Northern Michigan FruitNet 2017 Northwest Michigan Horticultural Research Center

Weekly Update

FruitNet Report – April 25, 2017

CALENDAR OF EVENTS

5/5	Wine Grape Spring Kick-Off NWMHRC, 9 am – 5 pm Pre-registration required; information will be posted at Parallel 45 Vines & Wines web site soon. http://www.p45michigan.com/
5/19	Save the Date: Apple Thinning Meeting NWMHRC, 10 – 1 PM, RSVP by May 17 More information to come!
5/9 – 6/27	Leelanau IPM Updates Jim and Jan Bardenhagen's Farm, 12PM – 2PM
5/9 – 6/27	Grand Traverse IPM Updates Wunsch Farms Packing Shed, 3PM – 5PM
5/10 – 6/28	Antrim IPM Updates Jack White Farms, 10AM – 12PM
5/10 – 6/28	Benzie IPM Updates Blaine Christian Church, 2PM – 4PM

What's New?

- Northwest Michigan Fruit Regional Report April 25, 2017
- Save the Date: Apple Thinning Meeting

Northwest Michigan Fruit Regional Report - April 25, 2017

Cooler temperatures are forecasted late this week and sweet cherry bloom is predicted for late next week.

Emily Pochubay and Nikki Rothwell

GROWING DEGREE DAY ACCUMULATIONS AS OF April 24, 2017 AT THE NWMHRC

Year	2017	2016	2015	2014	2013	2012	27 Yr. Avg.
GDD42	189.4	182	135.7	73.5	44.2	399.4	167.8
GDD50	69.3	74.7	49	18.6	9.8	204.6	68.1

2017 Growth Stages as of 4/24/17

Bartlett Pear – Ear. green cluster
Potomac Pear – Ear. green cluster
Mac – Ear. ½" green
Gala – ½" green
Red Delicious – ½" green
HoneyCrisp – ½" green
Montmorency – Late green tip
Balaton – Early bud burst
Hedelfingen – Early bud burst
Gold – Late green tip
Napoleon – Early bud tip
Riesling –Scale crack

Weather Report

Temperatures over the weekend were pleasant, but the really warm weather came in on Monday, 24 April where the high hit just over 70 degrees F. Temperatures are expected to be warm (~70-76 degrees F) for Tuesday (today) and Wednesday. On Thursday, temperatures will drop twenty degrees where daytime highs are only predicted to be in the mid-50s. The long-term forecast shows daytime temperatures remaining in the 50s with nighttime temperatures in the mid-30s and into the 40s. With these cool temperatures, our GDD accumulations will be moderate. If the forecast is close to accurate, we will likely be in full bloom in sweets around 4 May. We are slightly ahead of

our 20+year average for GDD accumulations base 42 and spot on with our GDD accumulations for base 50. We had 0.7" inches of rain on 20 April, and there were reports of spotty hail in the region. Despite this rainfall, soil conditions are beginning to dry out, but there is no shortage of predicted rainfall beginning on 26 April.

Crop Report

Crop development is moving along, but the cool conditions that are predicted for the remainder of the week and through the weekend will keep movement to a minimum. We predict sweet cherries to be in bloom in the latter part of next week, and we are now seeing bud burst in sweet cherries here at the NWMHRC. We are seeing green tissue in apples, and growers are active to make sure this tissue is covered before the rain events.

We have been collecting tart cherry buds 3X/week for Dr. Todd Einhorn. He has been testing these buds to develop a growth development curve; these data measure the cold hardiness of the different bud stages. His data are similar to the previously published charts (within ~1 degree F) that were developed in the 1970s. However, Dr. Einhorn is finding how similar (visually speaking) the buds are across certain dates, but how the buds continue to lose hardiness. In other words, we may not really differentiate buds in the photos for 30 March and 3 April or 6 April – 10 April, but there are big differences in kill temperatures. Dr. Einhorn thinks that the relative water content will make for an excellent objective indicator of development. Below are the results from this trial thus far—we will continue to collect buds through bloom:

