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Guarding Against Disease in 2019



Photos by Mizuho Nita

A Look at Some of the Protections That May Be of Use In the Vineyard

By Mizuho Nita

Grape Pathologist, Virginia Tech

At this time of the season, we should be beyond the critical period for cluster infection by downy mildew, powdery mildew, and black rot. Clusters are susceptible to these diseases for a period of several weeks after bloom.

This critical time varies by varieties, but in general, 4 to 6 weeks and 3 to 4 weeks from bloom for *V. vinifera* and *V. labrusca* species, respectively. If your vines are reasonably clean after this critical period, you should be able to relax a bit because these pathogens are no longer able to cause disease on berries. Plus, powdery mildew tends to slow down because it is not very active under hot conditions (above 90 degrees F).

So, what's next? As usual, disease dynamics depend on environmental conditions, cultivars, and the cultural practices

Pathogens to look out for in Virginia this summer include ripe rot, shown above.

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It's never too early for growers to suggest topics for the VVA's 2020 meeting.

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A Tribute to a Researcher

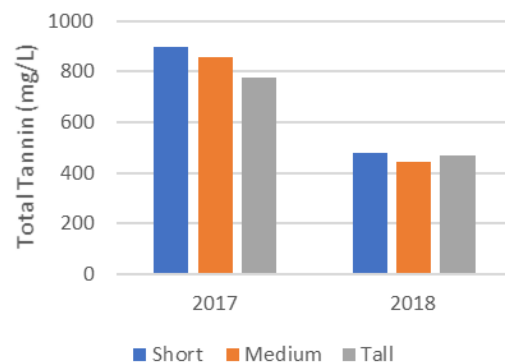
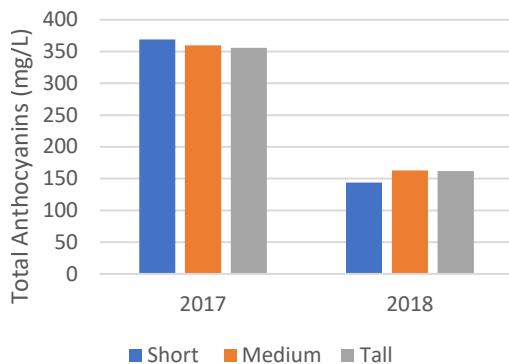
Jim Law recalls keen insights from Professor Gérard Seguin of Bordeaux.

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Legislative Update

Why communicating with your officials could make a difference.

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Total anthocyanins and total tannins from three canopy heights at Rosemont of Virginia.

Does Hedging Height Affect Ripening?

By Joy Ting

Research Enologist and Coordinator, Winemakers Research Exchange

Since 2017, Justin and Stephen Rose have been hedging their vines. A lot. The pair has been studying the effect of moderate to severe hedging on grape ripening and the resulting wine quality for the past

two years and will continue the trial in 2019.

In this trial, the same three sets of five rows of Merlot (clone 343 on RG rootstock with VSP trellising) were used each year. All 15 rows were treated the same throughout the growing year except that after fruit set, each set of rows was hedged to different heights beginning in early June and continuing

through the remainder of the growing season. The three heights were:

- ▶ 52 inches (high canopy);
- ▶ 44 inches (medium canopy, normal height at the top of the top wire);
- ▶ 36 inches (short canopy, between the second and third wire).

Why hedge this way? The LaCrosse-

See *HEDGING* on page 7

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PRESIDENT'S CORNER

What Do You Want to Learn At the Next VVA Technical?

By Nate Walsh
Walsh Family Wine

Thus far, the 2019 growing season feels a bit like an antidote to the difficulties of 2018. While this year has by no means been seamless, and while we still have critical summer and early fall months to contend with, the general feedback I've received from growers throughout the state is one of optimism and satisfaction with early season growth, fruit set, and vine health.

Like most growers I know, I am hesitant to voice too much optimism. I now operate with an expanded level of superstition. Nobody wants to jinx what feels like a great start to a vintage.

While most growers are now focused on the immediate, the VVA is taking a step back to consider topics for the 2020 Winter Technical Meeting, to be held next February in Charlottesville. A significant portion of these meetings is always dedicated to the more immediate, topical concerns of the year, but we also like to step back to view the longer-term needs of the industry. That is, what are the strengths and weaknesses of Virginia grape growing? What resources do we need in order to push the industry to the next level of success?

