

Northern Michigan FruitNet 2013 Northwest Michigan Horticultural Research Center

Weekly Update

July 16, 2013

CALENDAR OF EVENTS

- 7/16-18** **MSU Ag Expo**
<http://agexpo.msu.edu/schedule>
- 7/22** **Parallel 45/MSUE Viticulture Update**
Winery sanitation workshop
L. Mawby Vineyard
- 7/31** **SW Viticulture Field Day**
SWMREC – Benton Harbor
- 8/2** **Parallel 45/MSUE Viticulture Update**
Ground Cover Management/Cover Crops with Dr. Matt Grieshop
Chateau Chantal – Old Mission
- 8/7** **Hop Production 201 – Beyond the Basics Workshop**
SWMREC
- 8/9** **Hops Field Day & Tour**
- 8/22** **NWMHRC Open House**
- 8/22** **Parallel 45/MSUE Viticulture Update**

New wine cultivars with Dr. Paolo Sabbatini
NWMHRC
- 8/27** **Peach and Plum Variety Showcase**
SWMREC, Benton Harbor

GROWING DEGREE DAY ACCUMULATIONS AS OF July 15 AT THE NWMHRC

Year	2013	2012	2011	2010	2009	2008	23yr. Avg.
GDD42	1741	2235	1644	2065	1540	1624	1752.7
GDD50	1129	1452	1011	1291	885	976	1080.8

Growth Stages at NWMHRC (July 15, 2:00 p.m.)

Apple: Red Delicious – 47 mm

Gala – 42 mm

Yellow Delicious – 41 mm

Pear: Bartlett: 32 mm

Sweet Cherry: Hedelfingen: 21 mm

Napoleon: Harvested

Gold: 22 mm

Tart Cherry: 20 mm

Balaton: 19 mm

Apricot: 28 mm

Grapes: Buckshot berry

Northwest Michigan Regional Report

N.L. Rothwell, NWMHRC

Hot weather moves into the region just in time for cherry harvest

Daytime temperatures have been hovering in the high 70s and into the 80s for the past week and a half, just as most growers are starting to harvest sweet cherries across the region. Temperatures are even predicted to reach into the 90s this week. Harvesting in this very hot weather is not ideal, but growers have little choice other than to keep the shaker moving. Ethephon sprays will be going on tart cherries, but most growers will wait for temperatures to cool or reduce the rates to prevent heat-related phytotoxicity. Despite the rainfall last Sunday night, the region is extremely dry. However, this dry weather is welcome as we move through sweet cherry harvest. Fungal diseases have also been held at bay with the warm and dry weather. So far this season, we have accumulated 1741GDD base 42 and 1129GDD base 50.

Apple. There is a little **scab** out in the orchards, but the warm and dry weather has helped minimize this disease's spread. Some growers that had some leaf scab are spraying to keep the fruit clean until harvest. Apple pest trap catches are low this week except for **spotted**

tentiform leaf miners, which have jumped up since last week. **Mite** numbers are also increasing with this hot and dry weather. Thinning sprays were effective, and many blocks have a good amount of fruit. Fruit is sizing, but rain is needed.

Cherry. Cherry leaf spot development has been slowed with the recent dry conditions. Even the untreated control trees in our efficacy trial look better than in most years. **Powdery mildew** is not hard to find in many blocks, especially on new growth. Cherry pest numbers are also low. **American plum borer** moth catch was up from last week, likely the start of the summer generation flight. **Lesser and greater peach tree borer** counts are both relatively low with average of ~4 moths/trap. **Obliquebanded leafroller** (OBLR) numbers also dropped off this week, and likely those eggs that were laid at peak flight have hatched and larvae are present in the orchard. Growers need to be sure to control these pests as we move into harvest; OBLR are a contaminant pest of cherry and drop into tanks during the shaking process. OBLR have developed resistance to the organophosphates, so an insecticide that specifically targets Lepidopteran pests is needed in the spray tank. Growers need to be sure to check the pre-harvest intervals on these insecticides as we near harvest. **Cherry fruit fly** numbers are down here at the NWMHRC, but regional consultants have caught CFF in numbers similar to last week. Fruit needs to be protected against this pest through harvest. Post harvest sprays will also reduce populations for 2014. **Mite** populations are building in cherry, and again, this dry weather is contributing to the increases in mite numbers. We have not seen any firing in tart cherry with these hot and dry conditions. No **spotted wing drosophila** (SWD) have been trapped in northwest Michigan in 60+ traps.

