

Northern Michigan FruitNet 2016

Northwest Michigan Horticultural Research Center

Weekly Update

FruitNet Report – May 13, 2016

CALENDAR OF EVENTS

5/3 – 6/28	Leelanau County IPM Updates, 12PM – 2PM Jim and Jan Bardenhagen's Farm (details below)
5/3 – 6/28	Grand Traverse County IPM Updates, 3PM – 5PM Wunsch Farms (details below)
5/4 – 6/29	Antrim County IPM Updates, 10AM – 12PM Jack White Farms (details below)
5/4 – 6/29	Benzie County IPM Updates, 2PM – 4PM Blaine Christian Church (details below)

What's New?

- **Orchard Diversion Staff - Message from the CIAB**
- **Clarifications about Use of the Insecticide Belt**
- **2016 Fruit insecticides under EPA Regulatory Action**
- **Update on Luna fungicides for grapes and berry crops**
- **2016 MSU Weed Tour to take place June 29**
- **Disease Report – May 13, 2016**

Disease Report – May 13, 2016

A brief rain event on Thursday at the NWMHRC triggered apple scab spore release and cherry leaf spot infections.

Emily Pochubay and Nikki Rothwell

Most of the region received rainfall on Thursday, and overall accumulations varied between 0.01" to 0.1" depending on location. The disease report on Enviroweather is currently reporting ongoing wetting periods that have resulted in infection periods for East Leland, Eastport, Kewadin, and Northport. The wetting period for Old Mission ended this morning without any potential infections reported, and the remaining stations are in the midst of ongoing wetting periods. Most of the wet weather throughout the region ended this morning, and these areas are currently within the 8 hr post-rain drying timeframe (see disease report below).

Station	Start of wetting period	End of wetting period	Duration (Hrs.)	Avg temp (F)	Rainfall (In.)	Apple Scab (leaf)	Cherry Leaf Spot	Grape Leaf Black Rot	Time Period Assessed
Bear Lake	5/13 3-4AM	Ongoing. Last hour with moisture: 5/13 8-9AM	Wet: 6 Span: 6	48.1	0.02	None	None	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM
Benzonia	5/13 4-5AM	Ongoing. Last hour with moisture: 5/13 8-9AM	Wet: 5 Span: 5	47.7	0.01	None	None	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM
East Leland	5/12 10-11AM	Ongoing. Last hour with moisture: 5/13 7-8AM	Wet: 20 Span: 22	52.7	0.09	Moderate (Symptoms appear: 6/3)	Low	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM
Eastport	5/12 9-10AM	Ongoing. Last hour with moisture: 5/13 7-8AM	Wet: 20 Span: 23	52.3	0.07	Moderate (Symptoms appear: 6/6)	Low	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM
Elk Rapids	5/13 1-2AM	Ongoing. Last hour with moisture: 5/13 6-7AM	Wet: 6 Span: 6	50.7	0.02	None	None	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM
Kewadin	5/12 10-11AM	Ongoing. Last hour with moisture: 5/13 9-10AM	Wet: 17 Span: 24	52.6	0.05	Light (Symptoms appear: 6/5)	Low	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM
Northport	5/12 10-11AM	Ongoing. Last hour with moisture: 5/13 6-7AM	Wet: 21 Span: 21	51.1	0.08	Moderate (Symptoms appear: 6/7)	Low	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM
Old Mission	5/12 9-10AM	5/12 10-11AM	Wet: 2 Span: 2	58.4	0.02	None	None	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM
Traverse City (NWMHRS)	5/12 10-11AM	Ongoing. Last hour with moisture: 5/13 5-6AM	Wet: 10 Span: 20	54.8	0.01	None	None	None	Most recent period shown: 5/6 11PM - Midnight to 5/13/2016 10-11AM