I first began working in Virginia wine in

2004, and ever since then the growth of the industry has been drastic and exciting. We have seen considerable increases in acreage, in the number of farm wineries, and in the quality, marketing, and reach of Virginia wine. That said, we've still got a long way to go, and it would be foolish to think it will be anything but an uphill battle.

The VVA Technical Meetings are curated by the VVA and Virginia Tech Cooperative Extension. Over the next few months, we will be putting together the topics and speakers for next year, and, as always, these topics and themes are gathered from our membership, from the growers throughout the state.

We are always appreciative of feedback and thoughts from VVA members, and I encourage you all to reach out with your needs and/or ideas for our next Technical Meeting. As with most things in life, it is often sentences that start with, "This is probably a crazy idea, but..." that lead to the most interesting and worthwhile results.

The VVA Board meets monthly, and throughout this summer will be putting together the plan for next winter. As you're getting your bunch closer spray in, or scouting for beetles, or awaiting the first signs of veraison, please consider what it is that the VVA can do for you and your growing business.

And please don't hesitate to reach out.

The VVA Wants to Showcase Your Vineyard

If you'd like to see your vineyard showcased on the VVA website, **virginiavineyardsassociation.org**, send us a photo of your vines, your grapes or your harvest. Email photos to **cgarsson@gmail.com** along with details about the photo and who gets the credit for taking it (please be sure you have the rights to have the photo published).



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Join Virginia Cooperative Extension For a Field Trip to Maryland

Save the Date: **July 24, 2019**

Visit Maryland vineyards with other wine growers. This is your opportunity to see these vineyards in person. The field trip will have a point-to-point format.

Participants will meet at Big Cork Vineyards, and then head east to Boordy Vineyards, Black Ankle Vineyards and Windridge Farm. We will spend about an hour at each location, walking the sites with those who farm there. We have timed this field trip just before veraison so participants can see crop levels, vine size and vine training systems.

DETAILS

- Lunch will be provided.
- Carpooling to the field trip is encouraged.
- We will have passenger vans leaving from Winchester and Leesburg.
 - This is a rain or shine program.

Registration is required. **Click here to register.**

Questions? Contact Tremain Hatch at thatch@vt.edu

► **NORTHERN VA.:** “Shoot positioning is well on its way or ahead of schedule ...”

By Dean Triplett
Greenstone Vineyard

The burst of spring activity started about two weeks earlier here in central Loudoun County in comparison to the spring of 2018. The weather pattern that we started out with was a continuation of what we saw during the 2018 harvest: rain, and quite a bit of it.

Fortunately, the weather pattern seems to have changed and meteorologists are predicting a normal to slightly drier summer along with higher temperatures. As I write this report in the middle of June, the phrase best suited to sum up the feelings of most growers about the current year is “cautiously optimistic.”

That was the overall mood of most growers I talked to at the Virginia Vineyard Association’s annual Summer Technical meeting. Stone Tower Winery, located in Loudoun County southwest of Leesburg, was the beautiful setting for this year’s meeting.

Stone Tower, owned and operated by Mike Huber and his family, is one of the premier wineries in Loudoun and the attention to detail is evident from the meticulously maintained vineyards to the beautiful tasting rooms and event areas on the property.

The morning session of the meeting concentrated on vineyard establishment with multiple discussions in the vineyard. After lunch, current events in the vineyard and seasonal updates were the main focus followed by a panel discussion on reflections on vineyard establishment.

Most growers at the meeting came through the winter in fine shape. Some growers in the northern portion of the state, however, have had to deal with the effects of winter injury. Merlot and Tannat seem to be two varieties that were particularly hard hit. Aside from that, the majority of vineyards have started the season in good shape.

Bloom is over and we are starting to concentrate on our normal mid-season programs. Fruit set appears to be about normal to slightly above in spite of last year’s less-than-perfect weather during bloom.

Shoot positioning is well on its way or ahead of schedule in many vineyards with leaf pulling going well in mine.

After last year’s late-season rot issues, I had planned on being a little more

aggressive with leaf pulling on the east side of my vines than I have in the past. But with the weather forecast the way it is I’m second-guessing myself.