Wine Grapes

Duke Elsner, Grand Traverse County MSUE

Shoot growth and leaf area have increased rapidly in area vineyards. Canopy density is going to be an issue from here on out, requiring attention to hedging and/or removal of laterals in the fruiting zone to provide for air and light penetration to the clusters.

Despite high humidity that favors **powdery mildew** development, this disease is still a relatively minor problem at most sites I visited in the last week. It is very important to scout known powdery mildew hot spots frequently now to keep on top of this disease.

Rose chafers lasted much longer than usual this year, but they appear to finally be done with their adult activity. **Potato leafhopper** numbers are still low.

The next MSUE/Parallel 45 grower meeting will be held **Friday, August 2, 3-5 p.m. at Chateau Chantal** on Old Mission Peninsula. The topic will be ground cover management strategies, featuring Matt Grieshop and Brad Baughman from MSU. Recertification credits have been requested for this program.

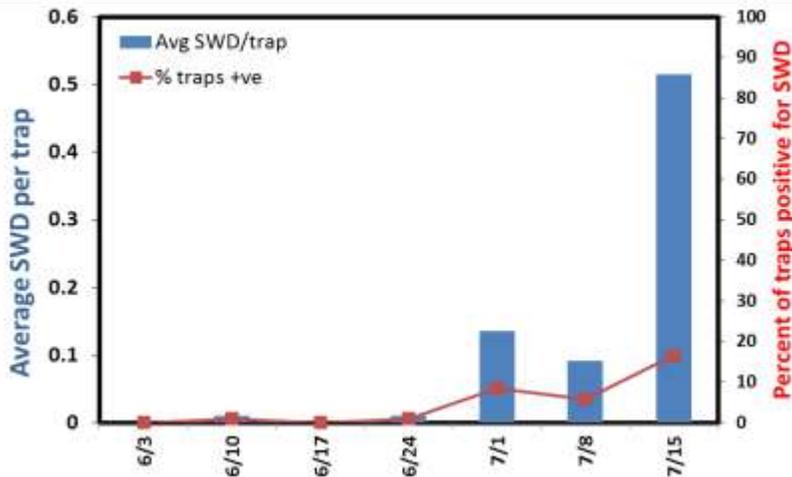
MICHIGAN SWD REPORT FOR JULY 16, 2013

Spotted wing drosophila catches increase slightly in southwest Michigan

Nikki Rothwell, Karen Powers, and Statewide SWD Monitoring Team

Although overall spotted wing drosophila (SWD) numbers remain quite low throughout the state, we have seen an increase in trap catch in southwest Michigan. Most SWD caught this week were reported in farms producing small fruits: strawberries, raspberries, grapes, and blueberries. We saw an increased catch in Berrien County in a tree line next to a cherry and raspberry farm, where we trapped six females and two males. Also in Berrien County, we trapped two females in a wood edge in blueberry, one female in high tunnel strawberry, and two male and one female at a strawberry/grape operation, and two females at a vineyard edge. In Van Buren County, we trapped one SWD in raspberries in high tunnels. We trapped 23 SWD at farms in Allegan County over the past week: three SWD in raspberry, one fly in Niagara grape, and the remaining flies were trapped in or around blueberry fields. These numbers somewhat reflect the intensity of trapping in the different crops. However, we do have an extensive trapping system in tart and sweet cherry across the state. Six SWD were trapped in blueberry fields in Ottawa County. Overall, we are catching 0.41 flies/trap and 16.5% of all the traps in the state are catching flies, which is an increase from last week's average catch of 0.91 flies per trap and 5.8% positive traps.

As raspberry and blueberry harvest is underway throughout the state, growers need to be sure to keep this fruit protected through harvest. Growers should make their decisions to spray based on the presence of SWD flies and ripening or ripe fruit that are susceptible, plus the history of pest management inputs to each field. A monitoring program in these crops is recommended throughout the harvest season. Cherries are another crop at high risk from SWD infestation, and tart cherry harvest is ongoing in southwest and west central Michigan, and sweet cherry harvest has started in the north. From preliminary tests conducted at MSU, ripening and coloring sweet and tart cherry fruits are susceptible to SWD infestation. In the last two weeks, we have detected two SWD in tart cherry orchards—one fly in southwest and a second fly in west central Michigan. No SWD have been found in 60+ traps in northwest Michigan yet this season.



CHERRY FRUIT FLY MANAGEMENT STRATEGIES

Now is the time for growers to protect fruit from cherry fruit flies.

