average Energy Saved ($)
Dairy*	49%	2.7	$8,223
Greenhouse	39%	3.8	$33,343
Crops*	41%	2.2	$7,142
Grain Drying*	35%	8.0	$15,688
Irrigation	73%	3.9	$14,506
Hogs*	23%	3.4	$4,745
Beef*	49%	3.8	$1,261
Food Processing/Marketing	36%	4.9	$8,360
Rural Business	38%	2.2	$26,777
Totals (225)	**40%**	**3.8**	**$13,924**

* Homestead activities only, doesn't include field operations.

What is the process for applying for REAP funds? The first step in the application process is to have a Tier 2 energy audit completed by a certified auditor. Contact an auditor to set up an appointment. Audits take about 3-4 hours, and the farmer must accompany the auditor on the audit. Dairy farmers who are a member of Michigan Milk Producers Association can contact their field reps to conduct their audit.

The next step is to complete the application form and requirements. Those who qualify to apply for the REAP program are Agricultural Producers (defined as an individual or entity directly engaged in the production of agricultural products that gets 50 percent plus of their gross income from agricultural production) or Small Rural Businesses (must meet the U.S. Small Business Administration definition of a small business) that are private entities, sole proprietorships, partnerships, corporations or cooperatives. The applicant must also be a citizen of the U.S. and must not have federal judgments or delinquent federal taxes. Rural Small Business projects must be located in a rural area. Agricultural Producer projects have no rural limitations. REAP funds must be used to purchase a renewable energy system or energy efficiency improvements. Some examples of energy efficiency improvements include:

- Freezer and cooler upgrades
- Lighting improvements, window and plumbing upgrades, insulation
- Replacement grain dryers
- Replacement irrigation units (diesel to electric, high presser to low pressure, traveler to pivots)
- Greenhouse heating, lighting and cooling improvements

- High efficiency motors, pumps, fans, blowers, compressors
- Upgrading /replacing HVAC equipment

Some examples of renewable energy systems include:

- Wind
- Solar
- Biomass/ Biofuel
- Anaerobic digester
- Geothermal
- Hydropower

Such systems or improvements must be commercially available and replicable technology. All projects must have technical merit. REAP funds cannot be used for residential improvements or used to purchase agricultural tillage equipment, used equipment, and vehicles.

There are two types of applications, the Simplified and Full. The Simplified application is for projects with eligible costs of $200,000 or less. The Full application is for projects with eligible costs over $200,000. The difference between the two is in the reporting. The Simplified application requires a more streamlined technical report whereas the Full application requires additional documentation for the technical report and additional financial documentation. Applicants can contact their nearest USDA Rural Development Center and talk to a Business Specialist about their project and receive information about filling out an application.

The contact information is as follows:

East Lansing
Bobbie Morrison, Rick Vanderbeek, or Carol Webb 517-324-5157

Traverse City
Alan Anderson 231-941-0951, ext. 6

Gladstone
Lori Krause 906-428-1060, ext. 6

Caro
Paula Gromak 989-673-8173, ext. 6

Gladwin
Jackie Morgan 989-426-2750

Watervliet
Lisa Epple 269-463-8030

The simplified application is easy to fill out and should not take applicants long to complete. Applicants may want to consider hiring a reputable consultant to complete the Full application.

The final step is to submit the application. ***Paper and electronic applications for grants only or combination loans and grants must be RECEIVED no later than 4:30 pm on July 7, 2014***. Applications received after 4:30 pm, July 7, 2014, regardless of the application postmark, will not be considered for funding in Fiscal Year 2014. ***Applications for guaranteed loans only must be RECEIVED no later than July 31, 2014.*** Applications for guaranteed loans only received after 4:30 pm, July 31, 2014, regardless of the application postmark, will not be considered for funding in Fiscal Year 2014.

