

Northern Michigan FruitNet 2013 Northwest Michigan Horticultural Research Center

Weekly Update

August 20, 2013

CALENDAR OF EVENTS

2013

- 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
- 9/5** **Senator Stabenow Roundtable on Proposed 2013 Farm**
Benzie Central Schools Auditorium
- 9/14** **Roadblocks to MAEAP Verification Workshop**
Putney Beef and Fruit
See attached for more details

2014

- 1/14-15** **NW Michigan Orchard & Vineyard Show**
Grand Traverse Resort
- 2/18-19** **2014 IPM Academy**

Growth Stages at NWMHRC (August 19, 11:30 a.m.)

Apple: Red Delicious – 56mm
 Gala – 51 mm
 Yellow Delicious – 51 mm

Pear: Bartlett: 43 mm

Grapes: Green fruit

Wine Grapes

Duke Elsner, Grand Traverse County MSUE

In general, local vineyards still look great, with a nice crop coming along. A few more cultivars have reached veraison in the variety trial at the research center, including Zweigelt, Dornfelder and a number of muscat cultivars.

Powdery mildew is now more widespread and easily found on leaves and berries of relatively susceptible cultivars. If it has not already been done, leaf pulling to open up the canopy around the clusters is very helpful for slowing the progress of powdery mildew on clusters.

Japanese beetle feeding has been minimal this year, and **potato leafhopper** injury is hard to find as well. For sites with a history of **grape berry moth** injury this is an important time to keep fruit protected.

FOLIAR TESTING FOR ASSESSING VINEYARD NUTRITION

Early veraison is the most accurate time of year for sampling grape petioles to determine vine nutrient status.

Posted on **August 13, 2013**, **MSUE News**, by **Diane Brown**, Michigan State University Extension

There is a poor relationship between soil and plant nutrient levels. In general, foliar analysis is more reliable than a soil test for judging the nutrient status of the vine. The best option is to test both the soil and the petioles and compare results to determine not only the nutrient levels in the soil, but how they are being utilized by the vines. Petiole testing can actually save growers money by allowing the application of fertilizers according to how they are utilized by the plant, instead of according to levels present in the soil.

We will soon be at veraison, which is considered to be the most accurate time of year for assessing grapevine nutrient status. Detailed information classifying the element levels in grape petioles (deficient, below normal, normal, above normal and excessive) can be found in Table 1 below.

Table 1. Specific element recommendations for grapes from petioles.

Element*	Deficient	Below normal	normal	Above normal	Excessive
Nitrogen %	0.3-0.7	0.7-0.9	0.9-1.3	1.4-2.0	2.1+
Phosphorus %	0.12	0.13-0.15	0.16-0.29	0.30-0.50	0.51+
Potassium%	0.5-1.0	1.1-1.4	1.5-2.5	2.6-4.5	4.6+
Calcium %	0.5-0.8	0.8-1.1	1.2-1.8	1.9-3.0	3.1+
Magnesium %	0.14	0.15-0.25	0.26-0.45	0.46-0.80	0.81+
Manganese (ppm)	10-24	25-30	31-150	150-700	700+
Iron (ppm)	10-20	21-30	31-50	51-200	200+
Boron (ppm)	14-19	20-25	25-50	51-100	100+
Copper (ppm)	0-2	3-4	5-15	15-30	31+
Zinc (ppm)	0-15	16-29	30-50	51-80	80+

***Values may differ among species for optimal growth. Values from leaves will vary significantly. For petioles taken between July 15th to August 15th. Source: Fertilizing Fruit Crops, Ohio State University Extension; bulletin 458**

The [University of Minnesota](http://www.umn.edu) (UMN) has a good factsheet on how to do petiole sampling in vineyards as well. Here are some suggestions from both Cornell and UMN on how to do it right. Tissue analysis should begin once the vine starts producing (usually the third year) and be repeated yearly until the yields stabilize and fertilizer needs are determined. Mature vines can be sampled every 2 to 3 years. A single sample should represent no more than 5 acres. Make note of previous cropping levels.

- For samples collected at veraison, select petioles from the most recently developed mature leaf.
- For each sample, use 25-50 typical vines.
- Be consistent. For routine sampling, collect samples at the same growth stage each year- either bloom or early veraison.
- Vines should be of the same age, variety and rootstock, growing on a relatively uniform soil of the same fertility. If these conditions are not met, divide the vineyard into uniform blocks and sample separately.
- Monitor the same areas in specific vineyards or blocks each year. Flag specific rows within a block and revisit them yearly.
- Collect 60 to 100 petioles from 2 to 3 leaves on the vine. Don't pick more than one leaf per shoot. Keep the petiole- discard the leaf blade.
- Don't collect leaves for sampling if they have disease, insect or mechanical damage.

