Northern Michigan FruitNet 2014
Northwest Michigan Horticultural Research Center

Weekly Update

August 26, 2014

CALENDAR OF EVENTS

9/4	**NWMHRC Open House – 35th Anniversary**
9/5	**Weathering the Climate: Cultivation & Technology in Grape Production** NMC Hagerty Center, Traverse City
9/7	**Harvest Meeting of the Midwest Nut Producers Council** Clarksville Research & Extension Center
12/9-11	**Great Lakes Fruit, Vegtable & Farm Market EXPO** DeVos Place, Grand Rapids
2015	
1/13-14	**NW Michigan Orchard & Vineyard Show** Grand Traverse Resort, Acme, MI
3/4	**Winery Development Pre-Conference** MSU – Kellogg Hotel & Conference Center
3/4-6	**Michigan Grape & Wine Conference** MSU – Kellogg Hotel & Conference Center

NW Michigan Regional Report
Duke Elsner, MSU Extension Educator

Wine Grapes
In the research and demonstration vines at the research center the hybrid cultivars Frontenac, Noiret, LaCrescent and Brianna have started verasion. The vinifera cultivars Siegerrebe and Madeleine Angevine have reached verasion. We will start tracking the progress of brix and pH levels for early varieties in September.

Recent warm and humid weather has favored **powdery mildew** development on leaves and clusters. No **Botrytis** or other cluster rots have been reported as of yet. Defoliation from **sphinx moth** caterpillars seems to be very minor this year.

BLACK STEM BORER: AN OPPORTUNISTIC PEST OF YOUNG FRUIT TREES UNDER STRESS

Trees with winter injury or drought stress can attract black stem borers. Proper identification, orchard sanitation and timing of control measures using ethanol-baited traps will help minimize its spread.

Posted on **August 21, 2014** by **Julianna Wilson**, Michigan State University Extension, Department of Entomology, and Amy Irish-Brown and Bill Shane, MSU Extension

A female black stem borer. Photo credit: Brad Barnd, BugGuide.net

Identification

The black stem borer is a very small – about 2 millimeters – ambrosia beetle (*Xylosandrus germanus*) that attacks stressed and apparently healthy trees, and in particular young trees, with trunk diameters of less than 2.5 inches. The insect is rarely seen outside of its galleries and only females emerge from the galleries they create to infest new trees.

Signs of infestation include round entrance holes that are approximately 1 millimater in diameter, toothpick-like strings of compacted boring dust and frass emerging from the holes, and sometimes weeping or oozing of plant sap from the holes. These signs are similar to other boring insects, such as a bark beetle called the shothole borer (*Scolytus rugulosus*) that feeds on tree sap.

History

Black stem borers were first detected in the United States around 1930. By 1980 they were detected in Michigan, but until recently they have rarely been seen in commercial orchards. Reports of the pest from ornamental nurseries were followed by detections in several young apricot and plum orchards in the southwest region in 2010 and 2011. More recently, this pest has been found in young apple trees in the Grand Rapids, Michigan area. In addition to reports

