



Spotted wing drosophila (SWD) numbers continue to rise across the region. We are catching high numbers of females but very few male flies. This finding is a reminder to scouts to be sure to count both male and female flies as the vast majority of flies caught this season have been females. Trap catch numbers are listed in the table below, and again, growers should remember that the NWMRHC traps are higher than commercial orchards because we have many unsprayed trees. However, our concerns about SWD are mounting with the increased trap counts, and we have heard reports of infested fruit from orchards and berry crops across the state. It is critical that growers maintain tight intervals, slow down sprayers, and apply *excellent* materials over *good* materials when this is an option for SWD control; *good* materials can and should be used if coverage is needed and *excellent* materials are no longer an option.

In addition to increased SWD pressure, the region received significant rainfall today (26 July). The rainfall came in two waves and was more intense than expected. Rainfall totals were variable across the region, and Old Mission received the most rain at 1.16" (so far today) and Eastport received just less than one inch. Most other Enviroweather stations received ~0.5" of rain, but the Benzonia and Bear Lake stations recorded less rain: ~0.25". Although growers will consider the amount of rainfall, when they last sprayed, and the efficacy of the material, we are recommending most orchards will need to be covered again to prevent SWD infestation. As populations rise, SWD becomes more challenging to control, and growers do not want to take the risk of infestation with too little residue on fruit. At this time of year, we need to have the most efficacious insecticides with the best coverage possible—we cannot afford to have worked so hard this season to have SWD infest orchards at harvest. To maintain excellent coverage and minimize the risk of infested fruit, some growers have applied an insecticide to the rows that will be harvested last in a block as long as the PHI requirements can be met.

Additionally, we are sampling for SWD larvae in research blocks, and the numbers are unnervingly high. This situation is another reminder for growers to maintain tight spray programs as some blocks at the NWMRHC are close to 100% infested. Interesting, but preliminary, results show that we have higher numbers of SWD larvae in older trees with bigger canopies. This finding is not unexpected, but our data shows that older tart cherry trees that were *not* pruned this season had a total of 450 larvae in three gallons of fruit, but trees where we pruned 25% *more* had only 95 larvae in three gallons of fruit. The number of larvae is very high because we did not spray insecticide in this trial, but there are significant differences in the number of larvae with different levels of pruning.

These results are also supported by the number of larvae we found in our efficacy trial conducted in trees planted in 2011—these trees are small and less dense or more open canopies. We found a total of 22 larvae in the untreated check (UTC) in this trial. The number of larvae from the UTC from a trial conducted in an orchard planted in 2004 had over 400 larvae. Again, although preliminary data, we believe that growers with large trees and dense canopies need to be even more diligent about SWD control. Although we recommend that growers use full covers for SWD, these observations suggest that full covers are especially important in larger trees and blocks with dense canopies.

Lastly, growers should not stretch their intervals, especially with the increases in SWD numbers. We have heard reports of SWD infested sweet cherries where the intervals had been stretched. This situation is particularly evident when growers stretch out intervals with pyrethroids. Under high pressure, we recommend to keep pyrethroid intervals to 5 days or less – even less under hot and sunny conditions (pyrethroids are susceptible to UV degradation), which are in the forecast for the remainder of the week. Mustang Max is a pyrethroid that just received a section 18, which has a PHI of 3 days in tart cherries. However, growers cannot apply more than two applications between 14 and 3 days of harvest, and these two applications must be spaced at least 7 days apart.

We will continue to keep growers informed of SWD numbers, and we are available for help throughout the harvest season.

### NW MI SWD Trap Counts – 7/26/17

Location and # of traps out	wk of 5/15	wk of 5/22	wk of 5/29	wk of 6/5	wk of 6/12	wk of 6/19	wk of 6/26	wk of 7/3	wk of 7/10	wk of 7/17	wk of 7/24
North Manistee - 7	trap set	0	0	0	2	Not checked due to REIs	1	6	14	25	96
Benzie - 44	trap set	3	2	4	23	50	23	48	103	269	912
Yuba - 22	trap set	0	0	0	1	16	7	13	23	73	*
Central Lake - 7	trap set	0	0	1	0	1	0	0	0	47	*
Old Mission - 26	trap set	1	0	0	0	7	1	0 - Not all traps checked due to REIs	15	93	*
Bingham - 75	trap set	0	0	0	3	38	92	68	73	777	1935*
Cedar - 8	trap set	0	0	0	1	12	0	3	4	20	70

East Leland - 7	trap set	0	0	0	0	0	0	Not checked due to REIs	1	1	2
Northport - 7	trap set	0	0	1	0	2	3	2	13	55	*

SWD Caught outside of NW MI  
Trap Count

Location	wk of 5/15	wk of 5/22	wk of 5/29	wk of 6/5	wk of 6/12	wk of 6/19	wk of 6/26	wk of 7/3	wk of 7/10	wk of 7/17	wk of 7/24
North Manistee		0	0	0	1	0	0	0	0	0	*
Bingham		0	0	0	1	0	0	0	0	0	*

**\*= Trap count is incomplete**

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## Pest Update – July 26, 2017

Emily Pochubay and Nikki Rothwell

Spotted wing drosophila numbers continue to rise in the region and we have been finding some interesting preliminary data from trials at the NWMHRC. Please read the article, An update from the NWMHRC on 2017 spotted wing drosophila research, for an update on SWD findings for this season.

