Ohio Grape-Wine Electronic Newsletter

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Content:

**Disease Section**
Vineyard Scouting
Red Blotch-bug carrying disease identified

**Grape Section**
Ozonator-Is it a viable option for Ohio grape growers?
OARDC Vineyard Update
Dispatches from Kingsville
Cultural Practices in the Vineyard NOW

**NEW addition: Grape Pest of the Month** - disease, weeds & insects
**Insect Section**
Cicadas and The Grape Cane Gallmaker
Stink Bug pressure could be HIGH this year
Invasive insects threaten agriculture

**Wine**
Wine drinkers need to branch out

**National Award Winners**
Congratulations OSU Students Lisa Robbins & Thomas Todaro

**Know Your Grape & Wine Experts**
All grape growers want to produce a high quality crop at the lowest cost possible. The simple act of walking through a vineyard and observing the canopy and surrounding environment can significantly enhance a growers’ IPM program. Generally, the earlier a problem in the vineyard is detected the easier it is to manage or control economically. Some of the benefits of routine scouting of the vineyard include:

- A greater awareness of insect abundance, disease incidence, weed pressure, pest distribution, and overall vine health.
- Implementation of pest-specific and site-specific management.
- More accurate timing of fungicide or biocontrol sprays, which can result in a reduction in the number of seasonal applications.
- Improved assessment of your IPM program.

How frequently you scout your vineyard depends on many factors. In a perfect world a grower would scout their vineyard daily. However, unless you are Dionysus, daily scouting is not realistic! Balancing the time needed to effectively scout with the benefits of scouting requires some knowledge of the pest’s biology and life cycle. It also requires that you monitor current and predicted environmental conditions. Temperature, rain, relative humidity and/or leaf wetness are all needed to determine if conditions are favorable for disease development. The grape variety and age of the vines can also influence scouting frequency. Newly planted vineyards will probably need to be scouted more frequently than established vineyards. Plantings of highly susceptible varieties should be scouted more frequently than vineyards with resistant varieties. Vineyards with a history of disease should be scouted more frequently than those that have no history of disease. The bottom line is that the frequency of vineyard scouting is grower and vineyard specific. The more frequently you can scout the vineyard the better, but at a minimal twice a week is recommended. Organic grape growers should try to scout at least three times a week as they have less options for managing pests and timing of biocontrol products is critical.

Scouting also requires a significant time commitment on the part of the person scouting. Having a plan for how you are going to scout the field can save you a considerable amount of time; keeping in mind that the plan may change from trip to trip depending on the problems that are observed. Scouting patterns can vary depending on the pest of interest. Walking in a W or zig-zag pattern across a block or within a row allows for an adequate sampling of the vines. Walking the perimeter of the vineyard, especially areas that are near wooded or overgrown edges, should be done at least once during your weekly scouting schedule. When problem areas
(hot spots) are discovered these spots should be scouted on every future scouting trip. Marking these spots with a flag, recording the GPS co-ordinates or marking the spots on your vineyard map (Vineyard Mapping Video, Lake Erie Regional Grape Program) will expedite your next scouting trip.

When scouting you want to look up, down, all around and at the ground! Take your time and closely examine each vine to be sampled within your scouting pattern. If you can observe a problem by just taking a quick glance at the vine, then the window of opportunity for effective management has probably passed! Remember to look within the canopy, at the lower and upper surfaces of the leaves, the canes, the crown of the vine and the berries. It is also important to look at the soil surrounding the vines for signs of insects. Michigan State University has put together a useful Vineyard Scouting Calendar that recommends what diseases and insects you should look out for at various vine growth stages.

Accurate identification of the pest is critical for management and will make scouting easier and faster. Developing the skills needed for accurate identification takes time and often requires assistance from someone with expertise in pest identification. If you are uncertain as to what is causing the problem, contact our grape specialists for assistance. In some instances, it may be easier to take a digital image and send it to our specialists. However, for diseases, accurate identification using images can be challenging and may require an on-site visit or sending a sample to a specialist. Once the pest has been identified management strategies can be implemented.

A growers’ ability to effectively and efficiently scout a vineyard will improve from trip to trip and year to year. Keeping good records of each scouting trip will allow you to optimize your scouting plan and will provide valuable historical data from year to year. Good record keeping is also important for certification programs such as Good Agricultural Practices (GAPs) and new
food safety regulations. Carrying a notebook (paper or electronic) on all trips to record your observations is strongly recommended. Capturing your observations as images is also a good way to keep scouting records. Observations and data that you should record while scouting are:

- Vineyard and/or block name or number
- Variety
- Growth stage
- Weather conditions
- Overall canopy health
- Overall fruit health
- Insects (type and abundance)
- Diseases (type, incidence and severity)
- Weeds (type and abundance)
- Evidence of animal intrusions

While scouting is an essential component of an IPM program it also offers the opportunity for growers to enjoy and take pride in their vineyard. Happy Scouting!
California Scientists Identify Bug Carrying a Dreaded Vine Disease

New research suggests an insect may be responsible for the spread of the red blotch virus.