We’re far enough along that at least I think I should be able to avoid sunburn problems. Japanese Beetles have been seen in my vineyard but in very low numbers so far. Some growers have reported seeing Grape Berry Moth webbing in small amounts so continued scouting for both of these pests will be required.

Strangely, Grape Tumid Gallmaker injury, which I’ve seen in my Traminette over the last six seasons or so, is a non-factor this year. Others, however, are reporting damage by this insect, though not in large amounts.

So far, at least, powdery mildew, downy mildew, and black rot are being controlled better by most folks compared to this time last year. Many growers told me they are in better shape over all this year than last.

My gut feeling is that many of us remember all too well how difficult last year was and considering the early start to the season, we got a jump start on getting our work done.

At the meeting I was fortunate to run into Andrea Richter who, along with her husband Josh, purchased property in northern Loudoun County three years ago. I was asked to look at the site with them when they were initially considering their purchase in 2016.

I’m very glad they made the decision to buy.

The top of the site at 860 feet is probably the highest spot in Loudoun County east of the Blue Ridge. The land drops off from the summit in all directions. It’s wooded except for the building site at the top.

The view from the top of the property looking east is stunning. Andrea has been doing a great job researching just what is involved in starting a vineyard and the energy and enthusiasm she and her husband display are amazing to me.

In three years, while raising three young children, plus working real-world jobs, they have rebuilt an old house and a storage building to accommodate their family. Plus, they have started the process of clearing about an acre and a half by themselves for eventual planting.

I love to see younger people taking the steps to get into winegrape growing. I’ve always been a believer in what Tony Wolf and others have been preaching to us: Location, location, location.

Finding a great site is the single most important decision we make on the journey toward making fine wine. Andrea and Josh are still working out just what sort of path they will eventually follow but with the site they have chosen, even with the hard work ahead, they are setting off in the right direction.

I just wish some of their energy would rub off on me!

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► **CENTRAL VA.:** “The growers I have spoken with all report good fruit set ...”

By Grayson Poats
Valley Road Vineyards

Cross your fingers and knock on wood, but the season here in the Central Region is off to a great start. Of course, if we are making comparisons to 2018, that is a pretty low bar. However, if we let the start of this season stand on its own merits, we can be very happy at this point.

We have a long way to go, to be sure, but I will certainly take what 2019 has offered up to this point.

The wet winter continued into April, with a total for the month of 5.89 inches of rain here at our Afton vineyard, but the rains were regularly timed to occur each weekend.

So, if your plan was to spray over the

weekend, then you probably felt you were reliving 2018. If, however, you could get your sprays on midweek before the rains returned, then a congratulatory pat on the back would be in order.

Bud break at the two vineyards I manage arrived on April 11 in Afton and a couple of days later at Lovington. Other growers I have spoken to report similar timing of bud break.

Shoot development has been both numerous and rapid with many basal buds having at least one cluster, resulting in a thick canopy that must be painstakingly thinned to the desired density lest we leave ourselves at risk for diseases that thrive in a close, crowded environment.

I have also seen a higher percentage of shoots with three and even four clusters on them — and not just varieties like

Petit Verdot that will often have a third cluster. We have completed one round of thinning at both of our vineyards and after we complete leaf pull (which we had scheduled for the first and second weeks of June) we will do more spot thinning as conditions warrant.

Other growers in the area have reported much the same situation in their vineyards. Tim Gorman of Cardinal Point Vineyard and Winery in Afton noted that bud break in his vineyard, which usually occurs over a week-long period, came pretty much all at the same time this year — on about the 13th and 14th of April.

He added that while there is certainly good crop potential this year, he also sees some overly dense canopies that could lead

See CENTRAL on page 6

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► **CENTRAL VA.**

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to problems down the road.

Shane McWhorter, who operates Vineyard Services of Central Virginia and visits 15 to 20 vineyards on a regular basis, said that the rapid growth this year has his crews performing multiple tasks in the vineyard nearly simultaneously.

As of this writing, at the beginning of June, they were still doing some thinning and working to get vines tucked behind trellis wire before moving on to leaf removal on vines that are growing so rapidly that a round of hedging is imminent.

Most agreed that driving all this was the abundant rain from last year and over the winter which provided vines with plentiful reserves of nutrients that, when given the opportunity this spring, allowed them to take off as they have.