American brown rot has continued to be a challenge in sweet cherries, and we have observed this disease getting a foothold in tart cherries, particularly if the cherries are damaged. Wet weather will continue to be conducive for rapid ABR development today and potentially tomorrow, and growers should consider including a material for ABR to prevent the fungus from spreading in tart cherries that have yet to be harvested. The forecast for the remainder of this week and early next week is looking drier which should help to slow down disease progress.

Cherry leaf spot pressure has continued to be a concern and post harvest leaf spot management will be key this season. Some growers are considering two post harvest leaf spot sprays in tart cherry blocks with high infection this season.

Obliquebanded leafroller (OBLR) larvae activity is ongoing and we remind growers that pre-harvest pyrethroids may not be effective for this pest as there is cross-resistance between pyrethroids and organophosphate insecticides. Delegate is rated good on SWD and excellent on OBLR. However, if the main target is SWD, we recommend using only materials that are rated excellent.

Small, ovoid shaped sap beetles that are sometimes brown or black or black with yellow dots have been observed in commercial cherry blocks where fruit have been damaged due to insects or are cracked due to rainfall; the populations of these beetles are higher than usual and they are taking advantage of damaged fruit. In most cases, we have not observed the beetles attacking undamaged fruit. However, in past years, we have seen these beetles infesting fruit that is hanging low near the ground and/or in unmowed grass in the sod row middles.

We found high apple maggot (AM) activity in the last week with 64 flies on one trap in our apples at the station. Flies were also observed on non-AM traps and on apple foliage in our blocks. After emergence, there is a 7-10 day pre-oviposition window, and hence, AM egg laying is beginning this week. Catches of AM across the state have been high this season and MSU entomologists hypothesize that populations of this pest have been building in the state in recent years. Additionally, AM and brown marmorated stink bug damage are difficult to differentiate and it has been suspected that what we thought was BMSB damage last season could have been early season AM damage. Please review the article, [Managing apple maggots with insecticides for additional management information](#). If insecticides were applied prior to this morning's rainfall, reapplication is likely needed.

Second generation codling moth flight is ongoing at the station with consistent adult catches compared with last week; we found an average of three moths in traps this week. According to degree day accumulation, the first second generation eggs are starting to hatch with 20% egg hatch occurring by the end of the week.

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## **Use a disease management approach when thinking about an SWD management plan**

**Cherry growers should think of spotted wing *Drosophila* (SWD) as a disease rather than an insect pest as this will help in controlling this pest.**

Posted by [Dave Jones](#), Michigan State University Extension, MSUE News



Yellow tart cherry fruit. Tart cherry growers need to get in the mindset of beginning their seven-day programs immediately when fruits reach this developmental stage. Photo by Dave Jones, MSU Extension.

I have had numerous discussions on [spotted wing Drosophila](#) (SWD) with growers in the past few weeks. The analogy that has worked best for them in understanding the new reality of SWD management in west central Michigan has been an [apple scab](#) analogy.

Every year in apples, we set up our spore rods to monitor apple scab ascospores. We observe spore numbers after each rain to determine the start and end of primary risk period for this disease. Nevertheless, as soon as green tissue is exposed on apple trees, we spray. Why? Because we always catch primary apple scab spores ahead of green tip. This is a basic assumption in the apple business.

As a result, we know that our crop is in danger and we take appropriate action. We spray ahead of rain events and we spray regardless of the number of spores caught on the monitoring rods until primary scab is over. We know that spore rod counts are not a tool to gamble on with apple scab sprays. Whether we catch one or 100 ascospores, we know we are at risk until primary scab has ended. Spore catch means only one thing at the beginning of every year: The trees have exposed leaves. We're at risk. We spray. Period.

Let's apply this same train of thought to SWD.

Every year in cherries, we set out traps to monitor SWD. We begin to catch a few flies and monitor the building population. We observe SWD numbers each week to determine the official start of the risk period. Nevertheless, as soon as we have yellow fruit on trees, we need to spray. Why? Because we always catch SWD ahead of yellow cherry fruit. This has to be a basic assumption in the cherry business. We need to realize our crop is in danger from the moment it turns yellow and we need to take appropriate action. We need to spray every seven days and we need to spray regardless of the number of flies caught in the traps until harvest is over.

We need to realize that trap catch numbers are not a tool to base our sprays on. Whether we catch one or 100 SWD, our cherries are at risk until harvest has ended. Catching SWD means only one thing if the cherries are yellow or later. We're at risk. We spray. Period.

Growers ask about weekly trap numbers because they assume the block with the most SWD in a trap is most likely to have SWD larvae in the fruit. Unfortunately, this is not necessarily true. This highlights the risk of treating trap counts as spray guides. In the three conventionally managed tart cherry blocks where we detected larvae in fruit this season, none had the highest SWD counts in traps the weeks that larvae were found in the fruit. One site was actually the lowest the week larvae were detected. The other two sites were in the middle of the pack.

Watching the SWD population increase each season still gives us valuable insight on where the pest is and what it is doing, but it does not help us determine relative risk in the orchard. The sad reality is that SWD is so-well established in Michigan at this time that **all** blocks are at risk once yellow fruit is present, regardless of population counts.

This July, SWD numbers are higher than anything previously recorded at this point in the growing season. There is a good chance this may be the new "normal" as this pest becomes established in the region. Battling our way through this high-pressure year has taught us several important lessons as an industry in west central Michigan.

