

GRAPE PRESS

Summer 2014

The Quarterly Newsletter of the VIRGINIA VINEYARDS ASSOCIATION

Vol. 30 No. 2

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With soil, the more you give, the more you receive.

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Courtesy of Jim Law

Jim Law on one of the small, low-riding wheeled carts used for leaf-pulling at Linden. The carts insure that eyes are at fruit zone level.

Fine-tuning Canopy Management for Elegant Wines

By Jim Law
Linden Vineyards

There is a slow shift of wine style preference on the high-end spectrum of Wineworld. Parker's influence is waning, sommeliers are the new tastemakers, and big fruit bomb wines are becoming passé. Given this scenario, the climate of the mid-Atlantic has a distinct advantage over hot, sunny, dry California. We have the opportunity to make wines with elegance, complexity and longevity.

No more apologies about the humidity and rainfall. Yes, it

is still more difficult to grow grapes on the East coast than the West coast. It is accordingly more difficult to grow grapes in Burgundy and Bordeaux than in Provence or Languedoc. In fact, could it be that there is an inverse relationship between viticultural challenges and wine quality?

Over the past several years my thoughts and practices on canopy management have shifted. This is primarily due to the fine-tuning of Linden's wine style. The past goal was maximum ripeness (over ripeness?), high sugars and big impact. Now we treasure finesse, acidity, balance,

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President's Corner

Growers Tested by Weather

By Tom Kelly
Kelly Vineyard Services

When we find ourselves well into the 2014 growing season. As many of you may know, in December of last year I left my long-time position as Vineyard Manager at Rappahannock Cellars. This was a difficult decision for me, but having just become a father of my first child, I felt I needed this time with him and him with me.

So I started a small, part-time consulting company and am now working with several vineyards and wineries in Rappahannock and Shenandoah counties. I had worked closely with most of these vineyards and wineries during my time at Rappahannock Cellars. I tell you this only to establish a point of reference from which I make my seasonal observations.

In my neck of the woods, we have already had our fair share of challenges to overcome. With such cold winter temperatures and a cool spring, the vines got off to a rather slow start. Bud break seemed to take weeks and shoot growth was very uneven. Some new vines fell victim to the cold February temperatures along with some bud mortality in more tender varieties.

Most of the problems occurred however in blocks that experienced defoliation from late season Downy Mildew in 2013. There was quite a bit of nail biting

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PRESIDENT'S CORNER (cont.)

Continued from page 1

through several potential frost events that fortunately never materialized, but by early May the temperatures warmed up enough that we could all breathe a little easier.

Shoot growth seems to be normalizing somewhat now, but the weather is still presenting challenges. Cool and wet conditions have kept the sprayers running as we chase Phomopsis, Black Rot and Downy Mildew. A few vineyards have already seen one hail event that punched holes in leaves and scared shoots.

As we moved closer to bloom, the rain events and disease pressure increased, as night time temperatures have remained relatively cool and humidity high. We are now just past bloom and scrambling to get leaves pulled and open up the fruit zone to get Downy Mildew and Botrytis sprays into the clusters – and the forecast is for more rain, humidity and cool temps yet to come. Ah, the joys of growing grapes in a Continental Climate! Hot muggy days followed by cool nights and a high dew point.

Summer Technical Meeting

On a more upbeat note, the VVA put on this year's Summer Technical Meeting on June 5th. Over 100 people were in attendance for what turned out to be a beautiful day filled with great information. This year we were hosted by Barboursville Vineyards in Gordonsville, Va. Barboursville opened its vineyards and meeting space to us and served a fantastic buffet lunch from Barboursville's own Palladio Restaurant.

We would like to thank our gracious hosts, Winemaker Luca Paschina and Vineyard Manager Fernando Franco and the whole staff at Barboursville for all their warm welcome and all the work they did to help make the event such a success. I would like to extend special thanks to Fernando who took time out of his busy schedule to give an extensive tour of the Barboursville vineyard operation including the new vineyard planting and expansive machine shed.

On the technical presentation docket this year was Jim Parkhurst, Wildlife Specialist from VA Tech who gave attendees over two hours of valuable information on the various vertebrate pests we encounter in the vineyard. Jim discussed everything from the eating and mating habits of animals, such as ground hogs, raccoons, squirrels, bears, deer, birds and turkeys, among others, to effective methods of keeping these critter out of our grapes.