Posted on **July 9, 2013, MSUE News**, by **John Wise**, Michigan State University Extension, Department of Entomology; Nikki Rothwell, Michigan State University Extension; and Larry Gut, Michigan State University Extension, Department of Entomology

Much of the Michigan fruit growing region has had above normal precipitation and moderate temperatures over the growing season. Cherry fruit fly emergence, although delayed, is well underway now. Solid catches of cherry fruit fly adults on sticky traps have been detected at the [Trevor Nichols Research Center](#) in Fennville, Mich., over the last two weeks, thus female flies are beginning to deposit eggs in fruit.

Control of cherry fruit flies has been traditionally achieved with organophosphate (OP) insecticides, like Guthion and Imidan (phytotoxic on sweet cherries), but some label or processor restrictions may limit their use near harvest. Carbamate and synthetic pyrethroid compounds like Sevin and Asana 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 new reduced-risk and OP-replacement insecticide products that include cherry fruit flies on their labels. The neonicotinoids Actara, Provado/Admire, Calypso and Assail are labeled for cherry fruit fly control. All three have performed well against cherry fruit flies in small plot field-performance trials. The Spinosyn compounds Delegate and Delegate are active on cherry fruit flies, but their need for ingestion by adult flies requires excellent spray coverage. Rimon has shown good sub-lethal activity on cherry fruit flies, such that when adult flies contact foliar residues, subsequent eggs that are laid in fruit are non-viable.

GF120 NF Fruit Fly Bait (spinosad) is registered on pome fruits for control of cherry fruit flies and is listed by the [Organic Materials Review Institute](#) (OMRI) for use in organic production. Because the primary route of entry is through ingestion, applying this product during the fruit fly pre-oviposition period is important for optimal performance. GF120 must be applied with specialized equipment, and is designed for low-volume application. The bait is not rainfast and should be re-applied after rain or heavy dew.

The pre-mix insecticides Voliam flexi and Leverage are also labeled for cherry fruit fly control. Voliam flexi combines the two active ingredients, thiamethoxam and chlorantraniliprole, as a pre-mix formulated compound. Leverage combines the two active ingredients, imidacloprid and cyfluthrin as a pre-mix formulated compound.

As a final management note from [Michigan State University Extension](#), having fly populations infesting fruit that remain on the tree after harvest may be problematic because resident populations represent a source of infestation the following year. Growers with known high fly captures or fruit infestation post-harvest should consider applying an insecticide at this time to combat the resident populations and maintain them at such a low level that the threat of infestation prior to harvest is negligible. Our initial work on post-harvest cherry fruit fly treatments has indicated that the critical time to apply an insecticide is within the first week after harvest.

Summary of insecticides for cherry fruit fly control

Compound trade name	Chemical class	Residual activity	Effectiveness rating**	Effectiveness on SWD***	PHI (days)
Imidan	Organophosphate	14+ days	E	E	7
Sevin	Carbamate	4-5 days	F-G	-	3
Asana, Warrior, Danitol, Baythroid Mustang Max	Pyrethroid	7-10 days	F-G	G-E	3-14
Delegate	Spinosyn	7-10 days	G	E	7
Entrust*			F	E	
Assail, Actara, Provado, Admire Calypso	Neonicotinoid	10-14 days	G	G (curative activity)	7-14

Altacor	Diamide	10-14 days	G	-	10
Rimon	Insect Growth Regulator	10-14 days	G	G (sub-lethal activity)	8
Voliam flexi	Neonicotinoid and Diamides	10-14 days	E	G	14
Leverage	Neonicotinoid and Pyrethroid	10-14 days	G	-	7

***OMRI-approved for organic production**

****Effectiveness rating of insecticides ([2013 Fruit Management Guide E154](#)); E – excellent, G – good, F – fair**

*****SWD – spotted wing Drosophila**

This article was published by [Michigan State University Extension](#). For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

IMIDACLOPID LABELS NEED TO BE READ CLOSELY PRIOR TO APPLICATION

Nikki Rothwell and Elise Carolan, NWMHRC
John Wise, TNRC and Dept. of Entomology, MSU

Multiple insecticide products contain the active ingredient imidacloprid, and cherry growers should pay close attention to the label before applying these insecticides close to harvest.