**Programs that use products rated "excellent" for SWD at seven-day intervals are generally getting very good management.** Challenging as it is for growers to meet the high demands of this aggressive spray schedule, those who have risen to the challenge are generally seeing very good control and high grades at the processing plant. It is evident you should either be using this level of aggression towards SWD or not bother to spray at all. Anything less than an outstanding management program will result in contaminated fruit.

**Products rated "good" for SWD that get pushed past four to five days consistently result in larval contamination of fruit.** Every report of sweet cherry contamination and the majority of tart cherry contamination reports we received at the [Michigan State University Extension](#) office this season all had one thing in common: Every spray schedule included a product that was **not** rated "excellent," and these applications were used as four to five day stopgaps in the program. We cannot emphasize enough at this time that

this simply will not work in a management program targeting this pest. Even with an “excellent” product, seven days is pushing the limit.

**Trap counts in a block are not an indication of the relative risk for fruit contamination. We still do not know if “high” versus “low” pressure means anything regarding risk to the crop.** The risk to an orchard is not necessarily proportional to the number of SWD adults caught in a trap. I have seen SWD larvae in fruit from blocks where as few as three adult SWD were caught in five traps in a week and I have seen clean fruit in blocks with over 200. Trap counts are nice. They tell us when the insect starts flying in the spring and allow us to watch populations ebb and flow, but we do not know if there is a difference between 50 and 500 SWD adults in terms of relative risk. For all intents and purposes, we cannot assume there is a marked difference at this time in terms of management considerations.

**Growers using only a single cup trap in a block to determine if they need to spray for SWD risk being burned with bad information. SWD catches are highly inconsistent between traps in a single block. Furthermore, scouts who are only looking for males are not going to be able to give an accurate read on SWD populations.** To demonstrate this, look at this example of the male and female counts from one week at a site in west central Michigan.

Trap/Fly gender	Males	Females
Trap 1	0	2
Trap 2	0	8
Trap 3	0	0
Trap 4	0	0
Trap 5	0	8

There are two points here.

- There were two traps that caught no flies out of the five traps. This means there was a 40 percent chance of catching no flies in a trap. This type of result is common, particularly early in the season when fruit first begin to change color. It is not hard to imagine that a single trap in an orchard might catch no flies in a week, particularly early in the season before populations build. In this example, a grower using trap 3 or 4 would assume no flies were present in their block, and would not feel the need to spray.
- Additionally, no males were caught in any of the traps. A scout looking for “spotted winged” males in the trap with their naked eye would assume the count is zero. The count is actually 18 flies. This is common, particularly early in the season, and demonstrates **all** flies, both male and female, need to be counted.

**Rotating insecticides is critical to maintaining our ability to manage this pest when we look at the “long game” of SWD management.** We are getting excellent control of this pest right now because the cheaper pyrethroid insecticides such as Mustang Max are



working extremely well for us. We know from experience with other insect pests such as [oriental fruit moth](#) that pyrethroids can quickly become ineffective if they are over-applied. The scary thing from a resistance management standpoint is that oriental fruit moth's reproduction rate is miniscule compared to SWD.

We need to be extremely conscious of rotating our insecticides each season, mixing multiple modes of action into a program to ensure adequate management. Diamides (Exirel, Harvanta), pyrethroids (Mustang Max, Warrior) and organophosphates (Imidan) should all be used in rotation going forward to help preserve the efficacy of our best products.

Take the time to read the [MSU Extension](#) article, "[Plan to change when dealing with spotted wing Drosophila](#)" by [Mark Longstroth](#). This season has been a big wakeup call for all of us in west central Michigan and it demands adjustments from all of us. This is a manageable problem, but we need to be highly methodical in how we proceed if we want to maintain our industry as we know it.

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## **ARTICLES FEATURED IN PAST FRUITNET REPORTS**

### **CIAB Newsletter – Reminder for Growers**

**Please view the attached document [Grower Diversions Reference Chart](#)**

CROP ESTIMATES AND MARKET CONDITIONS-On June 22, 2017 the CIAB met to discuss crop size and market conditions for the 2016/17 crop year. Sales, inventories and compliance activities were also discussed by the board along with carryout needs. Information from the meeting is presented below:

**Crop Estimates (million lbs):**

District	USDA-NASS	CIAB
NW Michigan		130
WC Michigan		26
SW Michigan		28
Subtotal, MI	164.5	184
Washington	25.3	26
New York	9	8
Wisconsin	10.4	9
Utah	29	25
Oregon		2
Pennsylvania		5
<b>TOTAL</b>	<b>238.2</b>	<b>259</b>

USDA-NASS reported their estimate based on surveys in late May and early June. Surveys were not conducted in Oregon and Pennsylvania. The board voted unanimously to adopt the CIAB estimate for the preliminary calculation of the optimum supply formula (OSF) for June. Unregulated districts for the preliminary restriction are Oregon and Pennsylvania.