A quick .01" of rain fell at the research station yesterday and triggered apple scab spores to release; one rod captured 78 spores. As of 12:15 PM, the NWMHRC is not reporting

an infection period, and conditions are predicted to be dry into the afternoon. Hence, we will likely escape this wetting event without an infection and reset the disease clock. Pending this evening's predicted rain, a new wetting period and possible infection could begin. A rule of thumb is that following a rainfall, apple scab spores need ~24 hours to 'recharge' or reach maturity before the next rain event will trigger a significant spore discharge. The NWMHRC might not meet the 24 hr recharge period before this evening's rain; however, because Thursday's rain was brief with little accumulation, we hypothesize that we will catch relatively higher spore numbers if the station receives more substantial rainfall this evening. According to the apple scab model, we are a little over halfway through the primary scab season. Symptoms from the late April and early May infection periods should be present at this time.

Most cherry growers covered bract leaves and the first true leaves (where present) in tart cherries prior to yesterday's rain. Many orchards had significant leaf spot infections last season, and growers are conscious of keeping this disease in check this season. As mentioned in previous FruitNets, preventing high leaf spot infections this season will promote improved health in trees that defoliated early last season; healthy trees are less susceptible to damage from cold winter temperatures. If growers that used chlorothalonil as their first spray need to make a second application before the 10-d retreatment window is up, Captan 80 WDG at 2.5 lb per acre has provided excellent leaf spot control in efficacy trials.

Cooler and wet conditions in the forecast will be favorable for European brown rot infection, and this disease will be a concern as tart cherries are in various stages of bloom throughout the region. Captan is rated "good" for European brown rot; however, growers with known highly susceptible orchards (Balatons, areas with slow to dry conditions, foggy locations) should consider other options with excellent efficacy (ex. Indar, Topsin M). To minimize the potential for EBR resistance to Indar, many growers used Topsin M this season. There are two formulations of Topsin M product available, and a rate of 30 fl oz per acre of Topsin M 4.5FL or 1.5 lb per acre of Topsin M WSB is recommended for European brown rot.

Clarifications about Use of the Insecticide Belt

A short article to clear up any confusion about using Belt during the 2016 growing season

Nikki Rothwell, Emily Pochubay, and John Wise

We have received recent calls about using the insecticide Belt in tree fruits. This insecticide is legal to be sold and used according to the Belt label. The U.S. Environmental Protection Agency has asked Bayer Crop Sciences to voluntarily

withdraw their registrations for flubendiamide-containing products, which includes the insecticide Belt. Bayer does not agree with the EPA's decision to withdraw this product; the company has asked for a formal hearing before the EPA's Administrative Law Judge. Bayer anticipates that this decision will be finalized around the beginning of July. While this decision is in review, Belt can continue to be sold and used according to the label.

Belt provides excellent control of larval stages of Lepidopteran pests. Ingestion of Belt's active ingredient causes the larvae to stop feeding and eventually leads to death of the pest. In MSU efficacy trials, Belt is rated excellent against codling moth, obliquebanded leafroller (OBLR), and oriental fruit moth. Belt is in the diamide class of insecticides, which also includes Altacor, another diamide material that also works well against the aforementioned pests. Therefore, in the case of insects that have multiple generations per year, OBLR and codling moth, we recommend using this diamide mode of action in either the first *or* second generations to minimize the potential of resistance development. We do not recommend using diamides targeting both first and second generations. In cherry, anecdotal evidence suggests this insecticide works better early and targeting the overwintering OBLR larvae at the petal fall timing rather than using Belt for second-generation larvae that come out at or near harvest time. Additionally, due to resistance and cross-resistance issues, belt is a good alternative to organophosphates and/or pyrethroids for OBLR.

2016 IPM Update Schedule

Emily Pochubay and Nikki Rothwell
Michigan State University Extension

Tree Fruit IPM Updates beginning the first week of May through mid-July (as needed) 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. Workshops will be held weekly in Leelanau and Grand Traverse counties and bi-weekly in Antrim and Benzie counties in May. Beginning in mid-June, we will hold weekly meetings in all four locations. Tree fruit growers 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. 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 3, 10, 17, 24, 31; June 7, 14, 21, 28

Time: 12PM – 2PM

Grand Traverse County

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

Dates: May 3, 10, 17, 24, 31; June 7, 14, 21, 28

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 4, 18; June 1, 15, 22, 29

Time: 10AM – 12PM

Benzie County

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

Dates: May 4, 18; June 1, 15, 22, 29

Time: 2PM – 4PM

2016 MSU Weed Tour to take place June 29

Participants can compare herbicide programs, evaluate weed management strategies and tour MSU research plots.