Infected vine leaves turn bright red at the height of summer, denying the plant of energy.

*Lynn Alley*

Posted: June 22, 2016

There is no known cure for red blotch, and no treatment that can restore grape quality. To read the rest of the article please use this link.

Links to the three cornered alfalfa tree hopper

North Carolina State Cooperative Extension
https://soybeans.ces.ncsu.edu/three-cornered-alfalfa-hopper/

University of California Agriculture and Natural Resources
http://ipm.ucanr.edu/PMG/r1301611.html

Bug Guide
http://bugguide.net/node/view/10001

The Peanut Grower
The Ozonator Chemical Free Sprayer “Is ozonation a viable alternative for Ohio growers? Here are questions I have about the technology.”

by Dave Scurlock OSU/OARDC Viticulture Outreach Specialist

Acknowledged collaborators listed alphabetically: (Dr. Mike Ellis, OSU Plant Pathology Emeritus Professor, Jim Kamas, Asst. Professor & Extension Horticulturist- Pomology & Viticulture, Texas PD Program Outreach Coordinator Department of Horticultural Sciences, Texas A&M Agrilife Extension Service, Dr. Tim Martinson, Senior Extension Associate, Section of Horticulture, School of Integrative Plant Science, New York State Agricultural Experiment Station, Cornell University and Dr. Wayne Wilcox, Plant Pathology & Plant-Microbe Biology Section, School of Integrative Plant Science, Cornell University, New York State Agricultural Experiment Station, Geneva, NY 14456)

Last month in OGEN, I placed an article written by Danny Wood for the Midwest Wine Press titled Ozonated water replacing chemicals in more vineyards, about Ernie Wilmink’s ozone generating sprayer to control disease and insects. The article gave positive testimonials for the sprayer controlling Powdery Mildew and Mealy bug. There were also testimonials from a vineyard in Minnesota using the ozonator and growing Briana, Marquette and LaCrescent with no signs of black rot, bunch rot, downy or powdery or any other fungus problems. The issue with testimonials without hard data is that you have anecdotes free of context rather than established facts based upon objective data. This series of information finding was instigated from a meeting of the NE Ohio Grape Growers Association and in response to help them better understand the ozonator claims.

I called around the country for personal comments and experiences about the efficacy of the ozonator on disease control to the science community and the general consensus was they would like to test the ozonator in independent trials, preferably over more than one season before they could assess the claims of complete disease and insect control without qualification. Nevertheless, there were some collective thoughts that the ozonator may have some effect on powdery mildew but more than a little skepticism that it could control diseases like black rot, phomopsis, anthracnose and downy mildew. It may have some effect on powdery mildew since it is a unique disease in the sense that it grows externally on affected plants (all other diseases grow inside infected leaves and fruit). In the same sense, there are a number of spray materials (Oxidate, Stylet Oil, bicarbonates such as Armicarb and Milstop, to name a few) that control powdery mildew but no other diseases because they act primarily on fungal growth that’s on the outside of the vine.

A few cases were cited where owners of the ozonator encountered a fair amount of black rot and downy in their first year of use under high disease pressure but where inoculum carryover from the previous year was low, because good control had been provided then by conventional spray programs. The second year of use was another high disease pressure year and with the inoculum carryover from Year 1, these vineyards experienced severe black rot and downy outbreaks and the growers have gone back to chemicals to try to salvage what is left. But under high disease
pressure conditions, which is a norm in Ohio and most of the Midwestern states east of the Mississippi River, this technology probably will not work in most normal years. In years of low disease pressure, like 2010, which was a very good year, it may likely work. Growers need low cost, consistent, positive disease control results year after year to produce high quality grapes. The idea of no residue is completely appealing to everyone. But without residue from fungicides on the surface of the plant tissue to prevent the fungus from germinating and infecting the vine, the vine is completely vulnerable to an infection period immediately following treatment with the ozonator (which leaves no residue) unless you continually spray almost daily, which is possible, but not necessarily practical.

Testimonials and personal experiences are great, but we would like the chance to test the ozonator in an objective research environment over a period of years and report effects on disease and insects before us as a science community can recommend that growers invest in what is as yet an unproven technology given the biological development of most of our diseases.

The comments below are published with permission from Dr. Tim Martinson Ph.D., Senior Extension Associate, Section of Horticulture, School of Integrative Plant Science, New York State Agricultural Experiment Station, Cornell University

"Extraordinary claims require extraordinary proof"
   -Carl Sagan, in reference to claims of biological life on other planets.