In preparation for REAP funding, Michigan State University Extension held a series of energy conservation workshops in November 2013 and April 2014 across the state. These workshops will be offered again in winter 2014. For more information about the workshops contact Charles Gould at 616-994-4547 or gouldm@msu.edu . For more information on energy conservation programs contact Al Go at 517-353-0643 or goaluel@egr.msu.edu .

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DOWNY MILDEW OF HOPS ALREADY REPORTED IN MICHIGAN FOR 2014 Downy

As the first hop bines emerge, growers are already reporting symptoms of downy mildew infection. Early and consistent protectant spray strategies will be critical to season-long control of this difficult disease.

Posted on **May 15, 2014, MSUE News,** by **Erin Lizotte**, Michigan State University Extension

Already this season, Michigan hop growers have reported active downy mildew infections in the water-soaked stage despite applying protectant fungicides. Downy mildew is caused by *Pseudoperonospora humuli* and can cause significant yield and quality losses depending on variety and when infection becomes established. In extreme cases, cones can become infected and the crown may die.

Typically, downy mildew appears early in the season on the emerging basal spikes. Spikes then appear stunted, brittle and distorted. Infected leaves have angular water-soaked lesions that follow leaf venation. Eventually, the water-soaked lesions turn brown and necrotic (Photo 1) with fuzzy and gray-black asexual spore masses developing on the underside of infected leaf lesions (Photos 2-3). As bines continue to expand, new tissue becomes infected and fails to climb the string. Growers can attempt to retrain new shoots, but often incur yield loss as a result.

Photos 1-3. (Left) Angular downy mildew lesions. (Middle) Grayish brown fuzzy appearance of downy mildew fungus on the underside of a hop leaf. (Right) Advanced downy mildew infection on the underside of the leaf. Photo credits: Erin Lizotte, MSU Extension

The causal agent of downy mildew overwinters in dormant buds or crowns, moving into buds during early spring and then into the tissue of the basal spikes as shoots expand. The pathogen produces copious spores on the underside of infected leaves. According to "Field Guide for Integrated Pest Management in Hops," infection is favored by mild to warm temperatures – 60 to 70 degrees Fahrenheit – when free moisture is present for at least 1.5 hours, although leaf infection can occur at temperatures as low as 41 F when wetness persists for 24 hours or longer.

It takes a multipronged approach to manage for downy mildew. Growers should utilize a protectant fungicide management strategy to mitigate the risks of early and severe infections. Keep in mind that varieties vary widely in their susceptibility to downy mildew and select the more tolerant varieties when possible. Clean planting materials should also be selected when establishing new hop yards since this disease is readily spread via nursery stock. Michigan State University Extension also recommends that growers pull all basal foliage during spring pruning. All pruning materials should be removed from the hopyard and covered up or burned to reduce inoculum.

Cultural practices alone are not enough to manage downy mildew. Well-timed fungicide applications just after the first spikes emerge, which is occurring now in many Michigan locations, and before pruning have been shown to significantly improve infection levels season long. Subsequent fungicide applications should be made in response to conducive environmental conditions – temperatures above 41 F and wetting events. Protectant fungicide strategies are particularly important during the year of planting to minimize crown infection and

limit disease levels in the future. Fungicides containing copper, boscalid, pyraclostrobin, phosphorous acids and a number of biopesticides have varying activity against downy mildew. For organic growers, OMRI-approved copper formulations are the most effective.

Some growers have are already spotted downy mildew in Michigan hopyards this season, including those applying protectant applications of Aliette. Washington State University has documented resistance in the downy mildew pathogen *Pseudoperonospora humuli* to fosetyl-Al, the active ingredient in Aliette. Based on these findings, growers are cautioned from relying on Aliette for downy mildew management. For a complete list of fungicides labeled for the control of downy mildew on hop refer to the resource "Pesticides registered for use on hops in Michigan 2014."