NWRC	March 30	April 3	April 6	April 10	April 12	April 17
Mortality Tart Cherry	First swell	First swell	Side Green	Side Green	Side Green	Green Tip
10%	n.d.	23° F	24° F	24° F	24° F	26° F
50%	8° F	21° F	21° F	20° F	23° F	24° F
90%	-4° F	11° F	13° F	16° F	19° F	21° F

Data collected by: T. Einhorn L. Hillmann N. Rothwell MICHIGAN STATE UNIVERSITY



Pest Report

We found a low level of apple scab spores that discharged during the 20 April – 21 April wetting period that resulted in a light infection period at the NWMHRC (Figure 1). While spore numbers are low, they are on the rise and growers with green tissue on scab susceptible varieties should continue to protect tissue from infections during primary scab. The next chance for rain is predicted for 26 April, and growers have been covering

orchards with susceptible tissue prior to this coming rain. Rain is predicted for many days in the coming week, so growers should be sure to cover up prior to the first rain event on Wednesday, which is has a 67% chance of rain.

Figure 1. Apple scab infection periods at the NWMHRC.

Wet Period	Station	Start of wetting period	End of wetting period	Duration (Hrs.)	Avg temp (F)	Rainfall (in.)	Apple Scab (leaf)	Wet hrs @ avg temp for 1st infection	Progress toward infection
1	Traverse City (NWMHRS)	4/10 8-9AM		Wet: 38 Span: 48	39.3		Light (Symptoms appear: 4/30)	33	121%
2	Traverse City (NWMHRS)	4/15 5-6AM		Wet: 35 Span: 51	48.6	0.72	Heavy (Symptoms appear: 5/4)	15	231%
3	Traverse City (NWMHRS)	4/20 3-4AM	,	Wet: 31 Span: 31	40	0.7	Light (Symptoms appear: 5/9)	29	104%

As we move into the coming week with the possibility of sweet cherry bloom late next week, we suggest growers continue to monitor weather to assess the need for popcorn and bloom brown rot sprays. Warm and wet weather during pre-bloom and bloom time is conducive for American brown rot blossom blight infection.

We have not detected American plum borers, but green fruit worm have been active and we continue to find GFW in APB traps. Although our oriental fruit moth traps are up, OFM have not been detected at the station at this time.

We have received reports from local scouts that a few orchards have higher than usual scales, but that most orchards have low or no scale incidence. Last season, there were reports of high mite populations, particularly in apples; hence, we encourage scouts to monitor for overwintering European red mite eggs.

Save the Date: Apple Thinning Meeting

The NWMHRC and MSU Extension will be holding an apple thinning meeting at the NW Station on May 19, 2017 from 10AM – 1PM. We will be talking about when to start thinning, products and rates to use; timing windows of thinners; how to determine crop load; and precision crop load management strategies. We will also focus on how to use the carbohydrate model, which is now an added feature on the MSU Enviroweather site (please see pictures below). Michigan State University Extension educators Phil Schwallier and Amy Irish-Brown will be our featured speakers.

Lunch will be provided and sponsored by Crop Production Services. Please RSVP by 5PM on May 17, 2017 to guarantee a lunch: Jenn Zelinski 231-946-1510 or goodr100@anr.msu.edu.

MICHIGAN STATE UNIVERSITY

Enviroweather

Weather-based pest, natural resources, and production management tools

xpand All | Contract All

esources for: ee fruit

- Cop Development Apple Carbohydrate
- Thinning **Apple Maturity Model**

Pest Management

- Codling Moth Obliquebanded
- Leafroller Oriental Fruit Moth
- Apple Scab Fire Blight of apple
- blossoms
- Sooty Blotch and Flyspeck of apple and pear Fireblight Interactive
- Predictor
- Fruit Fly Monitoring
- Daily Summary of Weather and Disease Risk for Station
- Station Disease Report: Seasonal History of Wetting Events
- Regional Disease Report

- Resources IPM Resources
- Apples MSUE News for Fruit



Traverse City (NWMHRS), Michigan

Latest observations at Traverse City (NWMHRS)

04/25/2017 09:00 AM (Station online). Measurements by 5-minute average or total unless otherwise indicated.