The original imidacloprid trade material labeled for tree fruit use was Provado, but since this patent has expired, the active ingredient, imidacloprid, is now sold under many trade names. Growers need to be sure to thoroughly read the labels of these products for pre-harvest use for four important reasons: 1) the pre-harvest (PHIs) intervals vary, 2) the PHIs vary with the method of insecticide application, 3) the use rate is different for different products, and 4) tree fruits are not listed on all labels of products that contain imidacloprid.

First, the PHIs of the different products vary, and since this insecticide is often used later in the season, particularly in cherry to target cherry fruit fly (CFF), growers need to be sure they are applying these insecticides in accordance with the labeled PHI for each individual product. For example, Admire Pro has a 0 day PHI for stone fruits (peach, apricot, and nectarine) but a 7 day PHI for stone fruits (cherry, plums, plumcot, and prune). Secondly, the methods of insecticide

application have different PHIs. If imidacloprid is soil applied, which is allowed in stone fruits, the PHI is 21 days rather than 7 days when imidacloprid is applied to the foliage.

The third reason to pay close attention to the imidacloprid labels is that the different imidacloprid products have different amounts of active ingredient, thus different use rates. Growers should read the label to ensure they are putting out enough of the active ingredient to control the targeted pest. For example, Imidacloprid 2F contains 22.6% of the active ingredient imidacloprid while Admire Pro contains 42.8% imidacloprid. Provado 1.6F contains 17.4% imidacloprid and the Provado Solupak contains 75% the active ingredient. Growers will have to know the amount of active ingredient in each product and adjust accordingly to apply at the recommended rate. Too little active ingredient may result in lack of control and potential larvae in fruit.

Lastly, growers need to be aware that some imidacloprid products are not labeled for tree fruits. Imidacloprid 4F (EPA #: 66222-156) is labeled primarily for cotton, according to the CDMS website (www.cdms.net). We could have an incident where a grower applies this product for CFF control, likely not realizing that this particular imidacloprid product is not labeled in cherry. Unfortunately, because cherry is not on the label for this specific product, it is technically illegal to use this product in cherry. However, in terms of residue testing for maximum residue limits (MRLs), the detections would only show the active ingredient, not the formulation.

The recommendation to read labels before a pesticide application is not new, but with so many products on the market with similar names and/or active ingredients, reading those labels is even more important than ever.

PEACH AND PLUM VARIETY SHOWCASE

Bill Shane, District Educator, SWMREC

When: Tuesday, August 27th

Where: SW Michigan Research and Extension Center
1791 Hillandale Rd, Benton Harbor, MI

Showcase schedule:

4:00 PM Fruit variety displays open for viewing and tasting.

4:30 PM Fruit variety discussions

6:00 PM Dinner

Organized by the Michigan Peach Sponsors, Michigan Plum Advisory Board, Summit Tree Sales, and Michigan State University Extension. There is no charge. Dinner provided courtesy of Summit Tree Sales.

Attendees are welcome to bring samples of new, unusual, and experimental peaches and plums varieties to show. You are welcome to take a self-guided tour of the SW Research and Extension Center to see over 60 projects on fruit and vegetables including high tunnel production, peach training systems, variety trials, and peach breeding.

For further information contact: Bill Shane, Senior Extension Specialist, 1791 Hillandale Rd, Benton Harbor, MI 49022. Office: [269-944-1477 x205](tel:269-944-1477), cell: [269-208-1652](tel:269-208-1652), email: shane@msu.edu.

MICHIGAN HOP UPDATE – July 12, 2013

Potato leafhopper populations have increased and feeding damage is becoming more visible. Downy mildew continues in Michigan hopyards and growers should apply protectant sprays to minimize infections when weather conditions favor disease.

Posted on **July 12, 2013, MSUE News**, by **Erin Lizotte**, Michigan State University Extension

So far this season, the [Benton Harbor Enviro-weather station](#) has accumulated 1,234 GDD50 with 0.05 inches rain over the past week; the [Clarksville Enviro-weather station](#) has recorded 1,114 GDD50 and 0.32 inches of rain this past week; and the [Northwest Michigan Horticultural Research Center](#) accumulated 996 GDD50 with 0.57 inches of rain over the last week.



Symptoms of leafhopper burn on Summit in northwest Michigan on July 10, 2013.
Photo credit: Erin Lizotte, MSU Extension

Downy mildew remains the major concern for Michigan growers right now, with early initial infections continuing to fuel significant outbreaks in some hopyards. Downy mildew is caused by *Pseudoperonospora humuli* and can cause significant yield and quality losses depending on

variety and when infection becomes established. It is important that growers do not mistake downy mildew for powdery mildew (see photos below for clarification) as the effective pesticide classes are completely different. Powdery mildew has not been confirmed in Michigan and is caused by *Podosphaera macularis*, a completely different pathogen than what causes downy mildew.