With the ozonator, according to the Midwest Wine Press article, we have a new technology that “can fight vineyard pests better than chemicals”, including “diseases and insects”, and yet it also spares natural yeasts and beneficial insects. They are excited about it in Burgundy, which “currently produces 8 of the top 10 most expensive bottles of wine in the world.” But “In the U.S., some viticulture academics are unwilling to accept the technology – or even test it”

The prospect of a technology that offers complete disease and insect control without fungicide sprays or residues is an attractive one – particularly for wine grape producers that value environmentally friendly practices. But the fact is that grape producers in the humid, rainy East have to manage 5 major fungal diseases (as opposed to two in the irrigated west), any one of which can infect grape clusters and render them unsuitable (or less suitable) for wine production. Disease management is among the most challenging tasks of Eastern growers – and effective programs invariably involve adjusting to weather (rainfall, dew, frequent infection periods), and using cultural practices (canopy management, light interception, air movement) as well as organic or conventional fungicides. Is ozone, either alone or as one tool in combination with conventional approaches, up to the challenge?

Ozone is an effective tool for cleaning and sanitizing barrels and tanks – and works well within the controlled and defined environment of a winery. But it’s an enormous leap and an extraordinary claim to assert that it works against all diseases and insects in outdoor applications. The evidence cited on Mr. Wilmink’s website falls short of what I feel comfortable with. For one thing, it lists simply ‘disease’ and ‘insects’ (not any particular disease or particular insect), and while I have great respect for Dr. Max MacFarland, the social scientist and winery owner that did the evaluation, I’d really like to see which diseases and which insects
were being evaluated. Even taking the claims of this Nebraska study at face value, Western Nebraska is an arid environment in comparison with the eastern part of the Midwest or northeast. Would this method work as well in a more humid and rainy environment with abundant inoculum? If it works on disease-resistant ‘Frontenac’ and ‘Edelweiss’, will it work on highly disease-susceptible Riesling and Chardonnay? There’s reason to suspect that a pulse of ozonated water (an oxidant, like the registered organic fungicide oxidate) may have effectiveness with powdery mildew which grows externally, but no reason to assume that would be true of the other fungal pathogens that develop internally (downy mildew, black rot, phomopsis, anthracnose), or which like botrytis are capable of latent infections. I’d like to see some direct evidence that cites specific diseases and insects.

The evidence to date doesn’t support the assertion that ozone application “can fight vineyard pests better than chemicals”. Nor does it refute it. Actual counts or ratings of specific diseases or insects are needed – especially given the range of diseases present here in the East. Prior knowledge of disease organisms suggests healthy skepticism – but independent data could and should be collected to evaluate these claims.

The Midwest wine press article (http://midwestwinepress.com/2014/02/20/ozone-grapes-vineyards-pests/) leads off with this misleading statement:

“In the U.S., some viticulture academics are unwilling to accept the technology – or even test it. This reluctance persists even as recent research indicates that fungicides can make it into finished wine or negatively affect fermentation.”

This is a classic marketing ploy (‘The surprising innovation that university scientists don’t want you to know about’), and is actually not true. I’ve had email exchanges with grape pathology program leaders who have offered to run trials for free if Mr. Wilminks would loan them a machine to test for a season. And our program at Cornell has been at the forefront of evaluating how sulfur applications affect fermentation. *see (Persistence of elemental sulfur spray residue on grapes during ripening and vinification).

I’ll reiterate that offer: Mr Wilminks, if you loan us one of your ozonators for a year, along with instructions on its proper use, we’d be happy to evaluate it here at the New York State Agricultural Experiment Station, under a mutually agreeable protocol.
Grape Phenology: along with apple, cherries and hops for comparison.
Chardonnay Stage 1-2 April 29 2015

Chardonnay Stage 4 May 25 2016

Chardonnay June 27 2016
Chambourcin stage 2-3, April 25 2016 bud swell

Chambourcin May 25 2016

Chambourcin June 27 2016
Apples in loose open cluster stage April 29 2015

Apples in Bloom stage May 25 2016

Apples June 27 2016
Sweet Cherries at full bloom, April 25 2016

Sweet Cherries May 25 2016

Sweet Cherries June 27 2016
**Weather Conditions:** Weather comparisons of June 2016 vs the 11 year average weather for June 2005-2015. As you can see from Table 1, we are down in 3 categories, (Precip. GDD & Cum. GDD), when comparing June 2016 with the 11 year average, but June 26 is 4 days short of the end of the month of June 2016, due to weather data lag and I would suggest that at the end of June we will be ahead of the 11 year average in every category, except precipitation in the Wooster area. Some areas of Ohio, i.e. central Ohio, have received more precipitation in a day then we will probably get the whole month of June. The warning or prediction early in the season for a LaNina’ year following an El Nino year, was for a hot drouthy summer. For now this prediction is true for our area.