[Cornell University](#) has a short YouTube video about how to collect petiole samples from vineyards and prepare them for the testing lab. [View the video](#) on YouTube.

Here are some of the recommendations from the video: Detach each petiole from the leaf blade immediately after picking and place in a paper bag. Label each sample and keep your own record of the following: varieties sampled; vineyard block where the samples are collected; sampling date; and conditions of vineyard. Before sending samples in for testing, allow them to dry at room temperature in a well-ventilated place until they are crisp. The petioles can be washed to remove spray residue and dust if they are dirty. Dip them in a weak detergent solution (2-3 cups of deionized water with a couple of drops of Tide, etc.) for one minute or less, then rinse with clean water one minute or less. Blot dry with paper towels or a clean dish towel and place them loosely in a paper bag to dry.

References:

[Petiole Analysis as a Guide to Grape Vineyard Fertilization](#) Dr. Carl Rosen, Professor, Department of Soil, Water and Climate, University of Minnesota.

[Lake Erie Regional Grape Program, Vine Nutrition and Soils.](#)

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).

ANNUAL NWMHRC OPEN HOUSE

The Northwest Michigan Horticultural Research Center's (NWMHRC) annual open house is scheduled for Thursday, **August 22, 2013**. This year's event will include an equipment show, wine tasting and dinner, and the Leelanau Horticulture Society's annual meeting. In addition, we are hosting one of the Michigan State University's College of Agriculture and Natural Resources' (CANR) *What's Now? What's Next?* town hall-style meetings from 1:00-3:00 p.m. in the conference room of the NWMHRC.

This special event is open to the public and is designed to facilitate communication between MSU supporters and the following MSU administrators: Dr. Fred Poston, Dean of CANR, Dr. Doug Buhler, Director of MSU AgBioResearch, Dr. Tom Coon, Director of MSU Extension, Dr. Kelly Millenbah, Associate Dean Academic and Student Affairs for CANR, and Mark Burnham, MSU Vice President for Governmental Affairs. Attendees are encouraged to provide input as to how the College of Agriculture and Natural Resources, MSU Extension, and AgBioResearch can continue to move Michigan forward through research, education, and outreach.

The grounds to the exhibit area will open at 1:00 p.m., and equipment vendors will be on site. Free educational wagon tours of the NWMHRC featuring MSU specialists will take place from 3:00-4:30. The tour will include winegrape and tree fruit specialists that will speak on a variety of topics: disease management, vine health, high density Montmorency plantings, cover crops, and Enviroweather. Growers are encouraged to meet with equipment vendors from 4:30-5:30, and the social hour will begin at 5:30 with dinner and the Leelanau Horticultural Society's annual meeting to follow at 6:15.

As in past years, the equipment show, social hour, and dinner is sponsored by the Leelanau Horticultural Society and Parallel 45 with the educational portion sponsored by AgBioResearch, MSU Extension, and the NW Michigan Horticultural Research Foundation. To reserve or purchase a dinner ticket, please call (231) 256-9888 or email Annette at kleinsc7@msu.edu by **10:00 a.m., Wednesday, August 21**. The dinner will be catered by *Ethnic Garden Catering* and will feature locally produced food; cost for dinner tickets is \$10 per person.

For more information, contact the NW Michigan Horticultural Research Center at 231-946-1510 or Leelanau County MSU Extension at the number above. We hope to see many of you at these important events!

REGISTER BY AUGUST 26TH FOR THE FALL TRAVERSE CITY MASTER GARDENER PROGRAM

Helping People and Communities Grow

Do you enjoy being outdoors and working in the soil?

Would you like the opportunity to learn more about growing plants? Are you excited about the chance to share your time and talents with others and spend time with people who share your interests? If so, you might want to become part of the Michigan Master Gardener Program (MGP). This horticulture education and volunteer training program is offered by Michigan State University Extension (MSUE) and provides home gardening information to Michigan residents through a network of trained Master Gardener volunteers. All you need to get involved in the MGP is an interest in plants, a personal commitment to volunteering and an enthusiasm for sharing your knowledge with others.

During the last 35 years, more than 30,000 Michigan residents have taken part in the MGP, improving their communities through gardening, teaching thousands of children, adults and senior citizens the joy of gardening, learning how to garden using environmentally sustainable practices and making lifelong friends.

Access to World Class Gardening Knowledge

The MSU Extension Master Gardener Program connects gardeners across the state to Michigan State University's faculty and resources. Participants have access to information generated at one of the nation's top plant science teaching and research universities and the chance to use this knowledge to improve their communities and enrich their lives.