If you already have downy mildew established in your hopyard, cultural practices will be very important in regaining ground as the season progresses. According to Oregon State University, diseased shoots on the string should be removed by hand and healthy shoots retrained in their place. Remove superfluous basal foliage and lower leaves to promote air movement in the canopy and to reduce the duration of wetting periods. If there is a cover crop, it should be mowed close to the ground. If hopyards have no cover crop, cultivation can help dry the soil and minimize humidity. Keep nitrogen applications moderate.

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MICHIGAN HOP GROWERS: STAND AND BE COUNTED!

The USDA is currently collecting hop acreage data. Michigan growers need to include their acreage in this important survey.

Posted on **May 14, 2014, MSUE News,** by **Erin Lizotte**, and Rob Sirrine, Michigan State University Extension

The USDA National Agriculture Statistics Service (NASS) has mailed survey forms to hop growers in Washington, Oregon and Idaho to collect data for the annual Hop Acreage Strung for Harvest report. Hop Growers of America has launched a parallel effort this week to begin quantifying hop acreage for new growers and for those who reside in states not included in the NASS survey. They are working with various sources to locate growers who are not currently in the database.

Michigan State University Extension encourages growers to contact Ann George (see contact information below) at Hop Growers of America with your acreage information. If you have

already received a survey form directly from NASS, then growers do not need to contact Hop Growers of America. The data from Michigan growers will be combined with the NASS report following its publication in June 2014 to provide a more complete picture of hop acreage and production in the USA.

Ann E. George, Administrator
Washington Hop Commission, Hop Growers of America,
US Hop Industry Plant Protection Committee, and Hop Growers of Washington
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LEELANAU COUNTY HOUSEHOLD HAZARDOUS WASTE COLLECTION

The first Leelanau County Household Hazardous Waste Collection will be held on **Saturday, May 31st** at the Maple City Road Commission Garage, 95 W. Church St, Maple City. The collection runs from **8 AM – 2 PM.**

If you would like to participate, please call the Planning Dept. (231-256-9812) for an appointment.

Collection details, including additional collection dates and acceptable items can be found on the HHW Flyer:

http://www.leelanau.cc/downloads/hhw_flyer_2014.pdf

If you are interested in volunteering to help with the collection please let us know. The collections provide an excellent opportunity to interact with Leelanau County Citizens!

TREE FRUIT IPM UPDATE SERIES – 2014

Emily Pochubay and Nikki Rothwell
Michigan State University Extension

After a one-year break, Michigan State University is back to offering on-farm IPM workshops in Leelanau, Grand Traverse, Antrim, and Benzie counties in northwest Michigan for the 2014 season. Workshops begin the first week of May in hopes of providing commercial tree fruit growers with a review of good practices for developing sustainable pest management programs as well as key information on early season disease protection. Workshops through the first week of July will highlight management of the season's current potential pest challenges 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. These IPM workshops are free and do not require registration. Certified crop advisor continued education credits and pesticide recertification credits will be available. Tree fruit growers are welcome to attend meetings at any location and time that is most convenient. We are looking forward to interacting with you all at these meetings. For more information, please contact Emily Pochubay at pochubay@msu.edu or (231) 946-1510.

IPM Update Locations

Leelanau County
Location: Jim and Jan Bardenhagen, 7881 Pertner Rd, Suttons Bay
Dates: May: 6, 13, 20, 27; June: 3, 10, 17, 24; July: 1
Time: 12PM – 2PM

Grand Traverse County
Location: Wunsch Farms, Phelps Road Packing Shed, Old Mission
Dates: May: 6, 13, 20, 27; June: 3, 10, 17, 24; July: 1
Time: 3PM – 5PM

Antrim County
Location: Jack White Farms, 10877 US-31, Williamsburg
(south of Elk Rapids on the southeast side of US-31)
May: 7, 21; June: 4, 18; July: 2
Time: 10AM – 12PM

Benzie County
Location: Blaine Christian Church
May: 7, 21; June: 4, 18; July: 2

Time: 2PM – 4PM

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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://agbioresearch.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