Left The variety Centennial with downy mildew infections sporulating on the underside of the leaf. Photo credit: Erin Lizotte, MSU Extension. **Right** Powdery mildew on hop. Photo credit: David Gent, USDA Agricultural Research Service, Bugwood.org

Typically, downy mildew appears early in the season on the emerging basal spikes. Spikes then appear stunted, brittle and distorted. Asexual spore masses appear fuzzy and black on the underside of infected leaves. As bines continue to expand, new tissue becomes infected and bines fail to climb the string. Growers can retrain new shoots, but often incur yield loss as a result.

This season, symptoms have appeared more readily on expanded leaves as small, angular lesions that are yellow and chlorotic in appearance. These small lesions expand over time and eventually sporulate on the underside of leaves when warm and moist conditions occur. According to "[A Field Guide for Integrated Pest Management in Hops](#)," infection is favored by mild to warm temperatures (60 to 70 degrees Fahrenheit) when free moisture is present for at least 1.5 hours, although leaf infection can occur at temperatures as low as 41 F when wetness persists for 24 hours or longer. At this point in the season, we are also seeing stunting and wilt of terminal portions of the bine.

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

Cultural practices alone are not enough to manage downy mildew. Protectant fungicide strategies are particularly important during the year of planting to minimize crown infection and limit disease levels in the future. Well-timed fungicide applications just after the first spikes

emerge and before pruning have been shown to significantly improve infection levels season long. Subsequent fungicide applications should be made in response to environmental conditions that favor disease (temperatures above 41 F and wetting events). Fungicides containing copper, boscalid, pyraclostrobin, phosphorous acids and a number of biopesticides have varying activity against downy mildew.

For organic growers, [OMRI](#)-approved copper formulations are the most effective. Sulfur is not an effective downy mildew material. Again, we have not documented powdery mildew in Michigan yet, but given the experiences of hop growers around the United States, growers should keep an eye out for this potentially significant pathogen. Look for an upcoming [Michigan State University Extension](#) article on the difference between downy and powdery mildew.

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

Growers should also carefully monitor their hops for **potato leafhopper** populations as significant populations are being observed. Potato leafhoppers move in all directions when disturbed, unlike some leafhoppers that have a distinct pattern of movement. Right now the adults and nymphs appear a fluorescent green color. Some very small nymphs are actually clear, but have the characteristic shape of the larger nymphs when viewed using a hand lens.

Potato leafhoppers can't survive Michigan's winter and survive in the Gulf States until adults migrate north in the spring on storm systems. Although hop plants are susceptible to potato leafhoppers, they can tolerate some level of feeding and growers should be conservative in the application of insecticides. At this time, there is no set economic threshold for potato leafhoppers in hops; however, some hopyards are seeing significant damage from potato leafhoppers at this time.

Potato leafhoppers causes what growers have termed "hopper burn," which causes necrosis of the leaf margin in a v-shaped pattern and may cause a yellowed or stunted appearance as well. The easiest way to observe potato leafhoppers is by flipping the shoots or leaves over and looking for adults and nymphs on the underside of leaves.



Multiple nymph stages of potato leafhopper and the associated hopper burn symptoms around the leaf margin. Note that leafhoppers can be very small and clear at some leaf stages. Photo credit: Erin Lizotte, MSU Extension

Growers needing to treat for potato leafhoppers can utilize products containing neonicotinoids, pyrethroids, organophosphates or spinosyns. Organic growers can utilize Entrust (spinosad) or Pyganic (pyrethrin) formulations that are [OMRI](#)-approved for potato leafhopper management.

As temperatures remain warm and the weather dries out for the summer, growers should remain vigilant in scouting for **two-spotted spider mites** which are being reported at densities of around two mites per leaf in southern hop yards, but have yet to be observed in significant numbers in the north. Two-spotted spider mites are a significant pest of hops in Michigan and can cause complete economic crop loss when high numbers occur by decreasing the photosynthetic ability of the leaves and causing direct mechanical damage to the hop cones.

Two-spotted spider mites feed on the liquid in plant cells eventually causing visible symptoms. Leaves take on a white appearance and will eventually defoliate under high pressure conditions. Intense infestations weaken the plant and reduce yield and quality. Infested cones develop a reddish discoloration, do not hold up to the drying process, and commonly have lower alpha levels and shorter storage potential. Additionally, the mites themselves act as a contaminate issue for brewers.