Posted by **Christy Sprague**, Michigan State University Extension, Department of Plant, Soil and Microbial Sciences, and Bernie Zandstra, MSU Department of Horticulture, MSUE News

Michigan State University Extension invites you to the annual MSU Weed Tour, Wednesday, June 29, 2016, beginning at the MSU Plant Pathology Field Lab on College Road north of Jolly Road, 3735 N. College Road, Lansing, MI. Registration begins at 8:30 a.m. with the field tour kicking off at 9:30 a.m. The tour will provide ample opportunity to look at research plots and participate in some short field presentations – be sure to bring a hat and sun screen! Participants can compare their favorite corn and soybean herbicide programs to other commercial programs and check out some of the new herbicide-resistant crops and how these crops fit with overall weed management strategies. The morning tour ends with lunch.

The afternoon tours begin at 1 p.m. with two concurrent tours: The Weed Control in

Horticultural Crops Tour, located at the MSU Horticulture Farm on College Road south of Jolly Road, and the Non-GMO Soybean Weed Control Tour, located at the MSU Plant Pathology Field Lab.

Pre-registration for the Weed Tour is \$25 per person, which includes a tour booklet and lunch. On-site registration is \$35. You can register online at: [MSU Weed Tour](#).

If you have any questions or would like additional information, visit the [MSU Weed Science](#) website or contact Sandie Litchfield at 517-353-0104 or litchfi9@msu.edu. We hope to see you there!

Drs. Sprague and Zandstra's work is funded in part by [MSU's AqBioResearch](#).

Update on Luna fungicides for grapes and berry crops

Recent changes to the Luna fungicide labels for grapes and berry crops are discussed and summarized.

Posted by [Annemiek Schilder](#), Michigan State University Extension, Department of Plant, Soil and Microbial Sciences, MSUE News

The Luna series of fungicides by Bayer all have one active ingredient in common, fluopyram, which is a systemic fungicide belonging to the succinate dehydrogenase inhibitor (SDHI) class of fungicides. This group of fungicides has been assigned to group 7 by the [Fungicide Resistance Action Committee](#) (FRAC) based on their mode of action, which involves interference in fungal respiration.

Other fungicides belonging to this class are boscalid (Endura and one of the active ingredients in Pristine), penthiopyrad (Fontelis), fluxapyroxad (Merivon) and isofetamid (Kenja). The SDHIs have a medium to high risk of resistance development in target fungi, thus fungicide resistance management is needed when using these products.

There are several premixes of fluopyram with other systemic active ingredients: Luna Experience (fluopyram plus tebuconazole), Luna Tranquillity (fluopyram plus pyrimethanil) and Luna Sensation (fluopyram plus trifloxystrobin). Premixes generally have a broader spectrum of activity than single compounds. The benefits for fungicide resistance management are debatable. What is clear is that if one of the components of the premix does not work anymore due to fungicide resistance in the field, you may be wasting your money and increasing disease risk.

Luna Tranquillity used in wine grapes was cancelled last year due to a potential negative effect seen on fruit set in Europe. However, Luna Experience is still available for grapes.

Several supplemental labels have been released recently. The three products and their uses are summarized in the table below. Please note that application rates may differ by disease. Fungicide labels and material safety data sheets can be accessed on [CDMS.net](https://www.cdms.net).