Table 1

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<th>June 11 YEAR AVERAGE VS. *2016 June DATA</th>
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<tr>
<td>Year</td>
<td>Precip. In. Ave. Max Temp Ave. Min Temp</td>
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<tr>
<td>2015</td>
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<tr>
<td>2013</td>
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<tr>
<td>2012</td>
<td>2.2 81.6 56.6</td>
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<tr>
<td>2011</td>
<td>3.1 79.3 58.7</td>
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<tr>
<td>2010</td>
<td>6.8 80.2 6.6</td>
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<tr>
<td>2009</td>
<td>3.7 78.6 55.7</td>
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<tr>
<td>2008</td>
<td>5.8 80.2 58.9</td>
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<tr>
<td>2007</td>
<td>2.0 81.2 55.9</td>
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<tr>
<td>2006</td>
<td>4.1 78.2 54.1</td>
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<tr>
<td>2005</td>
<td>1.4 84.7 60.5</td>
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<tr>
<td>11 year June aver. 2005-2015</td>
<td>4.1 80.1 58.0</td>
</tr>
<tr>
<td>*April 30 2016</td>
<td>2.7 59.4 35.0</td>
</tr>
<tr>
<td>*May 30 2016</td>
<td>2.5 70.1 47.9</td>
</tr>
<tr>
<td>**June 27 2016</td>
<td>1.3 81.7 58.6</td>
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*2016 Data for April & May were updated
**2016 Data is inclusive to June 26 2016 (it will be updated next month)

**Pest & Disease Situation**

Cicadas made their appearance around the state in large numbers but in select areas. If you remember having cicadas 17 years ago, you probably had them again. We did not have them in Wooster in any numbers 17 years ago and I have not seen any this year. Mechanicsville, Dresden and West Salem are areas that have seen large numbers of cicadas. Another pest that shows up at this time of year is the Japanese beetles. Japanese beetles emergence can be influenced by rainfall. Too much or too little and you will probably see fewer JB’s. In areas that received an inch or more of rainfall around the third week of June are seeing more Japanese beetles than the more drouthy areas such as Wooster. Due to the drier than normal conditions
we are not seeing much in the way of disease development. Earlier in the season I saw some phomopsis development but very little. I have not seen any signs of black rot, anthracnose, downy or powdery mildew.

**Cultural Practices:**
This is the time to remove suckers, thin shoots and clusters and shoot position the high cordon systems and maintain tucking the vertical shoot positioned systems. We have applied our 5th spray last week for the season that included Mancozeb (probably our last spray (66 day PHI of Mancozeb before switching over to Captan), Vivando (for powdery mildew), Elevate (for botrytis) and Baythroid (an insecticide which will kill grape berry moth, Japanese beetle and SWD along with most pest that could show up at this time). The variety block has been replanted this year. I would like you to notice the good weed control in the newly replanted vineyard. The vineyard was burned down with Roundup prior to planting but the weeds grew back before planting so an application of Rely was used to burn down the weeds that regrew just prior to planting. The vines were planted and since then we followed up with a Braun weed hoe to smooth out the vineyard surface after dehilling. We will apply Snapshot to maintain good weed control. It is critical to maintain good weed control in the first 2 years so the vines do not have competition for nutrients and water and get off to a good start.
Grower Observations:
We have had some calls on herbicide injury and actually had herbicide injury due to drift in our own vineyards in Wooster. Sometimes we cause our own problems with the use of herbicides and sometimes we do have actual drift from corn and soybean fields. Vineyards have invaded areas that were typically corn and soybean only areas. A lot of this has been made possible through the planting of more cold tolerant varieties and planting into areas that were traditionally just corn and soybean. We need to register our vineyards under the Sensitive Crop Registry at [http://www.agri.ohio.gov/scr/OSCR_UserGuide_v1-2.pdf](http://www.agri.ohio.gov/scr/OSCR_UserGuide_v1-2.pdf) along with communicating with our neighbors who grow corn and soybeans to make them aware of the sensitivity of vineyards to certain herbicides such as 2 4D, Round up and many other herbicides.
Roundup herbicide damage on Regent June 2016

Close up of Roundup/ (glyphosate) severe symptoms
Rough looking leaves and actual stunting of growth of shoots.

Photo by Dave Scurlock
Earlier this week marked the summer solstice, the official start of summer and the longest day of the year. To those of us in the vineyard, however, springtime now seems like a distant memory. The tractors are up and running, while the vines appear to be in more of a sprint. As of the 22nd of June, all but two varieties at the Ashtabula Agricultural Research Station (AARS) have reached 50% bloom. While talking to growers over the last month or so, a recurring theme has been our unusual spring this year. It’s hard to imagine we were talking about a foot of snow just two months ago.

On the subject of precipitation, the recent lack thereof is not an illusion (Figure 1). At this stage, AARS is roughly four inches below its long term average (LTA) for precipitation accumulation. Just for fun, I thought I would compare this year’s precipitation with that of two of our drier summers in Northeast Ohio, 1998 and 2012 (Figure 1). We are not looking quite as thirsty as the summer of ’98, but, rather, are thus far remarkably on track with what occurred in 2012. This is by no means a forecast, but that trend will be interesting to keep an eye on as the year progresses. 2012 was a banner year for many of our vintners.