Two-spotted spider mite like it hot, with the pace of development increasing until an upper threshold around 100 F is reached. Conversely, cold and wet weather is not conducive to development which may explain the low pressure thus far this season.

Two-spotted spider mites are very small, but can be observed on the underside of leaves using a hand lens. The eggs look like tiny, clear spheres and are most commonly found in close proximity to adults and larvae. The larvae themselves are small, translucent versions of the adults, which begin the season with a distinctly orange hue that changes over to translucent, yellow or green as they feed. Adults also have two dark spots.

When you are observing the underside of leaves, keep an eye out for beneficial, predatory mites that actually feed on two-spotted spider mites. Predatory mites are often translucent, larger than two-spotted spider mites and move at a much faster speed across the leaf surface. Predatory

mites play an important role in balancing the two-spotted spider mite population and should be protected when possible.

Growers should be scouting for mites now and remember that only when mites reach an economically significant level should cultural and chemical intervention be considered. Scouts should take leaf samples from 3 to 6 feet up the bine; as the season progresses, samples should be taken from higher on the bine as the mites migrate upward. Use a hand lens to evaluate two leaves from 20 plants per yard. Thresholds developed in the Pacific Northwest have established that more than two adult mites per leaf in June indicate the need to implement a pest management strategy. By mid-July, the threshold increases to five to 10 mites per leaf. Remember that if cones are not infested, hop plants can tolerate a good deal of damage from mites.

Hop **aphids** are also being observed at levels well below the eight to 10 per leaf threshold established in the eastern United States. Hop aphids can reduce plant productivity and excrete “honeydew” which makes an excellent growth medium for sooty mold and can greatly reduce the quality and salability of a crop. Symptoms of hop aphid feeding include leaf cupping and the appearance of honeydew – a sugary frass – and the associated black sooty mold.

Hop aphids overwinter as eggs on [Prunus species](#). In early spring, eggs hatch into stem mothers that give birth to wingless females that feed on the Prunus host. In May, winged females are produced and travel to hop plants where additional generations of wingless females are produced. As cold weather approaches, winged females and males are produced, move back onto a Prunus host, mate and lay eggs before winter.



Wingless hop aphid on the underside of a hop leaf. Photo credit: Erin Lizotte, MSU Extension

Control before the flowering stage is important to protect crop quality when populations are high. Insecticides containing neem (some of which are organic), neonicotinoids including products containing imidacloprid or thiamethoxam, flonicamid (labeled as Beleaf) or spirotetramat (labeled as Movento) all have activity against hop aphid.

Rose chafer adult activity has finally subsided, but **Japanese beetles** have begun to arrive and feed at low levels in southern Michigan hopyards. Look for more information regarding Japanese beetle in next week’s report.

This article was published by [Michigan State University Extension](http://www.msue.msu.edu). For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

MICHIGAN CHESTNUT UPDATE – July 12, 2013

Potato leafhopper numbers continue to expand in untreated Michigan chestnut orchards and pollen has filled the air in northwest Michigan orchards.

Posted on **July 12, 2013** by **Erin Lizotte**, Michigan State University Extension, and Mario Mandujano and Dennis Fulbright, Michigan State University Extension, Department of Plant, Soil and Microbial Sciences

So far this season, the [East Lansing Enviro-weather station](#) has accumulated 1,192 GDD50 with 1.57 inches rain over the past week; the [Clarksville Enviro-weather station](#) has recorded 1,114 GDD50 and 0.32 inches of rain this past week; and the [Northwest Michigan Horticultural Research Center](#) accumulated 996 GDD50 with 0.57 inches of rain over the last week. Northwest Michigan [chestnut](#) orchards are shedding pollen.



Catkins shedding pollen on July 10, 2013. Photo credit: Erin Lizotte, MSU Extension

All life stages of [potato leafhoppers](#) are being observed in significant numbers across the state. Like many plants, chestnuts are sensitive to the saliva of potato leafhopper, which is injected by the insect while feeding. Damage to leaf tissue can cause reduced photosynthesis which can impact production and quality, and damage the tree. Most injury occurs on new tissue on shoot terminals with potato leafhoppers feeding near the edges of the leaves using piercing-sucking mouthparts. Symptoms of feeding are becoming visible in orchards with high pressure. Heavily damaged leaves are cupped with necrotic and chlorotic edges and eventually fall from the tree. Severely infested shoots produce small, bunched leaves with reduced photosynthetic capacity.