This presentation was a more in-depth discussion of the topics touched upon during his presentation at last year's Winter Technical Meeting.

We thank Jim for his tireless efforts on behalf of our industry.

Also presenting was Bill Reiss from BDI Equipment, Tim Gano from Winchester Equipment, and Luke Serbina from Lakeview Equipment. They each demonstrated a wide array of vineyard machines and discussed some of the economic benefits of mechanization. Thanks to all you gents for making the journey and educating us!

During lunch we heard seasonal updates from Dr. Tony Wolf, who spoke on current viticultural issues, and Dr. Mizuho Nita, who brought us up to speed on issues relating grape diseases and pesticide effectiveness. We also heard from our own Bill Freitag, Sustainability Workbook Committee Chairman who provided an update on current enhancements being made to the workbook as well as a legislative update from Katie Hellebush, Director of the Virginia Wine Council. Thank you to you all!

As always, we followed up the technical portion of our meeting with the Annual Summer Social, again hosted by Barboursville Vineyards and Palladio Restaurant, which served an outstanding evening meal. We were even treated to a taste of some old vintage Barboursville Cabernet Franc thanks to Luca. Wine from member wineries was flowing thanks to Katie Hellebush and her team from The Alliance Group and live bluegrass music was provided by Gallatin Canyon. All in all, it was the perfect end to a great day of learning and camaraderie in the vineyard.

Busy months ahead

The coming months will be busy ones for your VVA board officers and committee chairs. A draft version of our new strategic plan was presented at a special meeting of the Virginia Wine Board where industry leaders from around the state came together to address several important issues impacting the Virginia wine industry today. The results of this meeting will serve to continue the efforts started last year to develop a new statewide strategic plan for the industry.

Of special interest to the VVA is the issue of grape supply, or the lack thereof. Our own strategic plan is almost entirely dedicated to addressing this issue and as such the VVA "has the rock", as it was said, on almost all topics relating to grape supply. We have several initiatives already underway and you can look forward to hearing about those in the coming months.

In this issue of the Grape Press, you'll find a summary of the VVA's new strategic plan, and it is my hope to be able to publish the strategic plan in its entirety on our website in the very near future. Have a look and let us know what you think!

Thanks to you, our members, for all your support and here's to another great and distinctive vintage for Virginia wine!

Cheers!

▶ NO. VIRGINIA: “Conditions have been excellent for Downy Mildew and Black Rot.”

By Dean Triplett

Willowcroft Farm Vineyards

Spring was slow in coming this year. Winter tried hanging around for what seemed like an eternity. Bud break was at least a week to ten days behind what I think of as normal. The good news is that this gave everyone extra time to get pruning done. A number of folks I've talked to needed this extra cushion. The bad news is that after we did get bud break, we started seeing the extent of the damage caused by this past winter.

If you read Tony Wolf's newsletter, and shame on you if you don't, you know he has heard from a number of growers from around the state complaining about greater than expected winter damage. Many growers I've talked to have some sort of winter injury.

Viognier and Tannat are two varieties that I've heard have sustained bud and or trunk damage. In my vineyard, my 16-year-old Muscat Ottonel sustained quite a bit of damage. I'm estimating that roughly 45 percent of the vines have dead cordons. Of these affected vines, however, 98 percent are sending up shoots from around the graft union. These vines are currently trained to single high wire and GDC trellising. I've wanted to retrain these vines to VSP so I will now start that process.

Interestingly, our 3-year-old Muscat Ottonel vines sustained no damage at all. A section of one of our vineyards sustained close to 40 percent losses in 1-year-old Merlot and Petit Verdot vines. We are suckering all our vines less heavily than we normally would just in case they start to collapse as the season progresses. Hopefully this will help us retrain if we do see vines collapse. We'll have to keep our fingers crossed and hope for the best.

Another thing that many growers have commented on is uneven shoot growth after bud break. On a given cane or cordon there will be shoots 18 inches long next to 6 inch shoots. While I see some of this every year, there

seems to be a higher incidence of it in 2014. Is this another sign of winter damage?

We've had quite a bit of rain this spring. All the farm ponds in our area are full to the brim. We're starting to get into that summertime pattern of "chances of thunderstorms" just about any afternoon. Along with the rain, temperatures have been cooler than what I would expect for this time of year.