- 53.9 F Air temperature Rainfall(04/25/2017) 0.0 in.
- 62.1% Relative Humidity Dewpoint 41.2 F
- Wind Direction (hourly average)
- 6.5 Windspeed
- mi./hr. Percent of last full hour wet - leaf wetness (tripod-0%
- Percent of last full hour wet leaf wetness
 - (canopy)

Weather observations and summaries

- NEW Meteogram: Real-time observations in graphical format
- NEW Meteogram: Real-time observations in graphical format
- Overnight temperatures/ hours below freezing
- Rainfall comparisons for Region
- Temperature, rainfall and degree-day summary
- ▶ Rainfall comparisons <u>last 5 years</u> at this station
- Soil conditions
- ▶ More weather for this station



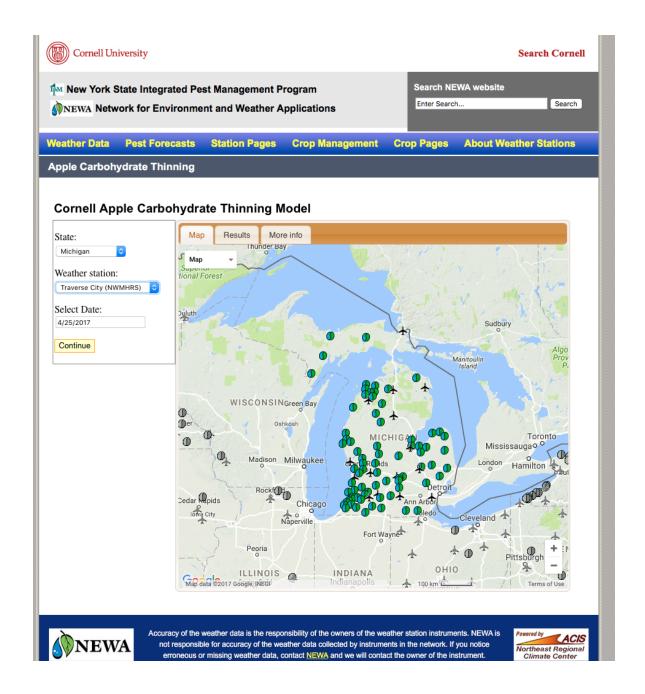
National Weather Service radar and local forecast for Traverse City



Weather Station at Traverse City (NWMHRS)

Thanks to our station sponsors:

This station is hosted at Northwest Michigan Horticultural Research Station and is



Introducing: Thomas Todaro, Viticulture Extension Educator for Northwest Lower Michigan.

Thomas was born and raised in Wooster Ohio, and is a recent graduate of The Ohio State University in the department of Horticulture and Crop Science specializing in Viticulture. Hisexperience in viticulture research began in 2012 and includes

employment at The Ohio State University Viticulture
Program as a Research Aide, Graduate Research
Associate (GRA), and currently, Research Assistant.

During this time, he conducted and presented projects focused on cultural practices to improve fruit and wine quality, increase freezing tolerance of bud and cane tissues, and improve efficiency in vine recovery following winter damage.



Thomas' experience in viticulture extension includes assistance in the planning and organization of viticulture workshops, field days, and presenting projects to growers in the form of newsletters, posters, educational videos, and conference presentations. In 2014 and 2015, Ohio vineyards sustained severe winter damage. It was at this time, Thomas and his advisor, Imed Dami, addressed the region's industry's need for research based information on vine recovery following severe winter injury through his thesis project titled: "Evaluating Cultural Practices for Recovery from Cold Damage in Grapevines." This project investigated various training and pruning methods on multiple cultivars to determine optimum vine recovery practices.