Adult leafhoppers are pale to bright green and about 1/8 inch long. Adults are easily noticeable, jumping, flying or running when agitated. The nymphs (immature leafhoppers) are pale green and have no wings, but are very similar in form to the adults. Growers should also walk through their orchards, flipping over leaves and looking for adult potato leafhoppers and nymphs.

The most common classes of insecticides recommended for control of potato leafhoppers include the pyrethroids, carbamates, neonicotinoids and organophosphates. See the additional [Michigan State University Extension](#) article "[Potato leafhopper management in chestnuts](#)" for more information. Remember, even growers who believe they may have experienced crop losses due to the frost and freeze events this spring will still need to treat for potato leafhoppers to maintain tree health.



Left, Wingless potato leafhopper nymphs on the back of a chestnut leaf. Photo credit: Mario Mandujano, MSU.

Right, Symptoms of potato leafhopper feeding. Photo credit: Erin Lizotte, MSU Extension

Rose chafer adult activity has finally subsided for the season. Some growers experienced high levels of this generalist pest this season.

Unfortunately, just as rose chafer subsides, the first reports of [Japanese beetle](#) feeding and mating in orchards are beginning to trickle in. Japanese beetle adults are also considered a generalist pest and affect many crops found on or near grassy areas, particularly irrigated turf. Japanese beetle grubs feed on grass roots in early spring and again in the fall and can cause significant damage to turf. Larvae prefer moist soil conditions and do not survive prolonged periods of drought. Given the intense dry season Michigan experienced in 2012, we are not surprised to see lower Japanese beetle populations so far in 2013.

Adult Japanese beetles emerge in early July and feed on the top surface of leaves skeletonizing the tissue. If populations are high, they can remove all of the green leaf material from a plant. Japanese beetle adults measure 0.375 to 0.5 inches long with a green thorax and copper-colored wing covers. There are five tufts of white hairs on both sides of the abdomen and a pair of tufts on the end of the abdomen that can help distinguish them from other look-alike species.

Visual observation of adults or feeding damage is an effective scouting technique. Growers should scout along a transect through orchards at least weekly until detection, paying special

attention to the tops of trees. Because of their aggregating behavior, they tend to be found in larger groups and are typically relatively easy to spot.



Japanese beetles mating. Chestnut leaves show typical feeding damage.

Photo credit: Mario Mandujano, MSU

There are no established treatment thresholds or data on how much Japanese beetle damage a healthy chestnut tree can sustain, but growers should consider that well-established and vigorous orchards will likely not require 100 percent protection. Carbamate (carbaryl) insecticides can provide immediate knockdown and seven days of residual activity against Japanese beetle adults. Organophosphates (Malathion and phosmet) can take longer to take effect (up to three 3 days), but provides 10 to 14 days of residual control.

Pyrethroids (bifenthrin, beta-cyfluthrin, cyfluthrin, gamma-cyhalothrin, lambda-cyhalothrin, pyrethrins, zeta-cypermethrin, deltamethrin and fenprothrin) have good knockdown activity and seven to 10 days of residual control, but can be a concern in orchards where mites are a problem. Pyrethroid use has been shown to flare mite populations as a result of its toxicity to beneficial predatory mites.

Neonicotinoids (imidacloprid, thiamethoxam, acetamiprid and clothianidin) act initially as a contact poison for two to five days, and then have a longer residual period of plant protection during which they have anti-feedant effects on adult beetles.

[OMRI](#)-approved organic options include neem-based products (azadirachtin) which have a one-to two-day residual and good knockdown activity as well as Surround (kaolin clay), which has had good results in blueberries and grapes and acts as a physical barrier and irritant. For more information on Japanese beetle management in chestnuts, refer to the article "[Managing Japanese beetles in Chestnut for 2013.](#)"

Beneficial predatory mites were also observed in orchards this week. As growers scout for mites, keep in mind that not all mites are created equal and be sure to determine if a mite is a pest mite, such as spider mites, or a beneficial mite before considering treatment. Predatory mites generally move much more quickly than pest mites and are an important ally in keeping pest populations low. Even a relatively small population of predatory mites is thought to significantly decrease the need for chemical control of pest mite species. So far this season

there has been very limited numbers of pest mites (two-spotted spider mites and European red mite) reported on horticultural crops around the state.