Figure 1: Precipitation Accumulation at AARS, 2016 and Beyond

Given that fruit set is nearly, if not already, upon us, I was also interested to look at those factors which might influence crop level in our mature vines. Specifically, I wanted to know what conditions were like last summer, in terms of sunlight and temperature, as this year’s crop was being initiated deep within their respective buds. I would highly recommend a publication called “The Flowering Process of Vitis Vinifera” (Vasconcelos et Al. 2009) to anyone interested in an in-depth description of bud initiation, differentiation, and subsequent fruit set.

Fortunately, AARS has a robust and publicly available weather station to provide the information I sought. As it turns out, both 2015 and 2016 accumulated higher amounts of GDD through June 22nd than would be expected in an average year (Figure 2). Next to the scorching year that was 2012, though, both 2015 and 2016 were not far off the average mark. However, the fact that both 2015 and 2016 were around or above average should bode well for a good fruit set this summer.
As one more piece of the fruit-set-indicator puzzle, I decided to look at last year’s solar radiation levels. It is well documented that adequate sun exposure on a particular year’s new shoot growth will promote increases in bud fertility and, therefore, the following year’s potential for crop (Buttrose 1970, Sanchez and Dokoozlian 2005, Vasconcelos et al. 2009). Last year’s summer was actually one of the poorest, in terms of solar radiation, of the last 15 years. Not having been here last summer, I wonder if that was the case the whole summer, or if Mother Nature offered us an especially cloudy stretch at one point? Likewise, we have had a remarkable stretch of dry sunny days here in Kingsville thus far in 2016, but only time will tell if that holds up into July and August.

Table 1: Mean Solar Radiation on a Summer Day

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<td>2.74&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>2.53&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

*6am-9pm Solar Radiation from May 1<sup>st</sup> to August 15; Year 2007 excluded due to missing solar radiation data
**Unit: Langley; Means separation by ANOVA with Tukey’s B (p<0.05), “a” is the highest subset and “e” is the lowest

President Truman famously longed to find a one-handed economist. When it comes to this year’s fruit set potential, this viticulturist is going to remain two-handed. On the one hand, we have had above average temperatures this spring and early summer, and had above average temperatures last summer. These facts, together with a dry sunny spring this year, suggest the possibility of greater than average fruit set. On the other hand, the data suggests that last summer was not a bountiful year, in terms of sunlight. To some extent, this will have inhibited the amount of bud initiation and differentiation (see Vasconcelos et Al. 2009). Maybe these influencing factors will coalesce to give us a somewhat average year in our mature vines. After seeing the damage of the recent winters, a normal year would be just fine with me.
References


Cultural Practices in the Vineyard Now
by Dave Scurlock, OSU/OARDC Viticulture Outreach Specialist

Things are happening fast in the vineyard with the heat and those of you who are fortunate enough to have some periodic rainfalls, things are happening even faster. This time of the year so much is going on in the vineyard.

**Suckers** Sucker removal can be a never ending job. Shoot suckers, are the shoots that arise from the base of the grapevine to just below your fruiting zone. I like to keep an extra sucker going up that originates close to the ground as possible, even if you already have 2 or more permanent (?) trunks, to have something ready for a spare part if it is needed. It is more work, but if needed, it can get you back to your full yield potential quicker.

**Combing or Tucking** Combing shoots for high cordon training systems and tucking shoots for vertical trained systems. In both systems, we are shoot positioning the shoots or training them in the way we want them to grow. High cordon systems we comb or position the shoots downward separating the shoots from each other in an orderly fashion, like combing your hair straight down. At this time of the year you can still break the tendrils fairly easily and separate the shoots without too much shoot breakage. Shoot positioning is part of the High Cordon system. If shoots are left to their own devices, they will intertwine and grow spirally down the row, creating a perfect environment for both disease and insect development. Likewise, in the vertical shoot positioned system, you are training the shoots upward between the catch wires so they can be more efficient at intercepting light. Both systems benefit with better light interception, air circulation and spray penetration. Quicker drying time of the leaves and fruit means less potential for disease and insect development.

**Leaf Pulling** Along with shoot positioning, this is an ideal time to leaf pull some varieties, especially reds and some aromatic white varieties like Traminette or Riesling. Traminette clusters are sensitive to light so you do not want to pull too many leaves. When pulling leaves you only need to remove the leaves below adjacent and above the first cluster. On north south running rows we pull leaves on the east or shady side of the row to increase light penetration and pull less on the west side so the leaves prevent too much direct light on the cluster which can cause burning. Likewise, on east to west running rows, pull leaves on the north or shady side of the vine to increase light penetration. Earlier in the season is probably better, about 2 weeks after bloom, to prevent sun burning on the clusters. When leaf removal is done too late in the summer, late July-early August, you can get scalding or burning of the berries, which can cause a cooked fruit flavor in the wine. Just as your skin needs time to acclimate to the intense sun, grape skins acclimate better to the sun if exposed earlier in their development. Leaf pulling too early, before bloom, could cause some berry thinning. Like anything else, timing is everything.