Thomas' research and extension experience in cool climate viticulture will be put to good use as the Viticulture Extension Educator, where he is proud to lead the MSU Extension efforts, and eager to learn the industry's specific needs, with the goal to achieve efficient, profitable and sustainable viticulture, and contribute to the overall advancement for the Michigan viticulture industry.

2017 IPM Update Schedule

Emily Pochubay and Nikki Rothwell Michigan State University Extension

Tree Fruit IPM Updates beginning the second week of May through June will highlight management of the seasons 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. Additionally, we are planning to revisit some of the new Worker Protection Standards as well as 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 9, 16, 23; June 6 (tentative), 13, 20, 27

Time: 12PM – 2PM

Grand Traverse County

Location: Wunsch Farms, Phelps Road Packing Shed, Old Mission

Dates: May 9, 16, 23; June 6 (tentative), 13, 20, 27

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 10, 17, 24; June 7 (tentative), 14, 21, 28

Time: 10AM - 12PM

Benzie County

Location: Blaine Christian Church, 7018 Putney Rd, Arcadia, MI 49613

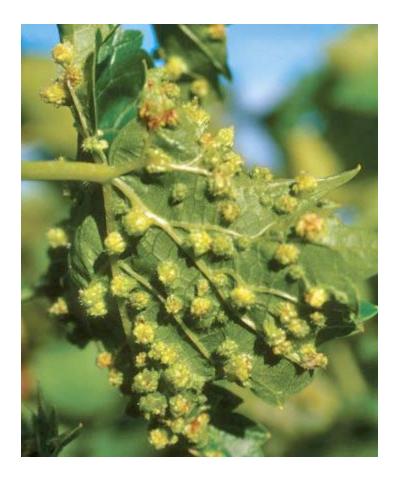
Dates: May 10, 17, 24; June 7 (tentative), 14, 21, 28

Time: 2PM - 4PM

Video presents methods for using own-rooted Vitis vinifera vines

Learn about the research investigating if the insecticide Movento can provide longterm protection against phylloxeration in own-rooted Vitis vinifera vines in Michigan.

Posted by Mallory Fournier, MSU IPM Program, MSUE News



Phylloxera on a leaf.

Phylloxera is a devastating insect pest of vineyards that produces galling on the leaves. More seriously, it produces a nymph stage that feeds on the roots of grapevines, either killing the vines or leaving them very weak and unproductive. Two general strategies to combat this insect pest include developing phylloxera-resistant hybrid varieties and phylloxera-resistant rootstocks. Additionally, Bayer Crop Sciences has a product called Movento that has efficacy in controlling phylloxeration on the roots of grapevines.

Thanks to funding from the Michigan Grape and Wine Industry Council, Tom Zabadal and Jenny Schoonmaker of Michigan State University began a project to see if this chemical strategy could be used in Michigan to grow own-rooted vines of the Vitis vinifera species and protect them from phylloxeration. Growers can watch a short video about this project at "Developing methods for use of own-rooted Vitis vinifera vines in Michigan vineyards."

The video addresses the following questions that were part of the project:

- 1. Can Movento provide long-term protection to vines against phylloxera infestation of roots?
- 2. If so, how often does Movento need to be applied to achieve this protection?

- 3. If Movento provides long-term protection against root phylloxeration, what strategies might growers employ to establish own-rooted vines in both new and existing vineyards?
- 4. What are the most efficient ways to employ those strategies?

To access "<u>Developing methods for use of own-rooted Vitis vinifera vines in Michigan vineyards</u>" and other wine grape research videos on a variety of topics, go to the <u>Michigan State University Extension Grapes Research page</u>.

Respirator Guidelines to Meet New Worker Protection Standards

Growers will need a medical evaluation and respirator fit test to handle and apply some pesticides this season.