This article was published by [Michigan State University Extension](http://www.msue.msu.edu). For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

WINERY SANITATION WORKSHOP

Paul Jenkins, Grape & Wine Program, MSU

Registration is now open for the Winery Sanitation Workshop. Registration deadline is **July 18**. The workshop will be presented at two locations:

Monday, July 22 - Suttons Bay, MI

[REGISTER HERE FOR THE SUTTONS BAY WORKSHOP](#)

Wednesday, July 24 - Fennville, MI

[REGISTER HERE FOR THE FENNVILLE WORKSHOP](#)

Both workshops will run 1/2 day, from 8:30AM-12:00PM.

This is a pre-harvest workshop, designed to cover important topics that you can take back to your winery and put into practice right away.

Registration is \$49 for the first person from each winery, \$19 for each additional person from each winery. The workshop is priced to encourage all cellar staff to attend, especially those who get stuck doing fun jobs such as sanitizing winery equipment!

See **events** section of the **MSU AgBioResearch website** for flyer.

SUCCESSFUL FARM TRANSITION REQUIRES GETTING THE PAPERWORK DONE

Farms are normally a family business which makes it extra important to develop and implement an action plan to insure the farm can continue to the next generation.

Posted on **July 9, 2013, MSUE News**, by **Dennis Stein**, Michigan State University Extension

The process of transitioning a farm from one generation to the next often runs into problems when family members have not put their transition and estate matters into a written format. Getting the paperwork completed must happen prior to the death of any of the major players in the family business. Too often we procrastinate until we see that someone is slipping into poor health to get started on developing a plan and taking necessary actions. Not having a will can leave the entire family in turmoil if someone dies, divorces, becomes disabled or becomes disassociated with the family farm business.

Working with farm business management planners or qualified transition managers is often when the transition plan process begins. The details and process of a transition plan can be more complicated than one may think until you become engaged in the process. Getting the major players of the farm to the point that they realize that the entire farm family needs to get the paper work done correctly is the most important first step. So what does getting the paper work done correctly entail? This is not just one simple form but rather a combination of information and in most cases includes legal documents to provide the foundation for a smooth transition when a major event happens in the farm family.

A farm is not just a title to some real estate; rather it is often treated as a part of a farm family's tradition that is often handed down from one generation to the next. The farm may have strong ties even to those that are not currently living or working on the farm. We often have aunts, uncles and extended family members expressing the desire to see the family farm continue. [Michigan State University Extension](#) suggests that every family farm situation has just a little different set of circumstances so a "one size fits all" checklist will not fit every situation or family. Taking a practical approach often starts with building a basic understanding of the process of transitioning a farm would be a good starting point.

Step one, paperwork: The development of a will and/or the trust is necessary. If there is no paperwork, then there is no will or trust in place. If this is the case, the state of Michigan law automatically becomes the deceased's estate plan. The law requires all assets that were not jointly held with a spouse to go through the probate court system. Probate is a system where the court determines as best as it is capable of to determine the implied desires of the deceased are met for the assets that were owned. Although everyone realizes the importance and need of a will and or trust, we still find that many people are without even these basic estate planning documents. The three main parts of the will identify who will be your personal representative

(the person that will be put in charge and responsible for administrating your estate after you have passed). Secondly, the will provides an explanation of how and to whom you would like to inherit the assets of your estate. This is extremely important for family farms as providing a method or process for the farm assets to remain part of the farm can be vital to the long term viability of the farm. This is the section that often scares individuals into not taking any action to develop a will or trust and leave the future up for chance. The third component of the will gives direction as to whom you would like to care for any dependents you have at your death. This may be a minor child who will need a guardian or a family member with special needs who may require some special arrangements for long term care.

A great place to start is to review [Peace of Mind](#) which is a nice document published by the Michigan Legislature that outlines the first steps and even provides you with a simple will format to help you get started. For more information and resources you can visit the [FIRM](#) website page to review and download documents and resources related to farm transition.

This article was published by [Michigan State University Extension](#). For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

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WEBSITES OF INTEREST

Insect and disease predictive information is available at:

<http://enviroweather.msu.edu/homeMap.php>

This issue and past issues of the weekly FruitNet report are posted on our website

<http://agbioresearch.msu.edu/nwmihort/faxnet.htm>

60 Hour Forecast

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

Information on cherries is available at the new cherry website:

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

Fruit CAT Alert Reports have moved to MSU News

<http://news.msue.msu.edu>

Tart Cherry Raw Product Reports – 2013

<http://www.cherryboard.org/Week22013.pdf>