“Abundant” was the word that Jake Busching also used when describing this spring, as in “abundant water reserves” and “abundant crop potential.” He told me that the year so far has reminded him of 2008

and 2009, which both proved to be very good years in Central Virginia. He further noted that even though we have had a few hot days, temperatures have been relatively cool or close to normal this spring. If that continues, we should be in good shape even if things get dry. Overall, he feels we’re off to an exceptional start.

At Cardinal Point, Tim points out that he did not have to turn on his wind machines to ward off frost this year and called 2019, “as good a spring as I’ve ever grown in.” For the record, Tim has been growing winegrapes since 1986.

Shane called the conditions “ideal” and said he was excited to note that he has had to pull his crew from the vineyards on only one day due to rain, thus allowing him a much better opportunity to keep pace with the rapid canopy development.

The rapid canopy development in April and May led the way to a rapid bloom at our two vineyards. We were in full flower at both locations by May 25, and while the Petit Verdot was a bit behind our other varieties everything else was blooming

simultaneously.

Also welcome was the stretch of sunny weather that Central Virginia received during bloom and fruit set. The growers I have spoken with all report good fruit set in all varieties, with the exception of some poorly formed clusters in some Chardonnay blocks.

Unfortunately, I seem to be the exception to this welcome news. In both my Chardonnay and Cab Franc here in Afton my fruit set is less than stellar, with numerous “scraggly” clusters being evident.

The number of explanatory theories is roughly equal to the number of words in this sentence. They range from the age of the vines (fourth leaf) and the development of the root system, the timing of bloom for those varieties and the weather at my site at that time to the perhaps overabundant number of clusters on the vine and the ability of the vine to set fruit for that amount.

As I move up the hill of my vineyard to the Petit Verdot and then the Sauvignon Blanc, all such problems disappear and fruit set is without issues.

Well, these are the kind of questions that make our jobs as growers so interesting. Every year brings both new questions and new challenges, and this year will be no exception.

I hope everyone has a great growing summer and that conditions remain optimal in your vineyards as we head towards harvest.

Discount Available For 2020 Expo

The VVA is once again a proud sponsor of the Eastern Winery Expo and has secured a 10% discount off seminar and/or trade show registration for our members!

The event will take place March 10 -12, 2020, at the Lancaster Convention Center in Pennsylvania. Visit www.easternwineryexposition.com for details.

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DURAND WAYLAND

cima

Experiments with Hedging

HEDGING, from page 1

based vineyard and winery, Rosemont of Virginia, is located in Southern Virginia, and it experiences high temperatures and rapid brix accumulation near harvest. This means less time for adequate phenolic development in red grapes. The aim of moderate to severe hedging at Rosemont is to delay brix accumulation long enough to allow time for phenolics to develop, producing more structure in the resulting wines.

Even without rapid brix accumulation, hedging plays an important role in canopy management. High vigor/high density canopies can lead to a number of problems in the vineyard and the winery that are summarized well in the Wine Grape Grower’s Guide (1). These include:

- ▶ Shading of inner leaves such that they become carbohydrate sinks rather than sources.

- ▶ Shading of developing buds for the following year, leading to fewer inflorescences per shoot (2), smaller clusters and reduced berry set.

- ▶ Poor air flow and poor spray penetration leading to higher disease incidence.

- ▶ Higher potassium, pH, TA and reduced phenolic compounds, pigments, varietal flavor, and overall sugar accumulation in shaded fruit.

- ▶ Higher levels of compounds that produce vegetal flavors (methoxy-pyrazine and C6 alcohols) (1,2).

Hedging is one of many approaches to deal with vigorous vine growth, but the severity and timing of hedging matters. It is important to retain adequate photosynthetic activity to ensure production of sugar and ensure winter hardiness. The Wine Grape Production Guide for Eastern North America (1) recommends that at least 15 leaves should remain after

Table1: Yield and chemistry of fruit at harvest and finished wine

2017	Fruit/Juice			Wine		
	Yield (ton/acre)	Brix	pH	Alcohol	pH	Potassium
High	5.6	23.7	3.85	14.53	3.64	1100
Medium	5.8	24.2	3.85	14.87	3.6	1150
Short	5.2	24.8	3.85	15.36	3.56	1100
2018	Fruit/Juice			Wine		
	Yield (ton/acre)	Brix	pH	Alcohol	pH	Potassium
High	6.3	22.4	3.79	13.57	3.69	1254
Medium	6.5	22.5	3.84	13.41	3.75	1344
Short	5.0	23.8	3.95	14.62	3.97	1548

leaf removal. Hedging can also stimulate lateral shoot growth, which can compete with ripening fruit for sugar.