OSF CALCULATION AND RESTRICTION- Free and restricted inventories are used, along with the crop estimate and sales, in the calculation of the OSF. The inventory breakdown is included below:

Inventory Type	Million lbs
<b>Free</b>	<b>110.5</b>
<b>Restricted</b>	<b>65.9</b>
<b>Total</b>	<b>176.4</b>

**Inventory by type (as of May 31, 2017):**

Product Type	Million lbs	Percent of Total
Frozen, General use	93.2	53%
Frozen, Dryer stock	42.6	24%
Waterpack	2.1	1.2%
Piefill	9.3	5.3%
Puree	0.6	0.3%
Juice	24.1	13.7%
Dried	2.4	1.4%
Other	1.7	1.0%
<b>Total Carry-in</b>	<b>176.4</b>	<b>100%</b>

Demand- 3 Year Average Sales- Sales for the marketing year ended May 31, 2017 are 260.8 million lbs. For calculation of the OSF, three year average sales are used to determine demand, plus a market growth factor (10% of 3 yr avg or 37.6 mm lbs). Average sales for the calculation are (in million lbs):

	Gross sales	Exports	USDA-Bonus Sales	Free Sales
2014	235	12	21.9	201.1
2015	257	12	46.8	198.2
2016	260	15	41.3	203.7
<b>3 yr Avg.</b>	<b>250.6</b>	<b>13</b>	<b>36.7</b>	<b>201</b>

OSF and Preliminary Restriction Percentage-The following table lays out the preliminary OSF calculation as approved by the CIAB on June 22, 2017. The adjusted surplus amount is divided by the amount of regulated tonnage available to calculate the restricted percentage amount ( $63.4/240 = 26\%$ ). The regulated tonnage number is smaller than the total crop estimate since Oregon and Pennsylvania are not included and also because the CIAB included an estimate for in-orchard diversion of 12 million lbs.

#### PRELIMINARY OSF CALCULATION-

<b>Supply</b>	
<b>U.S. Crop</b>	<b>259</b>
<b>+ Carry In</b>	<b>110.5</b>
<b>=TOTAL SUPPLY</b>	<b>369.5</b>
<b>3 year sales avg</b>	<b>201</b>
<b>+ Target Carryout</b>	<b>45</b>
<b>+USDA Adjustment</b>	<b>36</b>
<b>=OPTIMUM SUPPLY</b>	<b>282</b>
<b>SURPLUS (TOTAL – OPTIMUM)</b>	<b>87</b>
<b>-Market Growth Factor</b>	<b>23.7</b>
<b>=Adjusted Surplus</b>	<b>63.4</b>

Please note: Growers should contact their processor(s) directly about plans for compliance with the restriction percentage.

In-Orchard Diversion- In contrast to last year, the CIAB chose to include an estimate for in-orchard diversions for calculation of the OSF in June. Including this estimate in June increases the preliminary restriction percentage, but also helps to lessen the impact of changes in September when the CIAB sets the final restriction percentage.

SWD- A subcommittee of the CIAB worked this Spring to address concerns about in-orchard diversion practices and growers dealing with SWD (Spotted Wing Drosophila). The subcommittee recommended a proposal to amend in-orchard diversion practices and the proposal was adopted unanimously by the CIAB at its May 3 meeting in Grand Rapids, MI. Since we do not anticipate the proposal to be in place this season, the CIAB has moved ahead with retraining in-field compliance staff so that marketability for diversion is consistent with the FDA tolerance for canned and brined cherries. In practice, this means tart cherries will be rejected for in-orchard diversion only if they contain more than 5 tart cherries with worms, or 7 tart cherries with rot from a sample of 100. If

growers have any questions about this inspection process, please feel free to contact the CIAB office directly.

**MARKET EXPANSION-** In January the CIAB tasked the Executive Committee with developing a proposal to address competition from non-domestic tart cherries. The committee met several times by conference call and in person to develop a proposal that was both workable and acceptable to as many in the industry as possible. The committee invited guests for input from sectors most impacted by non-domestic competition. Ultimately, a proposal was presented to the full CIAB on May 3, 2017 and it passed unanimously. USDA has agreed to allow the CIAB to adopt the provisions of the proposal in practice while it works its way through the informal rule making process. The most significant changes from the proposal are:

1. Market expansion projects will be eligible to earn diversion credits for 5 years
2. Projects that target non-domestic competition can be approved through the existing NPNM process, or through an expedited process by providing a statement of intent to use domestic tart cherries in place of non-domestic
3. Projects that target non-domestic product can be supplied by more than one handler and multiple handlers can receive credit for that project

#### **CALENDAR of Events July – October, 2017**

July 10, 17, 24, 31 – Form #1 Weekly Raw Product

July 10                      Form #3 Sales/Inventory Report (for the period ending June 30)

July 17                      Export and Market Expansion Documentation – June 1 through  
June 30

Aug.                         7, 14, 21, 28 - Form #1 Weekly Raw Product

Sept. 1                      Form 2 Cherries Acquired from Producers

Sept. 14                     CIAB meeting, Fairport, NY

Oct. 2                        Form 4 Handler

Reserve Plan and Final Pack Report

Form 5A Inventory Reserve Summary

Form 5B Inventory Location Report

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## **Managing apple maggots with insecticides**

**Insecticide selections should include consideration of apple maggots when present.**

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

High levels of [apple maggot](#) adult emergence have been detected at the [Michigan State University Trevor Nichols Research Center](#) in Fennville, Michigan, following rainfall events over the last week. Controlling apple maggots has been traditionally achieved with organophosphate (OP) insecticides, like Imidan. Synthetic pyrethroid compounds, like Asana, Warrior, Danitol, Battalion, Mustang Max and Baythroid, are also toxic to adult fruit flies, but are generally viewed to be moderately effective because they have a shorter field residual.