Summary of Luna products and their uses					
Product	Active ingredients	FRAC* code	Crop/disease on label	PHI	Comments
Luna Experience	fluopyram + tebuconazole	7 + 3	Grape: Powdery mildew, Botrytis, Black rot, Sour rot Suppression of: Phomopsis cane and leaf spot	14 days	1 REI = 12 hours for most uses but five days for cane tying in grapes. 2 Apply no more than 34 fluid ounces product, 0.446 pounds fluopyram or 0.9 pounds tebuconazole per acre per year. 3 Make no more than two sequential applications of a group 7 or 3 fungicide.
Luna Tranquility	fluopyram + pyrimethanil	7 + 9	Strawberry: Powdery mildew, Botrytis gray mold Suppression of: Rhizopus fruit rot, Phomopsis leaf blight and fruit rot, common leaf spot	1 day	Also labeled for lingonberry, juneberry, gooseberry, currants, aronia and edible honeysuckle. REI = 12 hours. Apply no more than 54.7 fluid ounces product, 0.446 pounds fluopyram or 2.1 pounds pyrimethanil per acre per year. Make no more than two sequential applications of a group 7 or 9 fungicide.
			Blueberry**: Botrytis gray mold, powdery mildew, mummy berry, Alternaria fruit rot, Septoria leaf spot	0 days	
			Raspberry/blackberry**: Botrytis gray mold, Powdery mildew, Septoria leaf spot	0 days	
Luna Sensation	fluopyram + trifloxystrobin	7 + 11	Strawberry: Powdery mildew, Anthracnose fruit rot, Phomopsis leaf blight and fruit rot, Botrytis gray mold. Suppression of: Rhizopus fruit rot, common leaf spot	0 days	REI = 12 hours Apply no more than 27.3 fluid ounces product, 0.446 pounds fluopyram or 0.6 pounds trifloxystrobin per acre per year. Make no more than two sequential applications of a group 7 or 11 fungicide.

*FRAC = Fungicide Resistance Action Committee. Fungicides with the same number share the same mode of action.

** These products have received limited efficacy testing on blueberries and raspberries in Michigan.

Dr. Schilder's work is funded in part by [MSU's AgBioResearch](#).

Orchard Diversion Staff - Message from the CIAB

Dear all,

As you all know, harvest is not that much farther down the road. We are trying to get ready for orchard and at-plant diversion should growers and handlers in NW MI wish to do them.

We are looking to increase the numbers of field staffers for our orchard diversion activities. The NASS, the group that we use to do our orchard diversions, has lost some employees in NW MI. They do not have terribly many available for orchard diversion field work this year due to attrition of workers for whom replacements have not been found.

We certainly do not want to find ourselves in a situation where we are in need of field workers for orchard or at-plant diversions and we do not have enough to people cover the needs in NW MI. Growers and handlers will want to be able to exercise their choices to do diversion if that is what is needed. Not having enough field staff would be a bad and unfortunate situation in which to find ourselves.

Your help is requested. You know the people in your areas who might be available to do this field work and might be interested in helping out the industry. I would very much appreciate it if you would ask around to see if there is anyone that you know who might be interested in serving as an orchard diversion field worker this Summer. Please pass their names and contact information on to me and I will contact them to discuss this in more detail.

Thank you.

Respectfully,

Perry M. Hedin
Exec. Dir.

You can contact Perry Hedin at: hedin@ciab.comcastbiz.net

2016 Fruit insecticides under EPA Regulatory Action

Lorsban, Belt, Closer and Calypso fruit insecticides are under EPA Regulatory Action in 2016.

Posted by [John Wise](#), Michigan State University Extension, Department of Entomology
MSUE News

The following are fruit insecticides under [EPA](#) Regulatory Action. [Michigan State University Extension](#) bulletin E0154, "[Michigan Fruit Management Guide](#)," product numbers are in parenthesis ().

Lorsban (32) (chlorpyrifos). There are a number of actions on-going that are impacting the future of Lorsban, including review by the EPA [Scientific Advisory Panel](#). Dow AgroSciences expects that chlorpyrifos products will continue to be utilized and sold under the existing labels and tolerances through at least 2017. If EPA actions are taken such that chlorpyrifos becomes immediately unable to be sold, Dow will work with growers and distributors to manage inventory of DAS chlorpyrifos at that time.