Effects at Rosemont:

In 2017, vineyard sampling indicated short canopy treatments had less sugar accumulation for the first few weeks after veraison than medium and tall canopy. All treatments were harvested the same day and unexpectedly, the short canopy treatment had the highest sugar at harvest, as can be seen in the table above. The pH was the same for all three canopy heights, but the shorter canopy vines produced lower yields than larger canopy treatments.

The finished wines were different in alcohol levels (as expected from different brix at harvest) but had similar pH and potassium levels. Anthocyanin levels were nearly the same for all three treatments, while tannins

Graphs on Page 1 and chart above courtesy of Joy Ting, Winemakers Research Exchange

were slightly higher in the short canopy treatment and slightly lower in the high canopy treatment.

Sensory analysis of these wines in 2017 showed no significant differences in sensory descriptors for overall aromatic intensity, fruit intensity, herbaceous/green, bitterness, astringency, and body.

When asked to rank the wines, the wine produced from the tall canopy was preferred by 16 tasters, medium by 10 tasters and short by 8 tasters. These differences are also not significant.

Since the aim of the experiment was to build a more age-worthy wine, the wines were re-tasted in 2018. In that tasting, preferences

See HEDGING on page 8



Photos courtesy of Rosemont of Virginia

Stephen, shown above with vines, and Justin Rose of Rosemont of Virginia in La Crosse have been studying the effect of moderate to severe hedging on grape ripening and wine quality. From left, a short canopy of 36 inches, a medium canopy of 44 inches, and a high canopy of 52 inches.

A Tribute to an Influential Professor

By Jim Law
Linden Vineyards

Professor Gérard Seguin of Bordeaux passed away this April. His writings guided some of my most important decisions in my quest for terroir expression at Hardscrabble. Seguin's research applied to Bordeaux but is very pertinent to winegrowers in Virginia. Cornelis (Kees) van Leeuwen wrote Seguin's professional obituary. I've highlighted excerpts below along with my own comments.

"As early as 1969 he published a paper in which restricted but regular water supply to the vines was shown to be a key factor in wine quality, a result which has been confirmed by many researchers ever since (Seguin, 1969)."

Bordeaux and Virginia receive rainfall

during the growing season, unlike California where growers regulate and restrict water through irrigation. Our water regulation is addressed through slope, drainage, and soil water holding capacity. Matching the appropriate grape variety to soil and site conditions is the main reason that most of my vineyard has been removed and replanted over the past two decades.

"Seguin was also convinced that high terroir expression is only possible when grapes ripen at the end of the growing season, in relatively cool conditions (van Leeuwen and Seguin, 2006). This concept is gaining importance as the climate warms up."

Earlier in my career I thought that the early ripening, warmer harvests were our best vintages. My library proved me wrong as wines from these vintages fell apart relatively quickly, whereas the "average"

vintages are still going strong, picking up more nuance and complexity with time.

My perfect season is to harvest between equinox and early October. The white wines have ripe flavors, good acidity (minerality), and terroir expression. The reds have deep color, balance and ripe, but fresh tannins.

These two core concepts: Matching specific varietal preferences to soil water holding capacity and fine tuning the vineyard to ripen in the late September/early October "sweet spot" have driven my replanting decisions.

Chardonnay is sited on cooler, more clay-based soils, east-facing and planted with later ripening, higher acid retaining Wente clones.

Cabernet Sauvignon is mainly on steep southern slopes with thin, rocky, granite-based soils.

Thank you, Professor Seguin.

Experiments With Hedging

HEDGING, from page 7

were not significantly different, with a 10-7-8 preference (tall, medium, short).

Taster comments indicated preferences were driven by the balance in the wine, with several tasters mentioning the astringency of the short canopy wine, indicating the difference in tannin is perceptible, but preference for this structure is mixed. In 2018, when tasters were asked to score the wines for color, fruit intensity, astringency, and bitterness, no significant differences were found.