There are several reduced-risk and OP-replacement insecticide products that include apple maggots on their labels. The neonicotinoids Belay, Admire and Assail are labeled for apple maggot control. They have limited lethal action on adult apple maggots, but provide strong curative activity on eggs and larvae. The Spinosyn compounds Delegate and Entrust are active on apple maggots when ingested, but have shown to be only fair control materials in field trials with high pest pressure, thus are labeled for apple maggot suppression only. The Diamide compound Exirel is active on apple maggots, and is labeled for population suppression. Leverage, Voliam Flexi and Endigo are pre-mix compounds that are labeled for apple maggot control.

Summary of insecticides used to control apple maggots						
Compound trade name	Chemical class	Life-stage activity	Effectiveness rating on apple maggot**	Residual activity	Mite flaring potential	Effectiveness rating on codling moth**
Imidan	Organophosphate	Adults and curative	Excellent	14+ days	Relatively safe	Excellent
Asana, Warrior, Danitol, Mustang Max, Baythroid, Battalion	Pyrethroid	Adults	Fair-Good	7-10 days	Highly toxic	Fair
Delegate, <a href="#">Entrust*</a>	Spinosyn	Adults	Fair	7-10 days	Moderate toxicity	Fair-Excellent
Assail, Belay, Admire	Neonicotinoid	Adults and curative	Good-Excellent	10-14 days	Relatively safe - Moderate toxicity	Good-Excellent
Exirel	Diamide	Adults	Good	10-14 days	Relatively safe	Excellent
Leverage	Premix (pyrethroid + neonicotinoid)	Adults and curative	Excellent	10-14 days	Highly toxic	Fair-Good
Endigo	Premix (pyrethroid + neonicotinoid)	Adults and curative	Good	10-14 days	Highly toxic	Good
Voliam Flexi	Premix (diamide	Adults	Excellent	10-14	Relatively	Excellent

	+ neonicotinoid)	and curative		days	safe-Moderate toxicity	
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\* [OMRI](#)-approved for organic production.

\*\* Effectiveness rating of insecticides as noted in [MSU Extension](#) bulletin E0154, "[2016 Fruit Management Guide](#)."

## Predicted 2017 apple harvest dates

The 2017 predicted harvest dates are roughly a few days ahead of normal except in the north, which might be normal.

Posted by [Phil Schwallier](#), and Amy Irish-Brown, Michigan State University Extension, MSUE News

The predicted apple harvest dates are now available at all locations on the [Michigan State University Enviro-weather](#) website. We have less confidence in this year's prediction for the middle of the state. Frost and a long, cold bloom make it difficult to predict the exact full bloom dates. Apple set is from 2-year-old, and in some places from 1-year-old, wood that will produce a very mixed maturity at harvest.

In general, 2017 predicted harvest dates are roughly a few days ahead of normal except in the north, which might be normal. Compared to last year, predicted dates are fairly normal except in the north, which are ahead of last year. Bloom dates this spring were early in the south and normal in the north. May was a cold month and a long, drawn out bloom period, especially in the middle of the state. We do expect mixed maturity at harvest time due to the long bloom.

As always, the weather seems to be unusual each year and 2017 was no different. It began with what appeared to be another very early spring, however cold May weather delayed bloom to a more normal timing from the middle of the state to the north. Most areas bloomed early. The cold May was also very dry and June followed with normal to hot temperatures, which gave us early to normal predicted harvest dates.

Frost damage is considerable and the state's croplod is approximately 65 percent of normal. The tops of trees are heavy and the bottoms are light. Blocks with light crop loads will mature three or four days sooner than the predicted harvest dates. Heavy crop loads will mature seven days later than the predicted dates.

The normal harvest dates for other varieties are listed in Table 3 for the Grand Rapids, Michigan, area. This year's 2017 predicted dates are a rough estimate based on the

McIntosh, Jonathan and Red Delicious predicted dates. Other areas of the state should adjust non-predicted varieties based on their own history. ReTain application should be applied 30 days before harvest. Use Table 3 to time ReTain applications and adjust for varieties and locations.

**Table 1. 2017 predicted peak harvest dates.**

Full bloom date 2017				Predicted harvest date 2017			
Station	McIntosh	Jonathans	Reds	McIntosh	Jonathans	Reds	Observer
<a href="#">SWMREC</a>	April 23	April 24	April 25	Aug. 28	Sept. 15	Sept. 22	<a href="#">Bill Shane</a>
<a href="#">Deerfield</a>	April 25	April 26	April 27	Aug. 29	Sept. 18	Sept. 25	<a href="#">Bob Tritten</a>
<a href="#">Romeo</a>	April 28	May 1	May 1	Sept. 2	Sept. 25	Oct. 1	<a href="#">Bob Tritten</a>
Peach Ridge	May 1	May 5	May 7	Sept. 5	Sept. 27	Oct. 4	<a href="#">Amy Irish-Brown</a>
<a href="#">Hart</a>	May 11	May 13	May 14	Sept. 13	Sept. 30	Oct. 6	<a href="#">Amy Irish-Brown</a>
<a href="#">NWMHRS</a>	May 19	May 20	May 21	Sept. 19	Oct. 8	Oct. 14	<a href="#">Nikki Rothwell</a>