Bringing Out the Big Guns

Between the fairly frequent rains and lack of extreme heat, conditions have been excellent for Downy Mildew and Black Rot. A number of growers have reported early outbreaks of both in their vineyards. Unfortunately I include myself in this group. Muscat Ottonel and Vidal are the two varieties showing the most signs of infection.

Since I'm into bloom sprays as I write this article, all the big and expensive guns, will now be brought out. Ridomil Gold MZ and Phosphorous Acid will be in the next couple of sprays along with several other Powdery, Downy, Black Rot and Botrytis formulations. Hopefully with shoot thinning started and opening up of the canopy, along with proper spray applications, I'll get on top of this. Praying for a dry summer wouldn't hurt either.

I've also had a reemergence of my old friend, the Grape Tumid Gallmaker, in my Traminette. This year's infection seems as bad as last year's. I've sprayed Movento twice in hopes of stopping future generations of these midges from doing even more damage. I've also seen this infection in some of my Seyval vines for the first time.

Bill Freitag offered the following observations from his vineyard, which he said summarize Spring so far: "On the positive side, I had full bud break as of 5 May on Cab Franc and Petit Verdot. Viognier and Pinot Gris were a week behind. The amount of efflorescence is encouraging, indicating that winter damage on the buds at least was not significant. That makes

the next observation all the more confounding.

I have found (and keep on finding) cold damaged vines among all my older blocks, principally in Cabernet Franc and Pinot Gris. Damage is at the 5-7% level of vines. My multiple trunks helped a great deal in minimizing the problem as very few vines had damage on all trunks.

In virtually all cases the vines are nicely pushing new shoots above the graft union. The real mystery for me with this spring is with temperatures cold enough to cause vine failure, why is there no evidence of significant bud problems?

I have assumed that buds were sensitive enough to die off at much warmer temperatures than those needed to damage the vine itself. Am I missing something here? Unrelated to cold damage, I'm getting an unusually large amount of new shoots pushing out directly along the cordons which will make it easy next year to trim the old spurs back. These new spurs and an aggressive program to bring up renewal spurs in all vines is my plan to improve the overall density of shoot coverage on the wire.

Plenty of Water

The final note is – WATER. I am seeing water standing for days and weeks after a rain. The ground must be extremely saturated, but it seems that much of that water must be from new springs where we never had any before. I'm talking about water half way up a hillside. Tough to get into some areas to do the initial spraying. After a pretty dry week here in late May, it seems to be slowly abating. The good news is that all that water is driving all the vine growth. Most of the vineyard has shoots in the 12"-18" range and moving fast."

Though the season started out slowly, things are picking up quickly. A number of growers I know put in new plantings this year. Some of these new plantings went in as late as early June. I know of three growers who between them have planted nearly thirty acres. I'm sure there are more I haven't heard of.

Given the scarcity of fruit around the state this is good news. All of these new plantings are by established wineries though. The fruit from these new plantings will likely not be available to other wineries. At every meeting with state officials I keep hearing the plea to our industry, "plant more grapes!" Getting independent growers to expand their plantings, given the extremely low profit margins, is the hard nut to crack. I wish I had a great answer.

Finally, I love Winston Churchill and had to include this quote of his, supplied by Bill: "The inherent vice of capitalism is the unequal sharing of blessings; the inherent virtue of socialism is the equal sharing of miseries."

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SOUTHERN: "Conditions for a great spring finally settled in."

By Paul Anctil
Sans Soucy Vineyards

Like all regions of the state, the Southern Piedmont survived one of the coldest winters on record. It was too early to properly evaluate the cold damage for inclusion in the spring edition of Grape Press, but more reliable data is now available.

As is always the case, the reports from the many vineyards vary significantly. Almost everyone reported winter vine kill, but the most significant damage was suffered by young vines and new plantings. I lost about 30 percent of my 2013 planted Tempranillo. And true to form, most of it was in the low points of the vineyard.

The damage originally was believed to be as much as 50 percent, but many of the vines eventually sent out new shoots from around the graft region.

Hunting Creek Vineyard in Clover VA reported similar problems at their vineyard.