Emily Pochubay and Amy Irish-Brown, MSU Extension

Requirements for a medical evaluation, fit testing, and specific training for use of respirators and the associated record keeping became effective on January 2, 2017. At this time, most growers are aware of this revision to the Worker Protection Standard (WPS) regulation that requires pesticide handlers and applicators to wear a respirator during mixing/handling, spray applications, and potential other uses as outlined on pesticide labels. Additionally, those who use pesticides with respirator requirements must receive documentation from a physician or licensed health care professional (PLHCP) that has 'respirator evaluation' as part of his/her license to ensure that the pesticide handler is medically able to use a respirator. Not all PLHCPs are qualified to provide the respirator evaluation, but primary care physicians should be able to refer patients to appropriate medical personnel. Alternatively, growers can contact local occupation and environmental health professionals who are more likely to have the credentials needed to provide the appropriate respirator medical evaluation and documentation. Please review the following guidelines to help address some of the recent questions we have received from growers.

Who needs to receive a medical evaluation and how often?

Employees that could be exposed to hazardous airborne contaminants may be required to wear a respirator; respirators and respirator use requirements will be outlined on individual pesticide labels. Some pesticides may require respirators for employees that mix spray material and/or require applicators to wear a respirator during applications of certain pesticides. Employers are responsible for ensuring that employees receive the appropriate equipment, evaluation, respirator fit test, training, and record keeping that conforms to OSHA standards.

According to the EPA, the medical evaluation is required one time per employee unless another evaluation is required due to one of the following reasons:

- The medical determination is only good for a specified length of time.
- The employee reports medical signs or symptoms related to respirator use.
- The PLHCP, supervisor, or program administrator recommends a re-evaluation.
- Fit-test or other program information indicates a need for re-evaluation.
- When changes in the workplace increase respirator stress on an employee.
- The initial medical examination demonstrates the need for a follow-up medical examination.

Who provides the evaluation? What kind of evaluation and documentation are needed?

A physician or licensed health care professional (PLHCP) with respirator evaluation as part of their license will provide the appropriate evaluation using a medical questionnaire or exam that conforms to the OSHA standard. Contact the PLHCP to determine whether a questionnaire or exam will be used and to receive appropriate paperwork. Prior to completing the questionnaire or exam, employers must provide employees with:

- The type and weight of the respirator that the handler will use.
- How long and how frequently the handler will use the respirator.
- How much physical work the handler will do while using the respirator.
- Other PPE the handler will use.
- The temperature and humidity extremes of the working environment.

Contact a primary care physician to receive a referral for a licensed professional, if necessary. Another low-cost (~\$25) and fast alternative for a medical evaluation is OshaMedCert (http://www.oshamedcert.com/Default.aspx), an online service that involves filling out a form and sending it for approval or denial by a PLHCP; individual's health information remains confidential throughout the process. A respirator fit test (see below) will be needed after receiving the medical determination from OshaMedCert.

A written medical determination of the respirator evaluation for each employee is required before the employee can use the respirator. The employer must keep the medical determination documentation for two years. According to the EPA, the required written information to be provided by the PLCHP to the employer must only include:

- Whether or not the employee is medically able to use a respirator.
- Any limitations on respirator use in relation to the medical conditions (if any) of the employee or workplace conditions.
- Need for any follow-up medical evaluations.
- A statement that PLCHP provided the employee with written recommendation; in some cases, this recommendations may simply state that the applicator/person that will use the respirator is capable of wearing a respirator.

Again, the information outlined above is the *only* information that should be provided in the PLHCP's recommendation to the employer to protect the employee's private medical information and avoid violation of HIPAA laws.

What's Next? Respirator Fit Tests.

After receiving a medical evaluation, a fit test is needed to ensure that the respirator forms an adequate seal with an employee's face to provide appropriate inhalation exposure protection. A new fit test is required annually or whenever there is a change to the respirator or a physiological change to the employee that could affect the seal between the respirator and the user's face. Furthermore, fit tests are required for each type of respirator that will be used as indicated by pesticide labels. Finally, employees must undergo the fit test using a respirator with the exact specifications of the respirator that will be used on the job.