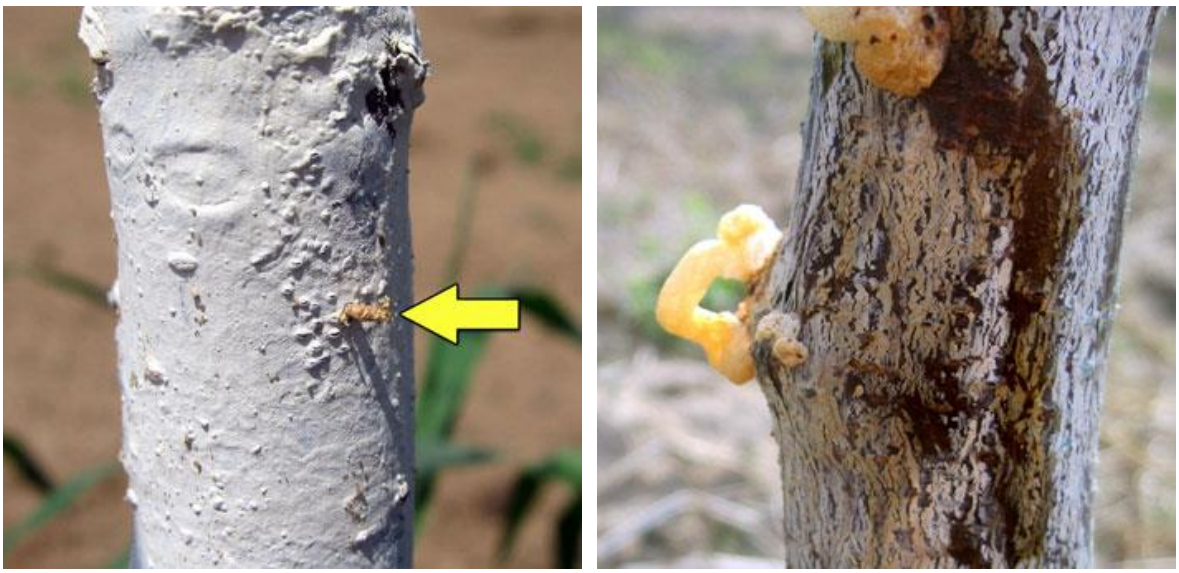
in Michigan, black stem borers have been recently reported as a pest in commercial high density orchards in New York.

Hosts

The black stem borer will infest a wide variety of woody plant species including all tree fruit species that are grown commercially in Michigan. Ambrosia beetles as a group are attracted to ethylene, which is naturally produced by injured trees. After a harsh winter, some trees that are in fact injured, but look uninjured, will produce ethylene, which attracts the beetle. Typically ambrosia beetles do not attack healthy, unstressed, older trees because healthy trees produce resin to kill potential trunk invaders; however, young saplings produce less resin than mature trees and are vulnerable to attack.

Life cycle

Females emerge in spring to find new hosts, boring a tunnel and one or more brood chambers in the sapwood or sometimes the heartwood of a tree. Ambrosia beetles carry fungal spores that they use to cultivate fungal “gardens” in the tunnels they create inside tree trunks that they bore. Eggs laid in the brood chamber hatch, and larvae and adults feed on the fungus growing on the gallery walls. Each gallery can contain up to 100 larvae with up to two generations per year in temperate climates like Michigan. Females may overwinter in galleries or in leaf litter near the base of trees.



Left, Characteristic boring dust and frass sticking out of the entrance hole made by a black stem borer in a plum tree. Right, An apricot sapling oozing from holes made by a black stem borer. Photo credit: Bill Shane, MSU Extension

Left, Holes made by a black stem borer in apple with bark cut away to show damage. Right, A young apricot sapling split open to reveal damage caused by a black stem borer and signs of the fungus it was cultivating in its galleries. Arrow points to fungus. Photo credits: Amy Irish-Brown (left) and Bill Shane (right), MSU Extension

Scouting

To monitor for the pest, look for the signs of infestation described above within 1 meter of the ground and use a simple trap to capture females. Cut two to four windows in the body of a plastic 1 or 2 liter bottle that has a cap. Hang it in the orchard upside down at a height of 0.5-1 meter, or 1.5 to 3 feet, near wooded areas or in low areas where trees are prone to cold injury and where there are trees with signs of infestation.

Bait the trap with ethanol using one of the following three methods:

1. Squirt about a quarter cup of ethanol-based hand sanitizer (unscented) into the cap end (bottom) of your trap.
2. With the bottle capped, pour in a cup of cheap vodka through one of the holes made in the side of the trap.
3. Purchase a ready-made ethanol lure to hang inside the trap and fill the bottom of the trap with soapy water.

If using hand sanitizer, traps must be checked daily because the sanitizer will form a crust on the surface after 24 hours. If using vodka or a purchased lure, traps should be checked at least once per week. Beetles are very tiny and require the use of a microscope and training to identify them correctly to species. Your local Michigan State University Extension fruit educator can help.

