Northern Michigan FruitNet 2016
Northwest Michigan Horticultural Research Center

Weekly Update


CALENDAR OF EVENTS

7/1 Natural enemies, new insecticide options, perimeter spray programs—Rufus Isaacs, MSU
Hawthorne Vineyards on Old Mission Peninsula, 3-5PM

7/13 Income Taxes for Foreign Agricultural Workers (H-2A)
NWMHRC, 8AM – 4:30PM

8/25 NWMHRC Open House

What’s New?

- State pesticide applicators certification exam now available online
- Bird management options for fruit growers


Cherry harvest is underway, and rain is needed to help fruit size.

Nikki Rothwell and Emily Pochubay

2016 Growth Stages as of 7/4/16
Bartlett Pear – 29 mm fruit
Potomac Pear – 34 mm fruit
Mac – 30 mm fruit
Gala – 36 mm fruit
Red Delicious – 40 mm fruit
HoneyCrisp – 39 mm fruit
Montmorency – 19 mm fruit
Balaton – 19 mm fruit
Hedlfingen – 22 mm fruit
Gold – 19 mm fruit
Napolean – 18 mm fruit
Riesling – Buckshot berry

Weather Report

The weather continues to be warm and dry across the northwest. Daytime temperatures are in the 80s, and overnight temperatures dip into the mid-50s. Days have been very sunny and pleasant. The region really needs rain to size the cherry crop. The region did receive some rainfall last week (29 and 30 June), but the amounts varied at the different Enviro-weather stations. The NWMHRC received 0.66” of rain. The Elk Rapids’ station recorded 0.37”, East Leland 0.41”, Northport 0.3”, and Kewadin recorded 0.27”. Higher amounts of rainfall were recorded at Eastport (0.84”) and Old Mission (0.72”). Very little rainfall fell in Benzonia and Bear Lake: 0.18” were recorded at both stations.

Crop Report

Both sweet and tart cherries are ripening, and the crop seems to be coming on quickly with the recent heat. Many growers have ethephon on their sweet cherries, and some growers will start shaking sweets this weekend. We are harvesting earlier varieties in the sweet cherry variety here at the NWMHRC. Some fresh market growers have started hand harvesting sweet cherries. Tartcherries are moving along, and the crop is looking more uniform in ripening this week compared to last week. Tart cherry harvest is underway in Southwest Michigan, and the growers in West Central anticipate starting harvest this week. We will likely face some challenges to have a timely harvest of this large crop.

Pest Report
In the last week, more spotted wing drosophila (SWD) traps caught SWD, and in some areas trap numbers indicate that this population is on the rise. Anecdotally, orchards that were infested with SWD last season seem to have higher trap numbers this season compared to orchards that had low or no SWD incidence. We will continue to monitor this trend and the possible implications for higher localized SWD populations next season. The latest SWD catch numbers in our region are available in Table 1. We remind growers that if SWD have been found on their farm or in a neighboring farm and cherries are susceptible (i.e. at or past straw colored), SWD management programs should be underway. Last week, tart cherries in more northerly areas were still fairly green, but these fruit will be susceptible to SWD egg-laying as soon as the fruit begin to ripen, which will likely happen soon.

Most growers have been actively managing for SWD at this time; we encourage growers to pay particular attention to insecticide label language for target pests, number of applications, pre-harvest intervals, retreatment intervals, etc.