Fit tests must follow OSHA protocols, and there are two methods for fit testing. The quantitative fit test (QNFT) requires special equipment and a trained person to conduct the testing. Fit test kits are also available to perform qualitative fit tests (QLFT) by a person that can accurately prepare test solutions, calibrate equipment, perform the test properly, recognize invalid tests and ensure test equipment is working properly. Sources for fit tests include pesticide suppliers or companies such as Gempler's or Grainger.

A primary care physician may be able to provide additional options and referrals for fit test providers in the area. We confirmed that Munson Medical Center's Occupational Health and Medicine Clinic (550 Munson Ave. Traverse City, MI 49686; Ph: 231-935-8590) is equipped to perform the appropriate respirator exam (~\$80.00) and the fit test (~\$25.00) in one visit by appointment only. Spectrum Health Services in other areas of Michigan provide similar services. Patients that wish to only receive a fit test need to provide appropriate respirator exam result documentation prior to the test.

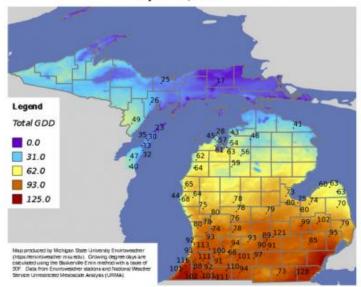
Additional information regarding respirator requirements and other WPS revisions can be found in the EPA's *How to Comply with the 2015 Revised Worker Protection Standards for Agricultural Pesticides* (https://www.epa.gov/sites/production/files/2016-10/documents/htcmanual-oct16.pdf).

Improved degree-day maps on Enviroweather

New maps provide more accurate and extensive growing degree-day information to users making pest and crop decisions.

Posted by **Beth Bishop**, MSU Enviroweather, MSUE News

Cumulative Growing Degree-Days (50F) March 1 -April 16, 2017



Enviroweather's map showing cumulative growing degree-days.

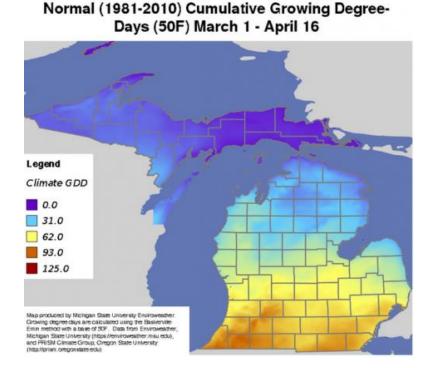
The <u>Michigan State University Enviroweather's</u> "Current Degree-Day Maps" tool shows accumulated growing degree-days (base 50) across Michigan from March 1 to the present (or a user-selected date). Additional maps depict degree-day accumulations compared with normal. These maps are one of Enviroweather's most accessed applications.

The tool was completely rebuilt just before the 2016 growing season. New maps are easier to read with improved color contrast and clearer numbers. We used a different data source from NOAA National Weather Service called UnRestricted Mesoscale Analysis (URMA) to produce the maps. URMA is a collection of gridded weather datasets with a spatial resolution of approximately 1.5 miles. It can provide highly detailed, contoured maps of weather variables across a region.

Based on extensive comparisons of the gridded data values versus observed point data, we decided to use the URMA data for Enviroweather products when feasible. These data provide a good estimate of conditions in a given area, especially when there are missing observations or observing sites.

As mentioned above, the "Current Degree-Day Maps" tool also includes maps of accumulated growing degree-days as compared with normal. The source of the data for calculating "normal" is new this year. Data for the "normal" calculations comes from the PRISM Climate Group at Oregon State University. Based on our evaluation, these data improve accuracy and precision. Data from the past 30 years (1981–2010) were used to calculate normal.

In 2017, we added another map that shows the calculated accumulated normal growing degree-days for the selected date.