In 2018, short canopy vines once again showed slower sugar accumulation, this time through to harvest. Since the brix were lower in the short canopy treatment, and the aim was to allow longer time for phenolic development, the decision was made to allow this block to hang longer. Medium and tall canopy vines were harvested on Sept 2, while the short canopy vines were harvested on Sept 7.

As seen in 2018, the short canopy had higher brix (this time due to longer hang time) and lower yield. However, this time, the short canopy also had higher pH and higher potassium. The wine produced from the short canopy had higher tannins but lower anthocyanins, also likely a cost of longer hang time.

Sensory analysis of these wines in March of 2018 showed no significant preferences (6, 9, and 11 for tall, medium, and short). When

tasters were asked to score descriptors of color, fruit intensity, astringency and bitterness, none were significantly different. This indicates that though anthocyanin concentration was lower, there was not a significantly different perception of color at this time.

What's new in 2019?

This study so far spans two very different growing seasons. Rosemont received only 19 inches of rain from April through August in 2017, but 34.7 inches of rain during the same period in the very wet 2018. This led to less sugar accumulation overall and a later harvest: Sept. 2 vs. Aug. 23. The same set of vines will be treated and assessed in 2019.

In 2019, a few additional measurements will be taken. Both 2017 and 2018 showed lower yield in the shorter canopy treatment, which may be due to loss of berries or smaller berries overall. Berries per cluster and berry weight will be assessed in 2019.

Also, results from 2018 indicate a later pick may be possible with more severe hedging. However, the loss of anthocyanins with additional hang time is concerning. In 2019, analysis of fruit samples near harvest will include evaluation of anthocyanins and sugar per berry as additional measures of ripeness.

A striking result from 2018 was the increase in potassium with decreased canopy height, as detailed in the table. A 1985 study (3) reported that shaded leaves export potassium

as part of lower-than-optimum photosynthetic activity. In this way, dense, shaded canopies export more potassium from leaves to grapes. This is the opposite effect of what was seen at Rosemont in 2018. Potassium will be assessed in the grapes as well as the finished wine to try to better understand this effect.

An additional concern with hedging is reduced vine vigor over time. A 2012 study (4) looked at partial defoliation of Tannat in Uruguay, which shares many climatic and soil characteristics with Virginia. That study found no effect on pruning weight until the third year, when lateral thinning and hedging reduced pruning weights. This will be the third year of the Rosemont study, so these measures will also be taken.

Note: Chemical and sensory analysis will be done through the WRE with funding provided by the Virginia Wine Board. Sensory sessions will occur in the spring of 2020 meeting.

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Guarding Against Disease in 2019

PATHOGENS, from page 1

you employ, but in general, this is the moment when you will be thinking about late season diseases such as Botrytis, ripe rot, bitter rot, and sour rot.

The spray timings for Botrytis are at bloom, bunch closure, and veraison. The Botrytis pathogen is active throughout the season, but we recommend the application of a Botrytis specific material at bunch closure because it is most likely to be the last opportunity for you to deliver the material into the clusters, especially if you grow tight-cluster cultivars such as Chardonnay. A study shows the availability of spores is high around veraison, so, you probably need to cover that timing as well.

Please keep in mind that the Botrytis pathogen is very well known for its capacity to overcome fungicides. Thus, a rotation of mode-of-action groups is a crucial aspect of Botrytis management. Mode of action for a particular fungicide can be found as a FRAC code, which you should be able to locate on the label or at <http://www.frac.info/>. If the FRAC code is the same, it is safe to assume that the risk of fungicide resistance is the same or very similar.

Here's a short list of materials for Botrytis with their FRAC codes in parenthesis. Meteor/Rovral (2), Kenja (7), Endura (7), Luna Experience (7+3), Pristine (7+11), Scala (9), Vangard (9), Inspire Super (9+3), Switch (9+12), Miravis Prime (7+12), Elevate (17), and Ph-D (19).

Please note that group 7 is considered high risk for fungicide resistance development. There is strong evidence provided by Virginia Tech's Dr. Anton Baudoin that Endura and Pristine are no longer effective for us. There are not enough data on Kenja, Luna, and Miravis. However, since they belong to the same mode of action group, I would be very careful about the usage.

When you are in doubt, please rotate the FRAC code. Rotation of product may or may not actually rotate the mode of action since two different fungicides with two different chemical names may have the same FRAC code as you see on the list above. Also, tank-mixing with other material, such as captan, which has weak to fair activity against Botrytis, will help lower the risk of fungicide resistance development. If you think one of the fungicides you are using is not providing sufficient control, please contact Dr. Baudoin or me.