Bud break occurred on April 12 but in a most peculiar way. The varieties that typically open early at my vineyard, Traminette and Tempranillo, were the last to go through bud break— almost two weeks after the Cab Franc and Viognier.

I can only assume that those normally early varieties, although not budded out, had buds sufficiently fat and moist that the horrible Easter freeze/frost of 25 degrees killed the almost-ready-to open buds. Whereas the later opening varieties were still sufficiently embedded in the cane and therefore survived.

In my discussions with other vineyard owners, several noticed very similar "inverted" timing for bud break.

Steve Rose at Rosemont Vineyards commented that he saw similar issues in his vineyard. I am curious to know if this

phenomenon was witnessed in other areas of the state.

On a more positive note, conditions for a great spring finally settled in. Although a little cool at first, the heat finally arrived. Since March 1, my vineyard received a total of 14.33 inches of rain. But, 7.4 inches fell in the month of May alone.

We are now in full bloom throughout the vineyard. That wonderfully mild aroma of grape blossom is very evident in the early morning or late evening coolness. Canopy development is vigorous and well underway.

Everyone seems very optimistic and we are now focusing on how to deal with the Brown Stink Bug and Spotted Wing Drosophila.

I think the challenges presented by the latter are going to be really significant and a threat to quality fruit, and subsequently, quality wine.



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▶ CENTRAL: "Another wonder of a cold winter is natural selection of pests." – Jake Busching

By Bob Garsson

Got rain? No need to answer. If your vineyard is in Virginia – or for that matter, pretty much anywhere on the East Coast – the answer for this spring, and well into June, is almost certainly, "yes." After a winter of hard freezes and polar vortexes, we went into a season of frequent and sometimes heavy rain, all of which is having an impact on vineyards.

"All I have to report is a wet spring," said Carrington King of King Family Vineyards. Carrington also noted late bud break and "very late Viognier buds, possibly due to the cold winter, but fortunately no vine death."

Bill Tonkins of Veritas Vineyard and Winery said he got through the winter pretty much unscathed by the cold, but added that he knows of others who were not so lucky.

And Virginia Tech's Tony Wolf noted at the VVA's summer technical meeting that he saw damage in varieties that don't often suffer from the cold, such as Riesling.

At bloom, Bill said, things were looking good for all of his vines, with the exception of the Viognier. "Both the cordon pruned Viognier and cane pruned Viognier have disappointing flower this year," he said.

Taking a long-term view, Bill said he's interested now in learning what mechanical tools are available to enable him to manage canopies better, "because if it's as wet as last year, there is much work to be done."

And we may be seeing some wet weather for years to come, Bill said. "I understand that climate change predictions suggest that it is going to get wetter on the East Coast, suggesting more need for leaf pulling, hedging, and spraying with expensive "kick back" materials," he added.

Jake Busching of Grace Estate Winery said this year is proving exceptional thus far in many respects. His vineyard narrowly escaped frost issues during the coldest winter of the past 15 years, and there's abundant water in the ground. So he's seeing intense shoot development and fruit potential.

"Most vines fared well through the winter unless they had damage from cicadas or other cracks or wounds," he said. "Any second- or third-leaf vines with cicada damage seemed to want to die off at the point of injury.

"Young Sauvignon Blanc vines seemed highly susceptible to this type of damage," he added. "Luckily most of that type of damage was high up on trunk or cordons and we are able to refit new trunks."

But there is some good news, Jake said. "Another wonder of a cold winter is natural



Bloom on May 27 (left), and post-bloom on June 11 at Veritas Vineyard and Winery.

Photos courtesy of Bill Tonkins



bud was Traminette, which is never among the latest varieties."

Jeff's challenge in the spring was keeping up with shoots that were growing much faster than normal, perhaps due to late bud break. "There is more sun and heat, and the vines are catching up," he said. "And due to forecast – and realized – bud necrosis in Viognier, we left way more buds in that variety than usual, requiring a lot of time-consuming shoot thinning while having to select for 'fruited' shoots."

Jeff said he pruned Viognier three different ways in the hope of finding a way to offset bud necrosis. Here's the early results:

■ Spur pruned, but with 4 buds per spur instead of two, resulting in the same number of spurs. This was the best overall result. A mess to clean up, and some fruit will be fairly high up in canopy, but even with 60 percent fruitless canes, we will be at 80 percent plus of a full crop here.