Master Gardener volunteers start by completing a 14-session course that provides a solid knowledge base grounded in university-generated data. Training is offered through MSU Extension and covers the topics of Introduction & Volunteerism, Plant Science, Soil Science, Integrated Pest Management, Diagnostics for Master Gardeners, Annual and Perennial

Flowers, Woody Plants, Lawns, Vegetable, Small Fruit, Tree Fruit, Indoor Plants, Household and Nuisance Pest, and Gardening Practices to Protect Water Quality.

An Opportunity to Serve

After completing the course, Master Gardener trainees must complete 40 hours of horticulture-related service within one year to earn their Master Gardener certification. That community service may include:

- working with students to design an elementary school garden
- creating a horticulture therapy program at a senior center
- helping a neighborhood association create an urban garden.
- Sharing environmentally-friendly gardening practices at community events
- Establishing vegetable gardens to meet local nutritional needs
- Beautifying community sites for special events or community activities that attract local residents and tourists

Community based MGP coordinators and facilitators assist trainees in exploring opportunities that meet their interests, schedules and comfort levels. Most of all, Master Gardener trainees get the chance to get outdoors and spend time with other gardening enthusiasts in challenging and rewarding activities.

Connecting with Others

Master Gardener volunteers love to have fun! Many gardeners establish lifelong friendships and connections when they join local programs that beautify their community and bring personal fulfillment and satisfaction. Many counties offer ongoing educational programs, garden tours, lectures and other social activities in which volunteers learn and share their knowledge while interacting with others.

Next Steps

The Master Gardener Program welcomes anyone interested in learning about gardening, community service and working with other volunteers. No prior knowledge or experience in gardening is required. Join this exciting program by participating in the fall, 2013 training session in the Traverse City area. **Registration can be completed online anytime before August 26, 2013 at the following website: <http://events.anr.msu.edu>.**

Fall, 2013 MSUE Master Gardener Program in the Traverse City area

agbioresearch.msu.edu

September 5th – December 12th, 2013

Thursdays from 4:00 pm – 8:00 pm

Northwest Michigan Horticultural Research Center

6686 S. Center Highway

Traverse City, MI 49684

Cost: \$300.00 (includes the 1,000-page training manual, speakers and facilities)

For more information, contact:

Pam Schmidt Bardenhagen, Master Gardener Volunteer Coordinator Leelanau MSU Extension
office phone: 231-256-9888 email: schmi345@anr.msu.edu

More detailed information and registration information is available online at:

www.msue.msu.edu/leelanau and

<http://events.anr.msu.edu/event.cfm?folder=2013falltraversecity>

Benzie Conservation District is hosting Sen. Stabenow for a Roundtable on the proposed Farm Bill. Would you mind attaching the following flyer to FruitNet for the next few weeks?

SENATOR STABENOW ROUNDTABLE ON THE PROPOSED 2013 FARM BILL

Benzie Conservation District is hosting Sen. Stabenow for a Roundtable on the proposed Farm Bill on **Thursday, September 5, 4:30 to 5:30 pm** at the Benzie Central Schools auditorium.

Agenda: 10-15 mins of general information by the Senator; Q & A with public for remainder of the hour

RSVP: We'd like to get an approximate count, response is appreciated

Cost: Free event, donations will be accepted

See flyer for more details:

Benzie Conservation District presents

Senator Stabenow SPEAKS

on the proposed 2013

“Farm Bill”

Thursday, September 5
@ 4:30 to 5:30 pm



Join us!

Benzie Town Hall Meeting

Benzie Central Schools Auditorium
9222 Homestead Rd. | Benzonia

Free Event • RSVP Requested



Benzie Conservation District
231.882.4391
www.benziecd.org
benziecd@benziecd.org

SAVE THE DATE FOR THE 2014 INTEGRATED PEST MANAGEMENT ACADEMY, FEB. 18-19.

Michigan State University Extension is pleased to announce the third annual Integrated Pest Management Academy, Feb. 18-19 in East Lansing, Mich. We are releasing the date early to ensure you all have it on your calendar!

Posted on **August 16, 2013**, **MSUE News**, by **Erin Lizotte**, Michigan State University Extension



[Michigan State University Extension](#)'s 2014 IPM Academy is a two-day workshop that will prepare growers, consultants and public sector employees to better understand integrated pest management strategies, identify pest insects and diseases, recognize beneficial insects, and adopt an integrated and informed approach to pest management. This program is designed to assist people who are working in a new cropping area or would like to brush up on their IPM skills.