Belt (89) (flubendiamide). EPA requested Bayer CropScience to voluntarily withdraw registrations for flubendiamide-containing products. Bayer refused that request and have asked for a formal hearing before the EPA's Administrative Law Judge, which is expected to be finalized by July 2016. The Administrative Law Judge agreed to a 22-day extension of the before mentioned 75-day deadline for the Administrative Law Hearing regarding BELT Insecticide and has now communicated the "Order Scheduling the Hearing and Prehearing Procedures." With this extension we now expect a final decision about the future path forward for the registration of flubendiamide on or about July 6, 2016. While under review, farmers and retailers can continue to buy, sell and use the product in their operations.

Closer (8) (sulfoxaflor). On Nov. 12, 2015, EPA cancelled the registrations of sulfoxaflor-containing products as required in a Sept. 10, 2015, decision by the Ninth Circuit Court of Appeals. The cancellation affects Transform WG, Closer SC and Seeker insecticide products, which contain sulfoxaflor. It is our understanding that Dow AgroSciences is working with EPA to achieve new registrations, and submitted new labels for consideration to EPA in late 2015. In addition, it is our understanding that several states are now in the process of submitting or developing Section 18 applications for the 2016 use season. According to the terms of the existing stocks provision of the cancellation order, any Transform, Closer or Seeker that have been in the grower's possession since Nov. 12, 2015, may be used according to the previously approved labeling. There is no

deadline for this product to be applied by the grower. The product in grower's hands may also be used for any Section 18 Emergency Exemption that may be granted.

Calypso (62) (thiacloprid). Bayer CropScience notified EPA of a voluntary cancellation of the Calypso insecticide registration, including the technical registration of thiacloprid. This decision has to do with EPA's registration review process and the new water model, adopted by EPA in early 2013. Bayer CropScience has notified states and requested that Calypso be allowed for use through the existing stocks provision. Bayer CropScience will plan to maintain the state registrations through 2016.

Dr. Wise's work is funded in part by MSU's AgBioResearch.

Fungicide Efficacy Update for Cherry Leaf Spot Management

A review of 2015 cherry leaf spot infection and fungicide efficacy for management in 2016

Emily Pochubay, Dr. Nikki Rothwell, and Dr. George Sundin

Cherry Leaf Spot Infection in 2015

In 2015, spring and early summer conditions were cool and wet in northwest Michigan, and these conditions were favorable for early cherry leaf spot (CLS)

Table 1. Cherry leaf spot disease report from Enviro-weather May 10 – August 23, 2015