**Cluster Thinning** For large cluster varieties such as Vidal and Chambourcin, this is also a good time to cluster thin. Most of the time, the first cluster on a shoot is the biggest cluster. Some
large cluster varieties may have 3 clusters per shoot and if all of these clusters are left on the vine, they may or may not ripen depending on the year. I try not to depend on the weather and hedge my bets by reducing the crop load on the vine to shorten the ripening time. This not only reduces ripening time but can also have a tremendous impact on fruit quality. Over cropped Chambourcin vines (>5tons/acre) will have decreased sensory attributes as well as color. The vine itself will be less able to withstand severe cold winters if not balanced between foliage and fruit. If cluster thinning is done at this time, the cluster will make up for some of the crop removed in size. Fewer sinks (fruits) will allow the vine to manufacture food for other plant parts for a better balanced healthier vine. Crops on our smaller cluster varieties such as Concord are usually not cluster thinned, but the crop is controlled by balanced pruning.

http://www.oardc.ohio-state.edu/fruitpathology/Bulletins/mw_grape_12aug05%20S.pdf

**Scouting** While you are performing all of these vineyard tasks and your face is in the middle of the canopy anyway, keep your mind open for any strange looking symptoms such as spider webbing in the clusters, insects, skeletonizing, red, yellow, black or poor colored leaves, collapsing vines, standing water, broken posts or wire, animal feeding and weed development. It will keep you in touch with your surroundings and help to correct things in the early stages.

* see scouting article in this OGEN
ROSE CHAFER is a beetle that feeds on foliage and blossoms in late May and early June. Insecticides should be applied when there are two or more beetles present on a vine.

GLYPHOSATE drift injury on Catawaba grape. Glyphosate is registered for use in grapes but if it is not applied properly vines can be severely damaged and may not recover.

CANADA THISTLE is a highly invasive perennial with a creeping root system. The thistle spreads aggressively and prevents the coexistence of other plant species through shading and competition for nutrients.

Images courtesy of Drs. Elizabeth Long and Melanie Lewis Ivey, Ohio State University-OARDC, Wooster OH
The title triggered the sound of a Grimms Fairy Tale story title. How about “The Wolf and the Fox”? I was curious to see Cicada damage on grapevines when Patrick Pierquet had heard that Aaron Puhala, who owns a vineyard in the Harpersfield area had some and Aaron was generous to share these pictures of damage to his shoots. *See Pictures 1-3 I have been in touch with Brent Baker, owner of Twigg Winery in Mechanicstown, and he said they had Cicadas but the Cicadas preferred his Peach trees and caused about a 50% loss of crop due to the damage to the peach shoots. Aaron also included a picture (4) of damage from the Grape Cane Gallmaker. The Gallmaker and the Grape Cane Girdler always do their damage above the cluster. Damage from the Gallmaker, looks like a pair of swollen lips and damage from the Grape Cane Girdler is a series of holes around the shoot that causes the shoot to break. Control measures you can use are Danitol, Assail and Sevin. *see Cicadas..They are Here! At the link
http://ohiograpeweb.cfaes.ohio-state.edu/sites/grapeweb/files/imce/pdf_newsletters/OGEN20160531%2813%29.small_.pdf

Photo 1 by Aaron Puhala

Cicada damage
Cicada damage

Photo 2 by Aaron Puhala

Cicada damage

Photo 3 by Aaron Puhala
Both the gall maker and cane girdler are not economically important usually. To control these next year apply SevinXLR as a preventative before damage is observed.
Stink Bug Pressure Could Be High This Year

Christian Herrick | Email

“Every year is unusual, and this year is the same,” Chris Walsh, Professor in the Department of Plant Science and Landscape Architecture at University of Maryland Extension, said as the Regional Spring Orchard Meeting kicked off last week at Orr’s Orchard and Farm Market in Martinsburg, WV.

Extension agents from Maryland, West Virginia, Virginia, and Pennsylvania gave recaps on fruit diseases, monitoring and management of pests, and a general update on the growing season. Orr’s Family Farm is a third-generation farm on approximately 1,100 acres. Typical apple plantings are 10-feet-by-24-feet and still have a strong market for ‘Red Delicious.’

One highlight of the meeting to note is the potential for high numbers of stink bugs this season. Chris Bergh, Associate Professor of Entomology at Virginia Polytechnic University, says USDA-ARS are using overwintering shelters for the brown marmorated stink bug (BMSB) to study the overwintering mortality and emergence of the pest in the spring. Bergh said he found 3,200 BMSBs in one shelter.

“The overwintering survival is higher this year than last,” he says. “A lot more bugs are emerging and surviving.”

At this point in the season, he says there are higher catches in traps than the past two years.

“Pay attention to BMSB this year,” he cautions growers.

Peak emergence for BMSB was early to mid-May, and by the end of June growers should see second instar nymphs.

Greg Krawczyk, Penn State University Extension fruit tree entomologist reminded growers to read the Michigan State University Extension bulletin about pesticide rainfastness. He said
this would help growers understand how much rainfall their orchards can sustain before they need to reapply.