Example of a trap used to monitor for black stem borers. Photo credit:

Amy Irish-Brown, MSU Extension

Management

Unlike other borers, trunk sprays of systemic insecticides will have very little to no effect because the insect feeds on the fungus that it cultivates, as opposed to plant tissue, and is well protected in the galleries it creates. The only potential time that a contact insecticide spray might have an impact is when females are emerging in the spring. Because they are so tiny, they are difficult to monitor to determine the optimum time to apply an insecticide, but a trap as described above can be used to aide in timing a spray in the spring.

A recent three-year trapping study conducted near Wooster, Ohio by the USDA Agricultural Research Service suggests that the first incidence of female activity in the spring will coincide with the accumulation of 100 growing degree days (GDD) base 50 degrees Fahrenheit from Jan. 1. When females are active, pyrethroid insecticides, at least in nursery settings, have shown the most promise in reducing the number caught in traps post-treatment. In another study, researchers found that the application of a bio-repellent applied to the trunks of stressed trees significantly reduced infestation.

Later in the season, the best management strategy is to remove trees with extensive symptoms of decline, i.e., 75 percent or more of the tree is dead or dying, and burn them. It is also important to make sure that all large prunings and brush piles are either flailed or burned. Both intact but stressed trees and fresh cut, large diameter prunings have been implicated as sources of new infestation. Trees that still seem healthy with a few borer holes in them might survive and should be treated for the pest using the scouting techniques outlined above to time the application of an insecticide.

If you suspect you have this beetle infesting young orchard blocks, please contact your local MSU Extension educator. With all the winter injury this season and drought stress last season, it would be easy to miss this pest or misidentify tree decline as this pest.

For more information:

- New bark beetle pests in Michigan
- Southwest Michigan fruit regional report – April 23, 2013 (see apricot section under tree fruit)
- Efforts to Improve the Detection and Management of Ambrosia Beetles in Ornamental Nurseries
- Monitoring Flight Activity of Ambrosia Beetles in Ornamental Nurseries with Ethanol-Baited Traps: Influence of Trap Height on Captures

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Northwest Michigan Horticultural Research Center Annual Open House
September 4, 2014

Concurrent Cherry, Grape, and Hop Sessions

2:30 PM **Grounds Open**

3:00 – 3:30 **NWMHRC Cover Crop Trials**
Dr. George Bird, Dept. of Entomology, MSU

3:30 – 4:00 **Maximum Residue Limits in Cherries and Apples**
Dr. Mark Whalon, Dept. of Entomology, MSU

4:00 – 4:30 **Comparative Results from New Cherry Training Systems**
Dr. Greg Lang, Dept. of Horticulture, MSU

4:30 – 5:00 **New Developments Towards the Identification of an Armillaria Resistant Rootstock**
Drs. Ray Hammerschmidt and Amy Iezzoni
Dept. of Plant Soil and Microbial Sciences, Dept. of Horticulture, MSU

3:00 – 5:00 **Grape Variety Trial after Cold Damaging Winter of 2013-2014**
Dr. Paolo Sabbatini, Dept of Horticulture, MSU
Dr. Duke Elsner, Small Fruit Educator, MSU Extension

4:00 – 5:00 **MSU Hop Research, Education, and Outreach**
Walk through the NWMHRC hop cultivar trial; discuss best management practices and hop pests and diseases
Dr. Rob Sirrine, MSU Extension

5:15 – 6:15 **Social Hour**

6:15 **Dinner and Leelanau Horticultural Society Annual Meeting**

The NWMHRC Open House is hosted by AgBioResearch, Michigan State University Extension, the Leelanau Horticultural Society, and the Northwest Michigan Horticultural Research Foundation. Educational sessions are *free* and open to all. To reserve a dinner ticket, please call (231) 946-1510 or email Jackie at baase@msu.edu by **August 29, 2014** or after August 29, contact Nikki at 231-946-1510 or rothwel3@msu.edu. Tickets can be purchased at the door. The dinner will be catered by *Ethnic Garden Catering* and will feature locally produced food; cost for dinner tickets is $15 per person. For more information, contact the NW Michigan Horticultural Research Center at 231-946-1510.