Start of wetting period	End of wetting period	Duration (Hrs.)	Avg Temp (degrees F)	Rainfall (in.)	Cherry Leaf Spot	Progress towards infection
5/10 9-10PM	5/12 3-4PM	Wet: 33; Span: 43	49.7	0.22	Moderate	178%
5/15 2-3AM	5/16 9-10AM	Wet: 29; Span: 32	48.9	0.35	Low	121%
5/17 6-7PM	5/17 8-9PM	Wet: 3; Span: 3	72.9	0.32	None	40%
5/24 8-9PM	5/25 2-3PM	Wet: 17; Span: 19	59.6	1.6	Moderate	214%
5/26 Midnight-1AM	5/26 3-4AM	Wet: 4; Span: 4	63.2	0.06	None	77%
5/26 5-6PM	5/27 11PM - Midnight	Wet: 7; Span: 7	65.5	0.31	Low	137%
5/27 Noon-1PM	5/27 3-4PM	Wet: 4; Span: 4	57.5	0.03	None	45%
5/29 Noon-1PM	5/30 3-4PM	Wet: 21; Span: 28	54.8	0.36	Moderate	180%
6/7 8-9AM	6/9 11AM-Noon	Wet: 39; Span: 52	57.4	0.6	High	439%
6/11 4-5PM	6/12 11AM-Noon	Wet: 20; Span: 20	55.4	0.55	Moderate	182%
6/13 5-6PM	6/15 10-11AM	Wet: 32; Span: 42	63.9	0.27	High	590%
6/18 3-4PM	6/18 4-5PM	Wet: 2; Span: 2	60.6	0.03	None	31%
6/22 2-3PM	6/22 4-5PM	Wet: 3; Span: 3	71	0.07	None	48%
6/30 8-9AM	7/1 11AM-Noon	Wet: 24; Span: 28	52	0.01	Moderate	169%
7/6 10-11PM	7/7 8-9AM	Wet: 11; Span: 11	59.3	0.41	Low	109%
7/13 10-11PM	7/14 1-2PM	Wet: 16; Span: 16	64.7	0.22	Moderate	308%
7/17 4-5AM	7/17 2-3PM	Wet: 11; Span: 11	64.6	0.03	Low	207%
7/18 10-11AM	7/18 11AM-Noon	Wet: 2; Span: 2	67.6	0.03	None	40%
8/2 11AM-Noon	8/3 9-10AM	Wet: 22; Span: 23	63.1	1.19	High	348%
8/7 6-7PM	8/8 8-9AM	Wet: 15; Span: 15	63.6	0.11	Moderate	280%
8/13 6-7PM	8/14 8-9AM	Wet: 9; Span: 15	69.8	0.3	Low	158%
8/18 7-8PM	8/19 Noon-1PM	Wet: 14; Span: 18	69.5	0.33	Moderate	259%
8/20 5-6PM	8/20 6-7PM	Wet: 2; Span: 2	61	0.02	None	31%
8/23 Noon-1PM	8/23 3-4PM	Wet: 4; Span: 4	67	0.31	None	80%

development. CLS infections can occur as soon as bract leaves with open stomata are present, which in some areas of NW MI was during the first week of May in 2015. While bract leaf infection is the first opportunity for CLS infection to occur, there were 12 'official' CLS infection periods recorded by the Enviro-weather station and CLS model for the NWMHRC between May 10th and the end of July (Table 1). Several of these infection periods were long, and in general, conditions were wet between many of the 'official' infection periods which likely prolonged the wet conditions and contributed to the overall very high potential for disease. In particular, periods of frequent rain events from the end of May into mid-June was a difficult time during the season because many growers were not able to apply fungicides due to poor spray conditions. Furthermore, when ideal spraying weather occurred, the window for spraying was short and growers were faced with prioritizing sprays. Leaf spot took a foothold during this time, and because pressure was so high, control was difficult. Unfortunately, the 2015 season was unforgiving for delayed or missed fungicide applications. We also received reports that some growers had higher levels of CLS in blocks where alternate row middle applications were made and in lower priority/non-bearing orchards.

Fungicide Efficacy 2015 Results

If there is an upside to such a challenging leaf spot year, it is possibly that last season's conditions were ideal for assessing CLS fungicide efficacy on Montmorency tart cherries at the NWMHRC. In this trial, Bravo Weather Stik (4 pt/ac) was applied to all treatment trees for the first and second applications of the season. The following applications of four treatments were as follows: Treatment 1: *Luna Sensation* 5 fl. oz. + R56 0.125% , Treatment 2: *Luna Sensation* 5 fl. oz. + R56 0.125% + *Captan 80 WDG* 2.5 lb, Treatment 3: *Merivon* 5.5 fl. oz. + *Sylgard* 0.03%, Treatment 4: *Captan 80 WDG* 2.5 lb, and an Untreated Control (UTC). Applications were made every 9-10 days with a handgun (300 gal/ ac), and data on the percentage of leaves on terminals with infection and percentage of terminal defoliation was collected on 20 July 2015 and 9 September 2015. While growers should not be applying four consecutive applications of fungicides such as *Luna Sensation* or *Merivon* due to the risks of fungicide resistance, we need to study fungicide efficacy in this manner on a small scale to most effectively compare compounds.