**Table 2. 2017 predicted peak harvest dates compared to normal and last year.**

Station	Days ahead of normal			Days ahead of last year		
	McIntosh	Jonathans	Reds	McIntosh	Jonathans	Reds
<a href="#">SWMREC</a>	10	6	6	2	1	0
<a href="#">Deerfield</a>	10	3	7	3	-1	0
<a href="#">Romeo</a>	11	0	2	5	1	4
Peach Ridge	10	-1	1	2	2	1
<a href="#">Hart</a>	5	3	8	0	2	2
<a href="#">NWMHRS</a>	3	-2	3	1	-8	-7

**Table 3. Normal and 2017 peak harvest dates for varieties for the Grand Rapids area**

Variety	Normal date	2017 predicted date
Paulared	Aug. 24	Aug. 19
Gingergold	Aug. 26	Aug. 21
Gala	Sept. 10	Sept. 5
McIntosh	Sept.15	Sept. 5
Honeycrisp	Sept.18	Sept. 15
Empire	Sept.26	Sept. 25
Jonathan	Sept.28	Sept. 27
Jonagold	Sept.28	Sept. 27
Golden Delicious	Oct. 2	Oct. 1

Red Delicious	Oct.5	Oct. 4
Idared	Oct.10	Oct. 9
Rome	Oct.15	Oct. 14
Fuji	Oct.25	Oct. 24
Braeburn	Oct.25	Oct. 24
Goldrush	Nov. 1	Oct. 31

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## Soil Health Field Day – Antrim County

**Presented by the Antrim Conservation District**

Friday, August 11, 2017 from 10 AM – 3PM

Shooks Farm, 5833 Shooks Rd. Central Lake, MI 49622

\$10 per person. Registration includes a local foods lunch. Registration begins at 9:15AM. MAEAP Phase one credit for attending.

Topics include:

- Up to date science and demos on soil health
- Soil health to weather the weather extremes
- Beyond the basics with Mycorrhizal Fungi
- Benefits of no-till, cover cropping and strip cropping

Only pre-registration guarantees lunch. For more information and to register, visit [www.antrimcd.com](http://www.antrimcd.com) or call 231-533-8363

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## Soil Health Field Day – Kalkaska

**Presented by the Kalkaska Conservation District**

Thursday, August 10, 2017 from 10AM – 2:30PM



Birgy Farms, 1723 Birgy Rd SW, Fife Lake, MI 49633 (Enter on Puffer Road, SW of house)

\$10 per person. Registration includes a local foods lunch with grass-fed beef. Registration begins at 9:15AM. MAEAP Phase one credit for attending.

Topics include:

Soil health to weather the weather extremes  
Beyond the basics with Mycorrhizal Fungi  
Grazing to improve soil health

Only pre-registration guarantees lunch. For more information and to register, visit [www.Kalkaskaconservation.org](http://www.Kalkaskaconservation.org) or 231-258-3307

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## **Leelanau County Household Hazardous Waste & Electronics Collection - Saturday, July 15, 2017 at Glen Lake School**

Do you have leftover oil paint, fuel, pesticides, batteries, motor oils, cleaning supplies, or small electronic items in your home?

Improper storage and disposal of these materials can result in health and environmental risks. Instead of storing these materials and risking improper disposal, take them to a collection for proper disposal.

**TO PARTICIPATE, you MUST make an appointment.**

**Call:** Leelanau County Planning at (231) 256-9812, for appointments.

Costs for these collections are covered under

P.A. 69 of 2005 - a charge placed on Winter Tax Bills.

**These collections are for Leelanau County HOUSEHOLDS ONLY.**

For more information on HHW or other solid waste programs, visit [www.leelanau.cc/solidwaste.asp](http://www.leelanau.cc/solidwaste.asp) **Remaining 2017 Saturday Collections:**

Next Leelanau County Household Hazardous Waste and Electronics Collections: August 19 (Peshawbestown), & October 7 (Elmwood Township). Call Leelanau County Planning at (231) 256-9812 to make an appointment.

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## **NEW Agriculture Container Recycling Program! – Updated Version**

American Waste is no longer recycling ag containers for free at their facility. But no worries! Growers will be able to recycle their containers free of charge at various locations in Northwest MI.

### **Where are the collection sites?**

- Wilbur-Ellis Co  
8075 -31 Williamsburg, MI 49690
- Ellsworth Farmer's Exchange (Co-op) – Change in address  
11900 Byers Rd. Ellsworth, MI 49729
- CHS Inc  
6766 E Traverse Hwy Traverse City, MI 49684
- Crop Production Services (CPS)  
13343 Pleasanton Hwy, Bear Lake, MI 49614

### **When can I drop off my ag containers?**

- June 26-29: You can drop off your materials during regular business hours at any collection site listed above during the last week of June. G. Phillips & Sons (the ACRC contractor) will pick up containers on Friday, June 30.
- Post-harvest collection: TBD (end of September/first week of October)

### **What do I do to prepare the containers for recycling?**

- Triple rinse, remove caps, remove loose leaf labels (if possible), put in large/clear plastic bags OR string together 20-30 containers with twine – if the containers are not up to these standards, they will not be accepted.
- All non-refillable, high-density polyethylene (HDPE) plastic crop protection and specialty pesticide product containers in sizes up to and including 55 gallons are accepted.