Another management tip for Botrytis is about wounding on berries. Although

RESOURCES

► **Blog:** If you have not already done so, please check my blog (grapepathology.blogspot.com), Twitter feed (@grapepathology), or Facebook page (Grape pathology at Virginia Tech).

► **GrapelPM.org:** If you have not already done so, please sign up for our new pest management support system. It will help you keep track of pesticide inventory, planning, etc. It is free!

► **NEWA:** Virginia is part of an agricultural weather network called NEWA (<http://newa.cornell.edu/>). We have about a dozen weather stations scattered around the state. You can check daily disease and insect pest risks. Please check it out. If you want to join NEWA (i.e., purchase a weather station), please let me know. I am the state coordinator for VA.

► **Virus kit:** VT's plant disease clinic and I are offering a free virus (grapevine leafroll virus-2 and 3, and Red blotch viruses) test. Please contact me at nita24@vt.edu about obtaining a sampling kit.

Botrytis is capable of causing disease by penetrating the grape's fruit skin tissues, it prefers going after wounds. Moreover, according to Penn State's research, at-bloom infection by Botrytis tends to develop into disease when the grape's skin is damaged.

On the other hand, even if the infection took place, the risk of disease development will be much lower if the skin is intact. Thus, management of the source of wounds such as insects (especially grape berry moth), or birds, or powdery mildew at early in the season, can lower the risk of Botrytis outbreak.

Moreover, sour rot pathogens also really like going after wounds; so, the same wound management would be the key for sour rot management as well.

Speaking of sour rot, a study from Cornell University reported a reduction in sour rot of up to 80 percent when a tank mix of the insecticide zeta-cypermethrin (Mustang



Ripe rot may be associated with more southern regions, but it isn't limited to them, Mizuho Nita says.

MAXX) and the antimicrobial hydrogen dioxide (OxiDate 2.0) was used weekly, starting prior to the appearance of sour rot symptoms (around veraison). You probably do not need to spray weekly, but if your cultivar is prone to sour rot, the fruit fly management before symptom development will be the key. Switch also lists sour rot, but suppression only.

Both ripe rot and bitter rot are considered as warm season diseases, and in fact, areas in the south tend to suffer more from these diseases; however, we can find ripe rot in Northern Va. year after year.

In addition, I have heard from growers from Pennsylvania and Maryland that they are having issues with ripe rot; thus ripe rot is not limited to the south.

Unfortunately, ripe rot has been misdiagnosed more than other rots. It shows up as if the berries are sunburned, so you will see a round dark brown lesion on the top portion of an infected berry. The difference would be the tiny dots you will see within the lesion, which are fruiting bodies of the pathogen.

As time progresses, the lesion expands into the whole berry, and infected fruits become shriveled to raisin-like fruits. With a severe infection, you may see the majority of berries on a cluster shriveled down. Unlike sunburn, ripe rot affects the taste of the fruit and wine. Unfortunately, the change is in the negative direction, and a study showed that a consumer panel could detect only 3% contamination in the mast.

Both ripe rot and bitter rot seem to be able to infect berries from the time of flowering to the harvest. Thus, protection is essential, especially if you have experienced

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VWA Collective Encourages Engaging with Legislators

By James S. Turpin
VWA Legislative Collective

This is an election year in Virginia. While it is not a national election nor are there any statewide candidates on the ballot, the potential impact of this year's voting cannot be overstated. The entire General Assembly — all 140 seats — is up for election.

Republicans now control both chambers of the General Assembly by small margins. The House of Delegates has 51 Republicans and 49 Democrats. The Senate has 21 Republicans and 19 Democrats.

In this year's elections, 62 House races are being contested by a major party (Republican or Democrat). This includes 34 Republican incumbents who are being challenged by Democrats and 28 Democratic incumbents facing Republican opponents. In addition, four members have independent opponents. Ten other seats have no incumbent seeking re-election, either because of a retirement, a nomination defeat, or a member's decision to seek another office.

A total of 18 Senators will face major-party opposition including 14 Republicans and four Democrats. Five have independent challengers. There are 17 members, 4 Republicans and 13 Democrats, who are unopposed. Four seats do not have an incumbent seeking reelection.