**SWD Trap Update – July 5, 2016**

<table>
<thead>
<tr>
<th>Catch Date</th>
<th>Location</th>
<th>Crop</th>
<th>Total No. of SWD</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/31</td>
<td>Centerville Twshp.</td>
<td>Tart Cherry</td>
<td>1</td>
</tr>
<tr>
<td>6/16</td>
<td>S. of Suttons Bay</td>
<td>Tart Cherry</td>
<td>1</td>
</tr>
<tr>
<td>6/17</td>
<td>Old Mission</td>
<td>Woodlot</td>
<td>2</td>
</tr>
<tr>
<td>6/20</td>
<td>M-72 W corridor</td>
<td>Tart Cherry</td>
<td>2</td>
</tr>
<tr>
<td>6/21</td>
<td>Old Mission</td>
<td>Sweet and Tarts</td>
<td>3</td>
</tr>
<tr>
<td>6/21</td>
<td>Elk Lake Rd.</td>
<td>Wild Raspberry</td>
<td>1</td>
</tr>
<tr>
<td>6/22</td>
<td>N. of Suttons Bay</td>
<td>Tart Cherry</td>
<td>1</td>
</tr>
<tr>
<td>6/22</td>
<td>Eastport</td>
<td>Wild Cherry</td>
<td>1</td>
</tr>
<tr>
<td>6/24</td>
<td>Northport-Omena</td>
<td>Tart Cherry</td>
<td>3</td>
</tr>
<tr>
<td>6/27</td>
<td>M-72 W corridor</td>
<td>Tart Cherry</td>
<td>7</td>
</tr>
<tr>
<td>6/27</td>
<td>Benzie</td>
<td>Tart Cherry</td>
<td>1</td>
</tr>
<tr>
<td>6/27</td>
<td>Benzie</td>
<td>Gooseberry</td>
<td>1</td>
</tr>
<tr>
<td>6/28</td>
<td>Elk Lake Rd.</td>
<td>Tart Cherry</td>
<td>1</td>
</tr>
<tr>
<td>6/28</td>
<td>Centerville Twshp.</td>
<td>Tart Cherry</td>
<td>1</td>
</tr>
<tr>
<td>Date</td>
<td>Location</td>
<td>Fruit Type</td>
<td>Count</td>
</tr>
<tr>
<td>------</td>
<td>------------------------</td>
<td>-----------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>6/28</td>
<td>Old Mission</td>
<td>Honeysuckle, Sweet Cherry, Tart Cherry</td>
<td>5</td>
</tr>
<tr>
<td>6/29</td>
<td>Elk Lake Rd.</td>
<td>Tart Cherry</td>
<td>2</td>
</tr>
<tr>
<td>6/29</td>
<td>Yuba</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6/29</td>
<td>S. of Suttons Bay</td>
<td>Tart Cherry</td>
<td>2</td>
</tr>
<tr>
<td>6/29</td>
<td>Bingham</td>
<td>Mulberry, Raspberry</td>
<td>3</td>
</tr>
<tr>
<td>6/29</td>
<td>East Leland</td>
<td>Strawberry</td>
<td>2</td>
</tr>
<tr>
<td>6/29</td>
<td>Centerville Twshp.</td>
<td>Sweet Cherry</td>
<td>3</td>
</tr>
<tr>
<td>7/5</td>
<td>Northport-Omena</td>
<td>Tarts</td>
<td>6</td>
</tr>
<tr>
<td>7/5</td>
<td>East Leland</td>
<td>Sweets, Mulberry</td>
<td>7</td>
</tr>
<tr>
<td>7/5</td>
<td>Centerville Twshp.</td>
<td>Tarts</td>
<td>5</td>
</tr>
<tr>
<td>7/5</td>
<td>E. of Suttons Bay</td>
<td>Sweets</td>
<td>2</td>
</tr>
<tr>
<td>7/5</td>
<td>S. of Suttons Bay</td>
<td>Sweets</td>
<td>1</td>
</tr>
</tbody>
</table>

Total catches per region:

- Centerville Twshp. - 10
- S. of Suttons Bay - 4
- Old Mission - 10
- M-72 W corridor - 9
- Elk Lake Rd. – 4
- N. of Suttons Bay – 1
- Eastport - 1
- Northport-Omena - 9
- Benzie – 2
- Yuba – 1
- Bingham – 3
- East Leland – 9
- E. of Suttons Bay – 1

Cherry fruit fly (CFF) activity has been reported in the Acme and East Leland areas, but trap numbers of this pest have been low or off to a slow start. Conditions have been dry and the next wetting event could results in a high CFF emergence. For early detection,
we encourage scouts and consultants to continue monitoring for this pest, particularly after the next rain. We have not found CFF at the station at this time. As mentioned in previous reports, we ask local scouts and consultants to please notify the NWMHRC of CFF captures and locations.

Obliquebanded leafroller (OBLR) trap numbers were down this week in cherries at the NWMHRC and egg hatch is ongoing. The NWMHRC’s biofix (i.e. first date of sustained catch) for this pest was 17 June. According to Enviro-weather, the NWMHRC has accumulated 502 GDD base 42, and peak egg hatch occurs at ~450 GDD base 42 after biofix. Where OBLR trap numbers have been high and ~450 GDD base 42 after biofix have been accumulated, some growers are using or planning to include an efficacious material for OBLR. As a reminder, Delegate is effective for both OBLR and SWD; however, a material for CFF should be included as Delegate is not as efficacious against this pest. OBLR resistance to the organophosphate class of insecticides and cross-resistance to the pyrethroids has been documented in Michigan and growers should not rely on these material classes to provide adequate OBLR control.

Overall disease incidence in both cherries and apples remains low. Fire blight has slowed drastically in the last week and dry weather has helped to dry up ooze. If the region receives stormy weather, trauma blight could be a concern.