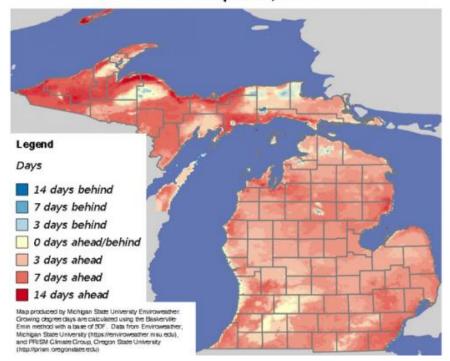


Enviroweather map showing normal cumulative growing degree-days.

As in previous years, Enviroweather also displays maps of accumulated growing degree-days ahead/behind normal as measured by time (days/weeks) and degree-days. In 2017, we changed the way we depict days ahead or behind. Now the program takes the current degree-day accumulation and looks to the normal data set to determine when (on which date) that accumulation normally occurs. The difference in days between the normal map and the current map is used to determine days ahead/days behind.

For example, imagine the degree-day accumulation in East Lansing on April 20, 2017, is 151 (base 50). The program looks to the normal data and determines that in East Lansing, 151 degree-days is normally reached on April 23. That means 2017 is three days ahead of normal (The degree-days have been reached three days before they normally would have been.).

Heat accumulation compared with normal (in days): March 1 - April 16, 2017



Enviroweather map showing heat accumulation compared with normal.

We hope the improvements made to the growing degree-day maps are helpful in your pest and crop decisions. As always, if you have questions or comments, feel free to contact me, Beth Bishop, Enviroweather coordinator, at 517 432-6520 or eweather@msu.edu.

Leelanau County HOUSEHOLD HAZARDOUS WASTE & ELECTRONICS COLLECTIONS

NOW ACCEPTING A MAXIMUM OF 10 - ONE GALLON CONTAINERS OF LATEX PAINT

The collections are for Leelanau County Households and covered as part of the \$29 recycling fee on winter taxes. The collections are held from 8 AM - 2 PM and registration is required. Please call the Planning Dept. at 231-256-9812 to register.

2017 Saturday Collections

5/20 - Leelanau County Government Center

7/15 - Glen Lake School

8/19 - Peshawbestown

10/7- Elmwood Twp., Cherry Bend Park off Avondale Lane

We are always looking for volunteers to help with the collections, please let us know if you are interested.

Thanks,

Leelanau Planning Department

Pruning Workshop: for Home Gardeners

LEARN THE SCIENCE AND ART OF PRUNING:

Pruning is an important cultural practice for maintaining the health, vigor and appearance of woody plants. It involves both art and science - art, in shaping plants to enhance the landscape; and science in knowing how, when, where and why to prune for maximum benefit.

MSU Extension will host a pruning workshop on **Friday, April 28, 2017 from 8:30 a.m.** - **12:30 p.m.** at the **NW Michigan Horticultural Research Center** (just north of Traverse City, near Bingham in Leelanau County). This workshop is geared towards homeowners and gardeners, and will help you master the science (and a bit of art) of pruning. **MSU Extension Sr. Educator, Rebecca Finneran**, will lead this workshop. Participants will spend time in the classroom learning best pruning practices and the best equipment for each job, and then move outdoors to apply the learning with hands-on pruning. Participants should bring their own hand-held pruning shears if available, and wear weather- appropriate clothing to be both indoors and outdoors; rain or shine.

The cost is \$35 per person, and includes education, instruction and light refreshments. Spaces are limited and preregistration is required.

HOW TO REGISTER:

Register online at: https://events.anr.msu.edu/pruningworkshop

CONTACT:

For more information, contact **Annette Kleinschmit** at 231-256-9888 or kleinsc7@msu.edu .

MSU Extension programs and material are open to all without regard to race, color, national origin, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status, or veteran status. Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities.

WEB SITES 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:

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

Information on apples:

http://apples.msu.edu/

Information on grapes:

http://grapes.msu.edu

Fruit CAT Alert Reports:

http://news.msue.msu.edu