We found that all of the treatments were significantly more effective for preventing infection and defoliation compared with the UTC (Table 2). Treatments 2 and 4 that contained Captan were the most efficacious against CLS. Furthermore, the efficacy of *Luna Sensation* was improved by adding Captan. Although the percent defoliation numbers are high on 9 September in this experiment, it should be noted that there are unsprayed control trees in the block and so the disease pressure was consistently high all season. We also found that mildew incidence was significantly lower on trees treated with either *Luna Sensation* or *Merivon* compared with the UTC. These results indicate that even during seasons with extremely high CLS pressure, these materials are still providing good CLS control.

Table 2. Cherry leaf spot fungicide efficacy results, 2015

Treatment	Timing	% Infection	% Defoliation 20 July 2015	% Defoliation 9 Sept 2015	% Mildew Infection 20 July 2015
1. Bravo Weather Stik 4 pt Luna Sensation 5 fl. oz. + R56 0.125%	AB CDEF	62.1 bc	7.3 b	82.2 bc	0.8 c
2. Bravo Weather Stik 4 pt Luna Sensation 5 fl. oz. + R56 0.125% + Captan 80 WDG 2.5 lb	AB CDEF	42.5 d	5.2 b	66.8 cd	1.0 c
3. Bravo Weather Stik 4 pt Merivon 5.5 fl oz + Sylgard (0.03%)	AB CDEF	53.6 bcd	11.3 b	63.4 d	0.0 c
4. Bravo Weather Stik 4 pt Captan 80 WDG 2.5 lb	AB CDEF	45.2 cd	3.5 b	53.0 d	9.7 ab
Untreated Control		95.5 a	31.2 a	99.7 a	23.9 a

Preventing early leaf spot infections will help to minimize the risk of a CLS epidemic in the 2016 season.

This strategy is particularly important for trees stressed by early leaf loss last season; potentially two years of early defoliation will contribute to poor tree health and mortality especially if we have another hard winter. Furthermore, many orchards have a high level of inoculum as we head into the 2016 season due to severe infections last year, and there is the potential for a very high discharge of CLS spores during this week's predicted rain and temperatures above 60 degrees F. Therefore, we would like to encourage growers to protect orchards that have open bract leaves and/or true leaves from infection prior to rain. If retreatment is needed before the 10 day retreatment interval for chlorothalonil is met, Captan 80 WDG (2.5 lb/acre) is a good alternative for CLS.

Measuring spotted wing Drosophila impacts – your help needed!

This survey will help researchers identify impacts of spotted wing Drosophila (SWD) on fruit growers and look for new management tactics and programs, improved insecticide efficacy and SWD training.

Posted by **Rufus Isaacs**, and Larry Gut, Michigan State University Extension, Department of Entomology, MSUE News

Michigan State University researchers are part of a recently funded project, **“Sustainable Spotted Wing Drosophila (SWD) Management for United States Fruit Crops,”** and the team is surveying fruit growers with two goals:

- 4 Measure the impact of SWD throughout the United States.
- 5 Guide our project activities over the next four years.

This five-year project, coordinated by North Carolina State University, is developing national research and extension projects to minimize the impacts of SWD. They include new management tactics and programs, improved insecticide efficacy for SWD and information and training on SWD for growers, extension agents and others. In order to achieve this and ensure the research and extension efforts match the needs of growers, the project is collecting information on the impacts of SWD on fruit growers, current management practices and preferences, and your requirements for better management of SWD. Participation is voluntary and the survey does not collect personally identifying information. The data will only be analyzed and reported in aggregate form.

We would like to get feedback from as many growers as possible! So, please complete the survey here: **Sustainable SWD Management Grower Survey**
Contact me at isaacsr@cns.msu.edu for additional information.

<https://survey.ncsu.edu/swd/>

Funding for this project is provided by the National Institute of Food and Agriculture, U.S. Department of Agriculture Specialty Crops Research Initiative under Agreement No. 2015-51181-24252.