Questions? Contact Lauren Silver ([lsilver@gtcd.org](mailto:lsilver@gtcd.org)) or Lizzy Freed ([lfreed@gtcd.org](mailto:lfreed@gtcd.org)) at the Grand Traverse Conservation District. Ph: 231-941-0960

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## **Black Stem Borer Information Needed**

The black stem borer, *Xylosandrus germanus*, is a small (2mm) ambrosia beetle that has been causing more problems in apple plantings than in past years. In fact, we have seen

more issues with this pest in 2017 than other years combined. Black stem borer adults most commonly attack stressed trees, and growers may not notice these small beetles/infestations until the trees start to collapse. These beetles often attack trees on the orchard edge, commonly near woodlots; however, this spring, we have detected infested trees in the orchard middles or far from the orchard perimeter.

Signs of black stem borer infestation is initially difficult to detect, but growers can look for tiny entrance holes (1mm in diameter), sawdust “toothpicks” protruding from the holes, dark discoloration on the bark, oozing sap and dry, blistered bark. The dark bark is the most visible sign, and once this discoloration is detected, growers can examine the trees more carefully to look for the small entrance holes.

Additionally, there is a monitoring protocol that some consultants have been using to detect black stem borer emergence and activity. We remind those who are trapping for the beetles that the traps baited with ethanol or spirits are not specific to black stem borer and that many different beetles including black stem borer look-a-likes could be present in the traps. Because the beetles are so small, positive identification can be difficult. Hence, scouting orchards for symptoms such as entry holes, toothpicks, etc. as well as the beetles inside of the tree should be used in conjunction with monitoring devices to determine the level of trees infested with black stem borer.

There are many hypotheses as to why we are seeing a higher number of infested orchards this season than in past years. First, ash trees have been declining due to emerald ash borer, and once these trees die, opportunistic insects that infest stressed trees may be looking for new hosts. We have had a few hard winters in recent years, and trees may be stressed as a result of these prolonged cold temperatures. Additionally, any type of tree stress seems to increase stem borer activity: drought stress, too much water, less than optimal fertilization programs, or a combination of many of these stresses. Lastly, we are planting more high-density apple blocks today than in the past, and perhaps, we are just noticing an increased number of stem borer simply because there are more trees planted on dwarfing rootstocks, which are more susceptible to mortality due to their size.

We are trying to learn more about this pest and its impacts across the region. If your farm has had problems with black stem borer, please contact Nikki, Emily, and/or Jenn at the NWMHRC (231-946-1510. rothwel3@msu.edu, pochubay@msu.edu, or goodr100@anr.msu.edu). We would like to know the age of the trees, the age when the trees became infested, the nursery, location of the block(s), rootstock, and variety. We will compile this information to see if there are areas of overlap between infested sites. Thank you for your help!

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**Clarifications on Worker Protection Standards:**

# Central Posting for Pesticide Application Information versus Decontamination Station Requirements for Agricultural Workers

Eric McCumber, MDARD

Emily Pochubay and Nikki Rothwell, MSU Extension

Both MDARD and MSU have received recent questions about the requirements to display pesticide application information at a central posting area. Growers also have questions about what should be included at designated decontamination stations. This article is intended to clarify such questions because we have heard misinformation that pesticide application information should be posted within a ¼ mile of where agricultural workers are working in a treated block—this type of posting is *not* required to meet WPS regulations. This confusion may be related to regulations for decontamination stations; according to WPS, **decontamination stations** are required with ¼ mile from where agricultural workers will be working during the REI or for 30 days thereafter of the application of a WPS-labeled pesticide. Although we will cover the key points for these two issues in this article, more detailed information can be found in the How To Comply Manual (HTCM) at [www.pesticideresources.org](http://www.pesticideresources.org). In the HTCM, central posting location information is on page 21 and decontamination station information can be found on page 48. The information presented below is relevant to agricultural employers of agricultural workers. Supplies needed for handlers' decontamination sites are different and we encourage employers and handlers to review this information as needed (page 74-75 of the HTCM).

## Central Posting

**Central posting locations** serve as the hub for pesticide application information, and this central posting location is the *only* location on the farm that is required to contain the information outlined below. *According to MDARD, central posting locations* are areas where all farm employees can find any information related to pesticide applications. If a WPS-labeled pesticide has been applied, or if a restricted-entry interval (REI) has been in effect within the past 30 days, then the agricultural employer must display the required information (see below) at a central posting location whenever any agricultural worker is on the agricultural establishment. The location of the central posting is determined by the agricultural employer, but it should be placed in a location where employees congregate such as the workshop, office, break room, or an area where they check in for work. Agricultural workers must be informed where the designated central posting location is located and must be allowed unrestricted access to the posted information during employment hours.

Agricultural producers are required to display at the central posting area the following information. Again, agricultural workers must have unimpeded access to the information during work hours.