**Weather Issues And Horticulture**

Jim Schupp, Professor of pomology at Penn State University, talked about how the warm early spring, and subsequent cold snap impacted chemical thinning and the carbon balance model for apples.

There was also an extended apple bloom, where Schupp said some growers had a bloom for about 30 days. Growers with this extended bloom experienced a loss of king bloom when the cold temperatures in early April hit.

However, Schupp said that even with a 40% to 60% flower mortality, growers still had 700% to 800% of the apple crop still alive. Schupp said this year was a good time for growers to employ Michigan State University Extension educator Phil Schwallier’s nibble approach to thinning.

“Things are looking a lot better than two months ago,” Walsh said.

Kari Peter, Assistant Professor of Tree Fruit Pathology at Penn State University, says growers still need to scout for apple scab. The worst occurrences were during the rainy and wettest periods this spring. But, she suspects within a week or two, scab infections will be over.

But, Peter says fire blight infections have started and stopped.

“My working hypothesis is it won’t be catastrophic,” she says.

Peters says growers still need to worry about cankers left from last year’s fire blight epidemic, especially if growers did not apply Apogee to the trees.

“You will see shoot blight,” she says.
Invasive species threaten agriculture
Researchers analyzed impact of 1,297 invasive insect pests & pathogens

"Invasive pests and diseases are a major threat to agriculture, natural ecosystems and society in general," said Matthew Thomas, professor and Huck Scholar in Ecological Entomology and a researcher in the Center for Infectious Disease Dynamics, Penn State. "In the U.S. you only need to think about current problems such
WASHINGTON — Invasive insects and pathogens could be a multi-billion-dollar threat to global agriculture and developing countries may be the biggest target, according to a team of international researchers.

“Invasive pests and diseases are a major threat to agriculture, natural ecosystems and society in general,” said Matthew Thomas, professor and Huck Scholar in Ecological Entomology and a researcher in the Center for Infectious Disease Dynamics, Penn State. “In the U.S. you only need to think about current problems such as Emerald Ash Borer or the Asian Tiger Mosquito and the potential threat of Zika virus to appreciate this. One of the challenges we face is predicting the next threat and where it will come from. This study explores some of these issues at a global scale.”

The researchers, who report their findings today (June 20) in the Proceedings of the National Academy of Sciences, analyzed the impact of 1,297 known invasive insect pests and pathogens on 124 countries. They also determined which counties posed the biggest threats based on their trading partners and numbers of invasive species.

The United States, China, India and Brazil, all large agricultural producers, would have the highest potential cost from invasive species, according to the researchers. China and the United States ranked one and two, respectively, as the highest potential source countries for the pests.

“China and the U.S. are large and have diverse cropping systems ranging from subtropical to temperate environments and this diversity of cropping systems supports a wide range of potential pest and disease species,” said Thomas, who is also a co-funded faculty member of the Huck Institute, Penn State. “Also, China and the U.S. have very active trading relationships with many countries worldwide and these provide potential links for transport of pest and disease organisms to novel areas.”

While big agricultural countries, such as the United States and China, may take the biggest monetary hit, smaller developing countries may suffer proportionately higher damage.

Dean Paini, senior research scientist, Commonwealth Scientific and Industrial Research Organization and Plant Biosecurity Cooperative Research Centre, who worked with Thomas, said the most vulnerable countries were located in sub-Saharan Africa.

“These countries generally do not have diverse economies making them disproportionately more dependent on agriculture,” Paini said. “As a result any threat from invasive species can potentially have a greater relative impact on these countries.”

To estimate the relative cost of species invasion, the researchers divided a country’s total invasion cost by its mean domestic product from 2000 to 2009.
As trade increases and more connections are made between countries, the researchers suggest that the problems associated with invasive species will mount.

“Dealing with this problem is a major challenge,” said Thomas. “We hope that by identifying the countries and regions that are most vulnerable, our study can help governments make informed decisions regarding the deployment of resources necessary to protect their borders and agriculture industries by limiting the further spread of invasive species.”
Wine Drinkers Need to Branch Out

Diversity in your wine glass helps vineyards survive.

By Justine Vanden Heuvel | Contributor March 7, 2016, at 8:00 a.m.

More than a matter of taste. (GETTY IMAGES)
Genetic diversity in the variety of fruits and vegetables we consume does not just expand the palate but protects plants from succumbing to attack from pests and diseases.

For instance, the vast majority of Americans buy one single variety of bananas, Cavendish. This banana is highly susceptible to the new strain of the fungal Panama Disease, Tropical Race-4, that threatens our future banana supply.

While a consumer outcry would rise up from the produce aisles if major supermarkets offered only one variety of apple, we've happily accepted the bland, uniform taste of the Cavendish banana. Unfortunately, bananas are not the only fruit crop where consumer preference has resulted in limited genetic diversity.