We found very little activity in the NWMHRC’s apples this week. No codling moth, oriental fruit moth, or obliquebanded leafroller adults were detected in the NWMHRC traps.

---

**Monitoring for SWD Larvae in Cherries Before Fruit Enters the Processing Facility** – PDF WITH PHOTOS ATTACHED TO THIS EMAIL

Guidelines for inspectors to detect fruit infested with SWD larvae at the receiving station or prior to entering the processing facility

N. Rothwell and E. Pochubay, K. Powers, NWMHRC

Spotted wing Drosophila (SWD) is the primary pest of concern for the 2016 harvest season in cherry orchards. This pest has the reproductive capacity to build populations quickly in the field, and controlling large numbers of SWD is a challenge in commercial orchards. Most tart and sweet cherries are susceptible to SWD infestation at this time, and growers will need to maintain tight spray programs to control this pest to deliver SWD-free fruit to the processing facility. Furthermore, processors and receivers would
prefer to detect SWD-infested fruit before it enters the processing facility. Below are some guidelines for setting up a procedure to inspect for SWD-infested fruit at a receiving station or prior to fruit entering the processor.

It is recommend that a salt solution be used for rapid fruit sampling for SWD. Inspectors should collect subsamples of fruit from the harvested tanks of cherries. Fruit that is infested by SWD will have some distinctive characteristics, which may not be readily identified without practice; however, once inspectors have seen SWD-infested fruit, they develop a good eye for detecting them. For instance, cherries with SWD larvae will have oviposition scars – tiny circular puncture holes that grow as the cherry starts to break down (Figure 1). These puncture holes are distinct and unlike the crescent shaped oviposition scars caused by plum curculio. Often, especially when the SWD infested fruit are intact, the fruit have a leaky appearance around the oviposition scars, and droplets of cherry juice emerge from the scars when the fruit is slightly squeezed (Figure 2). SWD eggs are laid into fruit; however, these eggs are quite distinctive and can be differentiated from other pest species eggs (ex. cherry fruit fly) as SWD eggs have two breathing tubes. These tubes are often visible with the naked eye, and these tubes can be observed sticking slightly out of the fruit (Figure 3).

Additionally, fruit that has SWD larvae will also have a bruised appearance, and sometimes slightly sunken where the eggs were laid. Montmorency cherries have a darker color (less than bright red color) in the area when the females laid the egg in the fruit. Infested fruit often have a vinegary or overripe smell, which may not be detected unless the level of infestation is quite high or when the fruit has not been placed in water. Once the inspector performs a quick visual inspection (as mentioned above), the subsample of fruit should be placed into a salt solution to test for live SWD larvae (Figure 4); larvae will wiggle out of the holes in the fruit or at the very least the larvae will stick their posterior ends out of the fruit giving the cherry a ‘whisker-like’ appearance (Figure 5).

**Salt Solution Recipe and Methodology**

- **Dissolve 1 tablespoon salt per 1 cup warm water.** Warm water reduces the time it takes for the larvae to exit the fruit; cold water will reduce larval activity.
- **Fruit should be slightly squeezed before placing it into the salt solution.** SWD larvae do not like to be disturbed and will more readily exit the fruit when pressure is applied to them. Inspectors should not squeeze the fruit enough to break the skin of the cherry as the flesh of the Montmorency has whitish colored veins that can be mistaken as SWD larvae (Figure 6). Inspectors should only squeeze the cherries enough to disturb the internal larvae.
- **Place fruit in a shallow pan, and cover with salt solution.** Fruit will float at the surface, so the inspector should be sure to swirl the fruit every few minutes to make sure all fruit are exposed to the salt solution.
- **Fruit should remain in the salt solution for at least 10–15 minutes to observe larvae exiting the fruit.**
Inspectors should have a good hand lens (at least 15-20x, 30x is better; the higher the magnification, the better) and good lighting to see small larvae. Even the most seasoned entomologist will have difficulty detecting first instars as they are better observed under a microscope. However, if no microscope is available, second instars and older larvae are visible with the naked eye. If a quantitative sample is necessary, inspectors should count the larvae quickly while they are still alive and moving.

The larval stage of SWD can be difficult to identify. The SWD larvae look like a maggot (Figure 7), which unfortunately look like cherry fruit fly larvae. However, if there is a relatively large infestation/multiple larvae, we can assume that all or most larvae found in a sample are SWD as past infestations have shown SWD can lay multiple eggs and multiple larvae can pupate inside a single fruit. The NWMHRC would be happy to assist in identification, so please do not hesitate to call (231-946-1510).