Democrats would gain control of the House of Delegates for the first time in 30 years if they pick up just two seats. Likewise, a change of two seats in the Senate could also give control of that chamber to the Democrats. This is important. The majority party sets the tone for the General Assembly, including control of committees and the process of how and what legislation is considered.

Although we are months away from the beginning of the next General Assembly session in January, it is likely that the wine industry will face a number of major issues that could substantially change how we do business. These include changes in environmental laws, building codes, and ABC licensing. The number of issues is likely to grow as we get closer to session.

Here are some possibilities of what could happen. The Virginia Department of Environmental Quality is moving ahead with Phase III of the Chesapeake Bay Initiative. As proposed, the changes could substantially increase both the number and severity of regulations on wineries and vineyards

including chemical use as well as ground water management. The area covered under these laws and regulations will be expanded to cover the entire state, and legislation will be required in 2020 to implement these changes.

Despite the efforts of the wine industry and other agricultural interests, there continues to be pressure to increase the building code requirements for farm buildings. These include building code and fire safety issues that could change the way wineries and other agritourism operations can operate.

At the same time, ABC is actively considering changes to its licensing program. While the goal was to reduce the number and complexity of licenses, currently under consideration is an effort to increase the cost of a farm winery license by 300 percent. Again, legislation will be required to implement these changes. We will endeavor to keep everyone informed as these proposals move forward.

What can you do?

As an industry, we need to engage with our legislators. The VWA Collective has begun an effort to encourage wineries and vineyards to reach out to their legislators to help them better understand what we do and why we are important to the local economy. This is even clearer when you look at it on a legislative district basis.

For example, House District 18 in Fauquier County, represented by Del. Mike Weibert, has a total of 23 wineries within its borders. The same is true in House District 33 represented by Del. David LaRock.

On the Senate side, the numbers are even more concentrated. Senate District 27 (Fauquier) has 32 wineries. This district is represented by Sen. Jill Vogel. Senate District 25 (Albermarle) held by Sen. Creigh Deeds has 25 wineries. The same is true for Senate District 13 in Loudoun, which also has 25 wineries. This is an open seat, with no incumbent seeking reelection.

The VWA Collective is urging members of the industry to reach out to their legislators for a site visit to show them what we do. The association is available and will assist you in putting together such a meeting. We are also working with the various trails and associations to hold industry roundtables to better inform the legislators. These events will be held over the course of the summer and the fall.

In short, pay attention to what is happening and get engaged. Changes in laws and regulations can have as much of an impact on your operation as weather or other unexpected or unforeseen events.

Guarding Against Grape Diseases

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issues with these diseases in the past. Mancozeb (M3), ziram (M3), captan (M4), and QoI (Strobilurin, FRAC 11) fungicides are currently recommended.

In addition, we found that Switch (9+12), copper (M1), tebuconazole (3), Aprovia (7), and Ph-D (19) are somewhat effective. However, when we applied these materials by themselves in a series of studies, none of them provided good efficacy consistently. We also documented that resistance to QoI fungicide is common among ripe rot pathogens in Va.

Thus, if you have a severe case of ripe rot, what I recommend is the use of Mancozeb as long as the 66-day PHI allows, plus add a QoI or Switch or Aprovia or tebuconazole at bloom. After the 66-day limit, use either copper (0-day PHI) or captan (0-day PHI) or ziram (21-day PHI) and mix with a QoI (14-day PHI) or tebuconazole (14-day PHI) or Switch (7-day PHI) for the latter part of the season.

Aprovia has a 21-day PHI, thus, it may not be a good option close to harvest. Ph-D has 0-day PHI, but our field test results were not impressive. I would say it may suppress but the effect was not enough to control ripe rot.

We have resistance issues with the QoI fungicides, so do not apply by themselves. I am still recommending the QoI since we are dealing with several different fungal species, and some are still sensitive to the QoI. The timing of applications will be the same as Botrytis, so include ripe rot material when you apply for Botrytis.

One last thing to remember is downy mildew. As the temperature goes down at the end of the summer (i.e., the last half of August), the relative humidity at night goes up, and we may end up with dews, which is an ideal case for the downy mildew pathogen to produce spores and infect new leaves.

Thus, make sure to use a material for downy mildew to protect your vines later in the summer.