European wine grapes, or Vitis vinifera, are now grown nearly worldwide, but many of the major wine grape varieties are closely related to one another. The result is that most wines we drink in this country come from a limited pool of traditional grape varieties containing little genetic diversity.

Just as the banana industry is faced with a threat, the wine industry has already had the grape equivalent of Tropical Race-4. It was a microscopic root pest, phylloxera, which brought down the vineyards of Europe in the mid- to late-1800s.

Phylloxera is native to eastern North America, but no one realized its presence since our wild grapevines (such as Vitis riparia, Vitis rupestris and Vitis labrusca) are resistant to it. The grapevines cultivated here in the mid- to late-1800s (hybrids of Vitis labrusca such as Concord, Delaware and Ives) were tolerant of phylloxera feeding on their roots.

When phylloxera struck down the vineyards of Europe, the world turned to the source of the problem for a potential solution. But being accustomed to the refined flavors and aromas of Vitis vinifera, the French reportedly abhorred wine made from the "foxy" grapes grown in the U.S. at the time.

As a result of French inability to appreciate the taste of wine made from Vitis labrusca hybrids, breeding programs were developed to cross wild North American grape species with traditional Vitis vinifera, to produce grape varieties with high fruit quality and resistance to phylloxera.

The first few generations of these interspecific hybrids were less than notable. They were resistant to phylloxera but the quality was lacking. But those early hybrids formed the backbone of breeding programs at land-grant institutions such as Cornell University, University of Minnesota and the University of California-Davis that used (and still use) traditional breeding techniques to produce varieties with complex parentages. As a result, these lineages are more robust to defend against attacks from pests and diseases.

There is now an incredible array of genetic diversity in wine grapes growing east of the Rockies, because many of these regions are too cold or too humid for Vitis vinifera to thrive. Traminette, the signature wine from the state of Indiana, is an offspring of a cross between Gewurztraminer
and a breeding line containing wild species. Its aroma is reminiscent of Gewurztraminer, but it's more cold-hardy and disease resistant – requiring fewer fungal sprays each season compared to its Gewurztraminer parent.

Blanc du bois, grown in Texas, is resistant to Pierce's Disease, a bacterial infection common in warmer climates. This variety produces a range of wine styles from sparkling to dessert wines.

New varieties such as Frontenac and Marquette rely on a genetic background that includes Vitis riparia to withstand the winters in in colder regions from Minnesota to Vermont. They not only produce high quality red wines but bring wine industries to regions such as the upper Midwest and northern New England, that would never have been able to grow classic Vitis vinifera wine grapes.

There's little disagreement among wine connoisseurs that fruit from Vitis vinifera makes the most pleasing wines with respect to flavor, aroma and mouthfeel, as evidenced from the dearth of hybrid wine reviews in major wine publications. But because many Vitis vinifera wines are made from closely related grapes, they don't offer the same range of flavors and aromas that the interspecific hybrid wines do. And some say these new flavors and aromas can offer a wild and memorable tasting experience that will help train your palate.

Purchasing only wines made from Vitis vinifera not only limits our wine experiences and palates, but also increases the risk that our glasses may be empty if a future pest or disease threatens the wine industry.

This incredible diversity in grapes and wines in the U.S. may be difficult to maintain in the future if we don't support the vineyards and wineries working with these grapes. With over 8,000 wineries in the United States and an economic impact of $162 billion in 2007, the stakes are high.

American consumers of wine can help maintain the diversity in wine grapes by purchasing at least the occasional wine made from interspecific hybrids.

Those include a peppery Noiret from New York, a fruity St. Pepin from Wisconsin, a bold Norton from Missouri or one of the hundreds of other hybrid wines available. The unique flavors and aromas will refresh the palate and ensure the American wine industry is resilient in the face of agricultural threats.

Justine Vanden Heuvel CONTRIBUTOR
Justine Vanden Heuvel is an associate professor in the Viticulture & Enology program at Cornell University. She is a Public Voices Fellow with The OpEd Project.
Recently, two students in the OSU Viticulture and Enology Program have been awarded national scholarships. Lisa Robbins, PhD candidate (enology) and Thomas Todaro, MS candidate (viticulture) received national scholarships presented by the American Society for Enology and Viticulture (ASEV) and ASEV-Eastern Section. These prestigious awards are competitive and only a few students are selected every year based on their excellent academic achievements and commitment to the grape and wine industry. Lisa (“The Effects of Hyperoxidation and Storage Temperatures on the Flavor Profiles and Sensory Quality of Riesling Wine”) and Thomas (“Cane Morphology Influences Bud and Cane Tissue Freezing Tolerance in Vitis vinifera Cabernet franc”) will present their research findings at the upcoming ASEV-ES conference to be held on July 18-22 in St. Louis, MO. We are proud of our students’ accomplishments. Congratulations!
# OSU Grape & Wine Research & Outreach Specialist

Please contact the following Research, Extension/Outreach Specialists, and Educators if you have any questions relating to their respective field of expertise.

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