- **Pesticide application information including:**

- ✓ Brand name of the pesticide(s) applied.
  - ✓ Active ingredient(s).
  - ✓ EPA Reg. No.
  - ✓ REI.
  - ✓ Crop/site treated.
  - ✓ Location and description of treated area(s).
  - ✓ Date(s) and time(s) application started and ended.
- **Safety Data Sheets (SDS)** for each pesticide product.
  - **Pesticide Safety Information.** Prior to the updated WPS, this information was required to be displayed in a poster format (known as pesticide safety poster). Agricultural employers are no longer required to display a poster, but must provide information about certain WPS safety concepts-about preventing pesticides from entering the body. The required 7 safety concepts include:
    - ✓ Avoid getting pesticides on your skin or into your body. Pesticides may be on plants, soil, irrigation water, equipment, or may drift from nearby applications.
    - ✓ Wash before eating, drinking, using chewing gum or tobacco, or using the toilet.
    - ✓ Wear work clothing that protects your body from pesticides, such as long-sleeved shirts, long pants, shoes, socks, and a hat or scarf.
    - ✓ Wash or shower with soap and water, shampoo hair and put on clean clothes after work.
    - ✓ Wash work clothes separately from other clothes before wearing them again.
    - ✓ If your body is contaminated by pesticides wash immediately, and as soon as possible, wash or shower with soap and water and change into clean clothing.
    - ✓ Follow directions about keeping out of treated or restricted areas.

In addition, the updated safety information that will be required in the future must include:

- ✓ Instructions for seeking medical attention as soon as possible after being poisoned, injured or made ill by pesticides.
- ✓ Name, address and telephone number of state or tribal pesticide regulatory authority. In Michigan, the agency is the Michigan Department of Agriculture and Rural Development, 525 West Allegan Street, P.O. Box 30017, Lansing, MI. The phone number is 800-292-3939.
- ✓ If pesticides are spilled or sprayed on the body use decontamination supplies to wash immediately, or rinse off in the nearest clean water, including springs, streams, lakes or other sources if more readily available

than decontamination supplies, and as soon as possible, wash or shower with soap and water, shampoo hair, and change into clean clothes.

- ✓ Follow directions about keeping out of treated areas and application exclusion zones.
- ✓ The term “emergency medical facility” should be revised to “a nearby operating medical care facility.” Include name, address, and telephone number for the medical facility. This information should be clearly identified as emergency medical contact information on the display.
- ✓ The point that there are federal rules to protect workers and handlers is self-evident and is no longer required to be part of the safety information

**NOTE:** The updated pesticide safety information content is not required until 1/4/18, but employers can begin using the updated version immediately. Details are shown on page 23 of the How To Comply Manual. The EPA is in the process of developing a poster version of the pesticide safety information.

Agricultural producers are only required to have *one central posting area*, but must provide unrestricted access to agricultural workers during work hours. It can be impractical for farms that are many miles apart to give unrestricted access, so agricultural producers may set up different central posting areas for distinctly different farm locations at their discretion. Agricultural employers may also provide the central posting information electronically, as long as content, accessibility, display, legibility, location, and retention requirements are met. Employers would need to ensure that agricultural workers have access to the information, such as through a smart phone or dedicated computer, and are instructed in how to access the information.

#### Decontamination sites

Agricultural employers must make sure that decontamination supplies are provided to workers doing tasks that involved contact with anything that has been treated with the pesticide including soil, water, or plants in a pesticide-treated area where, within the last 30 days, a WPS-labeled pesticide product has been used or a REI for such pesticide has been in effect.

Decontamination supplies that must be provided include:

- ✓ Water – the employer must provide at least 1 gal of water per worker at the beginning of the work period and at a quality and temperature that will not cause injury or illness if it contacts skin or eyes, or is swallowed.
- ✓ An adequate supply of soap and single use towels. Hand sanitizers or wet towelettes *do not* meet the requirement for soap or towels.

#### Duration of the Decontamination Site

If the REI of an applied pesticide is greater than 4 hours, decontamination supplies must be provided until 30 days after the end of the REI expires. If the REI is less than 4 hours, decontamination supplies must be provided until 7 days after the REI expires.

#### Location of Decontamination Sites

All decontamination supplies for agricultural workers must be located together and be reasonably accessible to where the workers are working (generally within  $\frac{1}{4}$  miles of the workers) and be outside of any treated area or an area under a REI. For worker tasks performed more than  $\frac{1}{4}$  mile from the nearest point reachable by vehicles or more than  $\frac{1}{4}$  mile from a non-treated area, the decontamination supplies may be at the nearest vehicular access point outside any treated area or area under REI (page 48 of the HTCM).

Remember that in addition, the Pesticide Safety Information (formerly referred to as the Pesticide Safety Poster) must be displayed at any permanent decontamination site, or any decontamination site that services 11 or more workers (page 21, HTCM).

In summary, central posting locations are the main hub for pesticide application information, and the information that must be displayed at the central posting locations is not required in other agricultural areas (i.e.  $\frac{1}{4}$  mile from workers working in treated fields, or at decontamination stations). It is the responsibility of the employer to train employees on how and where to access the central posting information. Although not required, some growers may choose to provide additional pesticide application information to their workers by having additional posting sites or virtual access to this information. Potable water, and an adequate supply of soap and single use towels, and possibly pesticide safety information (if the decontamination site is a permanent location or services more than 11 workers) must be provided at decontamination

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## 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>).

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#### **WEB SITES OF INTEREST:**

Farmer to Farmer - Connecting Farmers, Cultivating Community  
<http://www.f2fmi.com>

Insect and disease predictive information is available at:  
<http://enviroweather.msu.edu/homeMap.php>

This issue and past issues of the weekly FruitNet report are posted on our website:  
[http://www.canr.msu.edu/nwmihort/nwmihort\\_northern\\_michigan\\_fruit\\_net](http://www.canr.msu.edu/nwmihort/nwmihort_northern_michigan_fruit_net)

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

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

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

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