RecycleSmart Household Hazardous Waste Drop-Off – Upcoming

Dates

Growers can bring back pesticides of any quantity to any county, free of charge

Leelanau's HHW Collections are taking place on May 14, July 9, August 27, and October 8.

http://www.leelanau.cc/downloads/hhw_flyer_2016_final_1.pdf

Antrim has two events this year: May 14 and August 6:

<http://www.antrimcounty.org/hazardous.asp>

Benzie is holding two HHW Collections on June 25 and July 23:

<http://www.benzieco.net/Household%20Hazardous%20Waste%20Brochure%202016.pdf>

Household hazardous waste products should be handled with care when preparing them for transport to the drop-off event. Keep products in original containers and don't mix products together. Keep containers tightly sealed, packed in a box in an upright, stable position. Transport HHW as far away as possible from you in your vehicle, such as in the bed of a pick up or car trunk.

Items accepted at the HHW collection events include: oil-based paint, latex paint, solvents, automotive fluids, household cleaners, lawn and garden chemicals, pesticides, batteries, fluorescent light bulbs and more.

Small businesses, organizations and schools may qualify to dispose of HHW at a drop-off event. Visit RecycleSmart.info for details about Conditionally Exempt Small Quantity Generator (CESQG) specifications.

For more information, visit www.RecycleSmart.info or call the RecycleSmart Hotline at 231- 941-5555.

Nature Change: Conversations about Conservation and Climate - A New Multimedia Magazine

Northern Michigan's heritage landscapes are changing as invasive species, urban development and climate change alter, damage or destroy familiar plant and animal communities. These are big challenges to volunteer conservationists, natural resource professionals and the organizations working to manage, protect and preserve the forests, uplands, wetlands and streams of Northwest Lower Michigan. As observers of the natural world, they know that our region's renowned natural beauty and most productive ecosystems are at risk.

Nature Change is a new multimedia magazine developed by the [Conservation Resource Alliance](#) (CRA) as a cooperative venture for regional nonprofit organizations involved in protecting and managing the lands and waters of Northwest Lower Michigan. Our mission is to inform a regional public discussion about options for the sustainable management of natural resources during this time of increasingly rapid change. We want to build conservation literacy among citizens and local officials to inform the

choices we all must make in preserving, protecting, adapting and re-locating both plant and animal species.

Recently, Dr. Nikki Rothwell was interviewed and featured in a Nature Change publication on Spotted Wing Drosophila. You can view the short write up and video here:

<http://naturechange.org/2016/05/09/game-changer-a-new-fruit-fly-puts-northern-michigans-orchards-at-risk/>

Secrets in the soil – dig a little, learn a lot

There's a whole world beneath the surface. Learn more about soil health at MSU Agriculture Innovation Day: Focus on Soils on Aug. 24, 2016.

Posted by **Dean Baas**, Michigan State University Extension, MSUE News



MSU Extension educator Paul Gross talks about healthy soil in a root pit at a recent event.

It's not unusual that our view of landscapes, fields and farms is primarily on what is happening above the surface. We survey a world of lush vegetation and vibrant crops with little thought of the soil beneath them. Many of the advancements in modern agriculture have led to increases in yield and productivity even as the world below may be declining in health. In this hidden world, we may be losing suitable habitat for the

myriad of soil organisms that support growing plants. Restoring this habitat by managing for soil health is one way farmers can increase crop productivity and profitability while improving the environment. Soil health management includes minimizing tillage, diversifying crops and using cover crops.

The time has come to pay attention to what's happening below the surface in addition to above. To unlock the secrets of the soil, we need to dig a little to learn a lot about how management practices impact soil health. Michigan State University (MSU) will host its first MSU Agriculture Innovation Day: Focus on Soils on Aug. 24, 2016, at the Saginaw Valley Research and Extension Center in Frankenmuth, Michigan. At this educational field day, farmers can get to the bottom of soil health by visiting a root pit comparing two management practices. Join MSU Extension educators and researchers in the pit and see that healthy soil has a certain smell, feel and look. Current research on soil health will be discussed during this demonstration.

The USDA National Resource Conservation Service has a variety of excellent soil health resources. For more information on soil health, contact me at baas@anr.msu.edu, Paul Gross at grossp@anr.msu.edu or Christina Curell at curellc@anr.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>