---

**State pesticide applicators certification exam now available online**

MDARD has partnered with the Metro Institute to offer computer-based testing for state pesticide certification exams.

Posted by Erin Lizotte, Michigan State University Extension, and Brian Verhougstraete, Michigan Department of Agriculture and Rural Development, MSUE News

Michigan’s pesticide applicators now have more choices when it comes to when and where to take their pesticide certification exams thanks to a new partnership between the Michigan Department of Agriculture and Rural Development (MDARD) and Metro Institute. This collaboration affords pesticide applicators greater flexibility by offering computer-based pesticide applicator certification exams at locations throughout Michigan.

Metro Institute partners with colleges and universities to utilize their testing centers and proctors, allowing the company to offer testing in dozens of locations around the state. Computer-based testing is a popular option with applicators and businesses. It allows them the flexibility to test at a time and location that works with their busy schedules and offers a faster way to become certified.

Customers can either call the Metro Institute’s toll-free hotline at 877-533-2900 or visit the Metro Institute website. First-time users will need to create an account and receive authorization from MDARD’s pesticide section before scheduling their first exam. The authorization process, which is required for security purposes, typically takes about 24
hours to complete, and the applicator will be notified by email or phone once approved. Once an applicator has been authorized by MDARD, they can take as many exams as they wish within six months before they will need to become re-authorized.

Applicators who take a computer-based exam with Metro Institute will receive a printed exam results sheet indicating whether or not they passed their exam, their exam score and a breakdown of their score by study manual chapters. Applicants who utilize computer-based testing will need to mail their completed certification application (new or renewal) and check to MDARD prior to scheduling a computer-based exam.

MDARD understands that getting certified in a timely manner is important to applicators and employers. MDARD hopes their partnership with Metro Institute, as well as their existing paper-based exam process, will provide testing options that meet everyone’s needs. For more information about the certification process for Metro Institute’s computer-based exams or MDARD’s paper exams, please visit MDARD’s Pesticide Certification website.

For a current map of Metro Institute’s computer-based testing locations, please visit their Metro Institute website.

_________________________________

**Bird management options for fruit growers**

Bird damage may be more intense in dry years as birds turn to fruit to meet their nutrition and hydration needs. Fruit growers can employ one or more bird deterrent strategies.

Posted by Catherine Lindell, Michigan State University, Department of Integrative Biology, MSUE News
A male American kestrel. Providing nesting boxes for kestrals, which are known to feed on smaller, fruit-feeding birds, is a long-term strategy for reducing populations of birds that cause damage and crop loss on fruit farms. Photo: Greg Hume.

Many birds eat fruit to help meet their water requirements in addition to their energy requirements. In dry years like 2016, when other water sources are limited, birds may depend on fruit to a greater extent than usual. A number of growers are reporting high bird activity in their fruit.

The quickest bird deterrents to deploy are auditory and visual scare devices, like units that play bird distress calls and inflatable tube men. Birds habituate to many deterrents quickly, however, so the devices are more likely to be effective if they go on and off randomly, are moved frequently and are used in concert. For example, a recent study showed that the deterrent effect of combined auditory and visual deterrents lasted more days for ring-billed gulls, which are known to eat fruit, compared to when a visual or auditory device was deployed on its own.

Keeping track of “hot spots” for bird activity on your farm and targeting those spots with sustained and vigorous deterrent effort may help. Harvesting ripe fruit in a timely manner will reduce the availability of the fruit to birds and may reduce losses. Light deterrents, like lasers, deter some bird species. However, keep in mind that evidence for
their effectiveness has come primarily in low-light situations, like at dusk or at night. Bird management strategies that take more lead time and investment include physical barriers like netting that can be employed in short-stature crops. Ideally, netting should be on a frame so it does not lie on the fruit and be anchored to the ground. Otherwise, birds can still access the fruit.

Over the long term, growers should think about habitat management. Our previous work has shown that in some contexts where there is less fruit, like edges of fruit blocks adjacent to non-fruit, percent bird damage can be higher. Arranging blocks to minimize non-fruit edges could lower the amount of the crop at risk for bird damage. Growers can also consider improving habitat for species that may deter pest birds. We have found remains of fruit-eating birds in nest boxes we installed for American kestrels, which are small predatory birds, in cherry orchards and blueberry fields. As an added benefit, kestrels eat voles and pest insects.

In very high-damage contexts, growers can consider applying for a permit for lethal control of birds. However, the permit application process may take a number of weeks. For more information, see “Do I need a permit to control wildlife on my farm?” by Michigan State University Extension.