On the first day of the program, participants will become familiar with the overarching tenants of IPM which will help prepare them for the crop-specific breakout session on the second day. On day two of the program, participants will opt into two, half-day sessions on the topics of their choice. Sessions include content in fruit, vegetable, field crop, conifer and minor crop production.

The final session roster will be released in December when registration for this event opens. Participants will receive program materials and a complimentary IPM-related MSU bulletin. Michigan pesticide recertification credits will be available.

We hope to see you there!



This program was developed with support from the [Sustainable Agriculture Research and Education](#) (SARE) program, which is funded by the [U.S. Department of Agriculture- National Institute of Food and Agriculture](#) (USDA-NIFA). USDA is an equal opportunity provider and employer.

Photo credit: Scott Bauer, USDA Agricultural Research Service, Bugwood.org

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SMALL EMPLOYER HEALTH INSURANCE TAX INSURANCE CREDIT FOR FARMERS AND BUSINESSES

Small employers offering health insurance may be eligible for a tax credit through 2015 if certain criteria are met.

Posted on **August 16, 2013** by **Adam Kantrovich**, Michigan State University Extension

Since 2010 the small employer health insurance tax credit (Code Section 45R) has been available. For tax years 2010 through 2013, businesses that pay over half the cost of health insurance under a qualifying plan and have 10 or fewer full-time equivalent employees (FTE) who average \$25,000 or less in wages can receive up to 35 percent of their qualified premiums as a general business credit. The credit phases out 6 2/3 percent for each employee over 10 and 4 percent for each \$1,000 of average wages received over \$25,000. It is completely phased out at 25 FTE or \$50,000 average wages or any combination of reductions that add up to 100 percent reduction. For example, with 19 employees and \$35,000 average wages the reduction is $(19 - 10)$ multiplied by 6 2/3 percent = 60 percent reduction and $[(\$35,000 - \$25,000)/\$1,000]$ multiplied by 4 = 40 percent reduction for a total reduction of 100 percent of the tax credit which leaves zero credit to the employer.

It's important to note that as the definition of farmer varies in the tax code, the meaning of the term "employee" for the Section 45R credit is one who works 2,080 hours (one FTE) while the employee meaning for the shared responsibility requirements after 2013 or the penalty tax calculations for health insurance is an average of 30 hours per week.

FTEs generally do not include owners, family members, dependents or seasonal workers (less than 120 days). Leased employees do count for calculating FTEs. Average wages are rounded down to the nearest thousand dollars. Health insurance is normally considered an ordinary and necessary expense and is, therefore, deductible. Any credit received will reduce the business expense by the amount of the credit. Only premiums paid for health insurance under a qualifying plan or arrangement for employees may be used in calculating the credit. The credit is also reduced if the employer premiums are more than the average premium for the small group market. In Michigan (for 2012) that amount was \$5,335 for single coverage and \$12,936 for family coverage. Expect these to be a little higher in 2013.

The maximum credit increases to 50 percent for tax years beginning in 2014 through 2015. Some restrictions change such as the employer must participate and purchase the health insurance coverage through the state insurance exchange instead of working through an insurance agent to get the credit. The credit expires after 2015. After 2013 the \$25,000 average annual wage amount may be adjusted for inflation. See [IRS Form 8941](#), Credit for Small Employer Health Insurance Premiums, and the accompanying instructions for specific information.

For further information please contact me at akantrov@msu.edu or visit the [Michigan State University Extension Farm Information Resource Management website](#).

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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MICHIGAN CHESTNUT UPDATE – Aug. 16, 2013

European red mites remain an issue around Michigan. Most growers are seeing relief from Japanese beetle populations as the adult stage wanes for the season.

Posted on **August 16, 2013, MSUE News**, 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 1,824 GDD50 with 0.74 inches of rain over the past week; the [Clarksville Enviro-weather station](#) has recorded 1,717 GDD50 and 0.85 inches of rain this past week; and the [Northwest Michigan Horticultural Research Center](#) accumulated 1,603 GDD50 with 0.16 inches of rain over the last week.



Burr formation on Aug. 14, 2013 in northwest Michigan. Photo credit: Erin Lizotte, MSU Extension

[Potato leafhopper](#) populations remain down overall, particularly on farms where insecticide applications have been made to control the pest. At this time of the season we are primarily finding damage and populations in vigorous succulent shoots. Like many plants, chestnuts are sensitive to the saliva of potato leafhopper that is injected by the insect while feeding on the underside of the leaf. Damage to leaf tissue can cause reduced photosynthesis which can impact production and quality, and damage the tree. 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.

The most common classes of insecticides recommended for potato leafhopper control 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.

Right, Symptoms of potato leafhopper feeding.