We hope to see many of you at this important event to help us celebrate our 35th anniversary!

CONFERENCE ON CLIMATE AND TECHNOLOGY IN GRAPE PRODUCTION

Northwestern Michigan College and Michigan State University are hosting a conference, Weathering the Climate: Cultivation and Technology in Grape Production," **Friday**, **September 5** at the Hagerty Center at NMC's Great Lakes Campus, 710 E. Front Street, Traverse City.

The conference features experts in agricultural technology, geography, horticulture, and other areas related to unmanned aerial systems technology and the science of grape production.

Sessions cover topics like Climate Change and Potential Agronomic Impacts in the Great Lakes Region, Impacts of the 2014 Polar Vortex on Grapes: Lessons Learned, How to Manage Grapes for Our Changing Climate, and Unmanned Systems and Technology Applications in Viticulture. There will be a vineyard demonstration of the application of unmanned systems at Chateau Chantal Vineyard and Winery, and a panel of grape growers who will discuss practical applications of unmanned systems technology in vineyard management.

Experts speaking at the Weathering the Climate conference include Brian Matchett, MSU Institute of Agricultural Technology; Jeff Andresen, MSU Department of Geography, Imed Dami, Ohio State University Department of Horticulture and Crop Science; Paolo Sabbatini, MSU Department of Horticulture; Duke Elsner, MSU Extension; Ed Bailey, NMC Technical Division; and Tony Sauerbrey, NMC Unmanned Aerial Systems.

The panel will include Ben Bramer, Agrivine; Stan Howell, MSU Department of Horticulture; Mark Johnson, Chateau Chantal; Larry Mawby, L. Mawby Vineyards; James Peters, Staits Area Grape Growers Association and Coenraad Stassen, Brys Estate Vineyard.

Registration for the event can be done online by visiting nmc.edu/viticulture and following the links. Cost for the conference is $60, conference and dinner is $85. Rooms have been made available for conference attendees to reserve at the Bayshore Resort.

FOR MORE INFORMATION
Brian Matchett, Regional Program Coordinator, Northwest Michigan Office,

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ISLAND Farmer Residency Program

The ISLAND Farmer Residency Program is searching for smart, talented journeyman farmers to participate in a farm incubator project in Northwest Lower Michigan. ISLAND's Farmer Residency Program provides land and a supportive environment to get started.

The program site is located at the heart of a food region described by Mario Batali as 'exploding', amidst a thriving nexus of markets in Traverse City, Petoskey and the Leelanau Peninsula.

Resident farmers are provided with three years' access to land, equipment and a network of technical and business advice. This is not an internship opportunity—it is a chance for experienced but landless farmers to manage their own business on the Grand Traverse Regional Land Conservancy's Maple Bay Farm, just south of Elk Rapids, Michigan.

Eager to learn more? Here's a recent article on this program.

Applications for the 2015 growing season are due on **October 1, 2014**. Successful applications received before September 15 will be offered a seed garlic bonus. Applications will be accepted each fall to bring new residents to the farm.

For more information, or to apply to the program, go the ISLAND Farmer Residency Program website, or contact Larry Dyer at larry@artmeetsearth.org.

WEBSITES OF INTEREST

This issue and **past issues of the weekly FruitNet** report are posted on our website:
http://agbioresearch.msu.edu/centers/nwmihort/nwmihort_northern_michigan_fruit_net
Insect and **disease** predictive information is available at:
http://enviroweather.msu.edu/homeMap.php

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/

Information on **apples**:
http://apples.msu.edu/

Fruit CAT Alert Reports have moved to MSU News:
http://news.msue.msu.edu

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