The Federal Aviation Administration has new rules regarding Unmanned Aircraft Systems (drones) that will take effect in August 2016. Once drone technology is a bit less dependent on human direction, it may be useful in deterring birds.

Each farm is unique and should be assessed for potential risk factors. See pages 211-218, Sample Bird Management Plan, of “Managing Bird Damage to Fruit and Other Horticultural Crops” for more information.

For information about deploying kestrel nest boxes, please email me, Catherine Lindell, at lindellc@cns.msu.edu.

---

**Peach and Plum Variety Showcase**

Date: August 23, 2016  
Time: 4:00 p.m. - 7:00 p.m.  
Location: SW Michigan Research & Extension Ctr, 1791 Hillandale Rd., Benton Harbor, MI 49022  
Contact: MSU Extension Tree Fruit Specialist Bill Shane: (269) 208-1652 or shane@msu.edu

You are invited to see and taste the newest, traditional, and unusual peach and plum varieties and experimental selections.
This extensive stone fruit display will be assembled from samples contributed by commercial growers, nurseries, and university breeding programs across Michigan and elsewhere. Fruit on display will include yellow and white fleshepd peaches and nectarines, donut, apricot, and plumcot types. Attendees will see new varieties and experimental selections from the Stellar, Flamin’ Fury, Rutgers University, University of Wisconsin, Cornell University, and Michigan State University breeding programs. Breeders, commercial nursery, growers, and university researchers will share their experiences and recommendations with these new varieties.

This showcase will take place in Berrien County at the SW Michigan Research & Extension Center, 1791 Hillandale Rd., Benton Harbor, MI 49022 from 4:00 PM to 7:00 PM. The schedule is: 4:00 PM Fruit variety displays open for viewing and tasting; 4:30 PM Fruit variety discussions; 6:00 PM Supper. There is no charge. Supper provided courtesy of International Plant Management and Summit Sales, Lawrence, MI.

You are welcome to bring samples of new, unusual, and experimental peaches and plums varieties to add to the display. The SW Research and Extension Center will be open for self-guided tours to see over 60 projects on fruit and vegetables including high tunnel production, grapes, hops, peach training systems, variety trials, and peach breeding.

This showcase is organized by the Michigan Peach Sponsors, Summit Sales, International Plant Management, and Michigan State University Extension.

Income Taxes for Foreign Agricultural Workers (H-2A) – Meeting

Meeting Dates and Times:

Tuesday, July 12, 2016

Directions to SWMREC: Travel on I-94 to Exit 30, which is Napier Avenue. Turn east on Napier Avenue and go 2 1/2 miles to Hillandale Road. Turn south (right) and travel to the entrance of SWMREC (about one-quarter mile on the east (left) side of Hillandale Road).
Michigan’s agricultural industry has been seeing a decline in recent years of the traditional labor resources that have been used in the past. The use of the H-2A Guest Worker Program has seen a significant increase in use recently with continued significant growth in coming years. With this increase there is a need for legal and tax professionals to have an understanding on how to prepare taxes for H-2A guest workers, common pitfalls and challenges.

This Continuing Education Program will provide a four hour presentation with three hours of hands-on workshop to help tax professionals understand how tax law impacts foreign agricultural workers and their employers and give them a better understanding of the challenges faced by tax professionals, employers and the workers themselves as they strive to comply with federal and state tax laws.

The information included also applies to all taxpayers who use ITINs when filing tax returns and/or have spouses and/or dependents living outside the United States.

This program will use IRS Publications 519 and 51 and others as a guide throughout this training. Participants will gain an understanding of tax preparation for H-2A Guest Workers, the appropriate method to fill-out an ITIN documentation/application, how to appropriately calculate the time a guest worker has been “in country” over the past 3 years to determine the correct tax documentation needed to be filed in the present tax year. Participants will also receive an overview of the tax deductions, credits available and not available to H-2A Guest Workers.

This program will also discuss payroll and tax withholding issues and responsibilities of an Employer and H-2A Laborer that all tax and legal professionals should be aware of when working with their clients.

Registration fee is $125.00 per person which includes lunch, refreshments, handouts and materials. **Register online** by July 8, 2016 at [http://events.anr.msu.edu/H2ATaxPrepWorkshop/](http://events.anr.msu.edu/H2ATaxPrepWorkshop/). Online registration offers payment by credit card or check. Or to register by mail, mail completed registration form at right with check payment no later than July 5. Please indicate the location you would like to attend.

More information can be found in the attached PDF flyer.
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