Photo credits: (Left image) Mario Mandujano, MSU, and (Right image) Erin Lizotte, MSU Extension

Adult [Japanese beetle](#) populations are ebbing for the season with less activity in southern Michigan. Adults continue to be reported in somewhat higher numbers as you head further north where they emerge later in the season due to slower temperature accumulation. Japanese beetle adults are 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.

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. 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 the Japanese beetle 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)
agbioresearch.msu.edu

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 days), but provides 10 to 14 days of residual control.

Pyrethroids (bifenthrin, beta-cyfluthrin, cyfluthrin, gamma-cyhalothrin, lambdacyhalothrin, pyrethrins, zeta-cypermethrin, deltamethrin and fenpropathrin) 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](#)."

European red mites have reached high levels in some area orchards, even those treated with a miticide in the past weeks. European red mites overwinter in egg-form. Growers can locate egg masses in crevices, rough bark, crotches usually in folds of bark inclusion, on branches and in the bud scales with the aid of a hand lens. Summer eggs are found on the leaves along the veins on both sides of the leaf, but mainly on the underside. Eggs are orange-red and resemble turbans. Adults are often found on the upper leaf surfaces. Under favorable weather conditions (hot and dry), they can have eight or more generations in one season.



Left, Early bronzing of chestnut caused by European red mite.

Right, Adult European red mite viewed under dissecting microscope.

Photo credits: (Left image) Erin Lizotte, MSU Extension, and (Right image) Scott Justice

European red mite feeding damage increases as populations increase. Leaves appear mottled, stippled, and in more severe cases, bronzed. Injured leaves have reduced photosynthetic activity leading to reduced nut size, and return crop load potential as well as increased sensitivity to winter injury. Severe feeding damage can lead to early defoliation.

Orchards battling populations season-long or with high levels at the end of the year should plan to apply preventative measure to control higher overwintering populations in the spring of 2014. Dormant or delayed dormant oil applications are the most treatment timing to control mites. Summer mite management is based on monitoring or scouting procedure and use of miticides.

Monitoring involves examination of 10 leaves off of 10 trees for a total of 100 leaves, randomly selected throughout the orchard. Leaves should be collected from four sides of the tree. With the help of hand lens (10X or 20X), all stages of pest and predatory mites need to be counted. Determine average mite count per leaf (total number of mites per 100 leaves).

Thresholds for treatment increase as the season progresses. At this point in the year (August-September), the leaves are larger, more mature and more tolerant to mite injury. Growers should consider treatment if they are approaching seven mites per leaf. There are a number of chestnut pesticides labeled to control mites. See the table below.

Chestnut insecticides with activity against mites

Chemical class (IRAC insecticide group)	Active ingredient	Products labeled
Avermectins(6)	Abamectin**	Eip-mek 0.15 EC, Reaper 0.15 EC, Reaper Advance, Abacus, Abba 0.15EC, Abba Ultra, Abamectin, Agri-Mek SC, Agri-Mek S.15
METI(21A)	Fenpyroximate	Portal
	Pyridaben	Nexter
Pyrethroids(3)	Bifenthrin**	Bifenture 10DF, Bifenture EC, Brigade WSB, Fanfare 2 EC, Sniper
	Fenpropathrin**	Danitol 2.4EC Spray
Pyrethroid(3) + Pyrethroid(3)	Bifenthrin** + Zetacypermethrin**	Hero EW, Steed
	Bifenthrin** + Imidacloprid	Brigadier, Swagger
Tetramic acids(23)	Spirodiclofen	Envidor 2SC
	Potassium salts of fatty acids* ¹	M-Pede
	<i>Chromobacterium subtsugae</i> ¹	Grandevo*
	Extract of <i>Chenopodium ambrosioides</i> ¹	Requiem 25EC, Requiem EC
Insect growth regulators or inhibitors	Etoxazole	Zeal Miticide 1
	Hexythiazox(10A)	Onager, Savey 50DF
	Azadirachtin (IGR)	Aza-Direct*, Azatin XL, Ecozin Plus 1.2% ME*, Neemazad 1% EC*, Neemix 4.5*, Azaguard*
Not classified or unknown	Acequinocyl	Kanemite 15 SC
	Bifenazate	Acramite 50WS

*OMRI-approved for organic production.

**Products containing these active ingredients are classified as a restricted use pesticide

and require the applicator to retain a pesticide applicator license.

¹Not classified by the Insecticide Resistance Action Committee (IRAC).

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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 has moved to MSU News <http://news.msue.msu.edu>

Tart Cherry Raw Product Reports – 2013

<http://www.cherryboard.org/Week72013.pdf>