■ Spur pruned, regular, two buds per spur. Easiest to manage, but less fruit. Maybe only 50-60 percent of a full crop.

■ Cane pruned, with double, somewhat overlapping canes. A mess, and very sporadic fruit. Maybe only 40 percent of a full crop. We won't do this again.

Looking ahead, there's some reason to think that 2014 will be better than 2013, at least in the category of pest control. Remember last year's acorn shortage?

"Hopefully there will also be a good crop of acorns to keep the vertebrate pests and any other pests that might have survived the cold winter out of the vineyard," said Bill Tonkins.

One can only hope. Got acorns?

selection of pests in our vines. These cold temps acted as healing balms to vines infected with Pierce's disease for instance and also tend to kill off species like the nasty fruit flies that are coming north on the wind."

Jeff Sanders of Glass House said he experienced some winter damage, but described it as limited. Perhaps 75 vines out of 12,000 had damage down to the graft union, and they were all three-year-old vines, he said. There was no damage in the more mature vines, he noted, adding that mounding up the vines helped get them through the winter.

"Damage was compounded by cicada damage last year, and we are worried about further vine collapse later this summer from a combination of cold stress and cicada stress," he said. "But we feel fortunate compared to northern vineyards," such as those in Ohio.

Jeff added that he experienced no problems with late frost. "We had only two varieties budded out, and they were in warm portions of vineyard, which didn't frost long enough to damage anything except new shoots at base of trunk."

Bud break at Glass House was very late, and also very mixed up in terms of the order in which different varieties experienced bud break. "For example, our last vine to break

EASTERN:

“Our new growers are thrilled at seeing their hard work pay off.”

By **Pete Johns**
New Kent Winery

The grape growers in this region always remark that, “We face problems that other areas of the Commonwealth don’t – like extra heavy pressure from powdery and downy mildews – and they have problems we don’t have to face, especially late frosts.”

This winter the more northern and western vineyards experienced extreme losses from damaging frosts late in the spring. Few growers in the eastern Region experienced any damage at all. Some experienced a leaf nipped here and there, but on the whole there was little to no damage.

We have had more rain than usual this spring and cooler nights. These conditions caused bud break to be anywhere from 10 days to two weeks later than normal. The Chardonnays and Cab Francs in this region seem to have come alive earlier than other varieties, a common event for Chardonnay but a little unusual for Cab Franc.

Our new growers are thrilled at seeing their hard work pay off with new foliage visible inside the grow tubes. I am proud to say the three newest growers closest to our vineyards have done their homework and are making every effort to make their vineyards the best they can be.

I predict that several of these growers will make major contributions to the Virginia Wine industry.

Upper Shirley Plantation is working closely with Dr. Tony Wolf with the planting of 100 vines in the new “root bag” that restricts root development and reduces vine vigor. It will be interesting to watch this experiment as the vines mature.

Our own vineyard and several others have purchased additional netting to combat the damage done by birds this past season. I believe all the vineyards I have spoken to have remarked about the amount of trouble they had with birds this past season.

Even some of the older plantings like Ingleside Vineyards have never experienced the large flocks of birds as they did this past fall. Unfortunately once the vineyard has been “discovered” by these varmints they will return year after year! The only sure fire way to protect your vines from birds is by netting the vineyards, a major investment but one that repays in higher production numbers each year.

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Giving Soil the Love It Needs

Lucie Morton brings soil scientists to the East Coast, including Virginia

By Andrew Hodson
Veritas Vineyard and Winery

Lucie Morton became friends with soil scientists Claude and Lydia Bourguignon when they met at the Napa Valley vineyard of a mutual client. As is Lucie's wont, she invited them to visit Virginia to help spread the word that is so close to her heart — the belief in more environmentally sensitive viticulture. These approaches lie in the realm of "organic" and "biodynamic" principles, but are not codified *per se* as Lucie believes each site and business requires a tailored approach.

Lucie brought the Bourguignons to the Monticello region where they visited Ankida Ridge, with an overnight stay, dining with the Pinot and Chardonnay grown on a rocky hillside at 1800 feet elevation.

The next day they visited Pollak Vineyards where, despite the lack of a projector, we were all able to huddle around the laptop and witness the wonderful work that these scientists are doing. Man and wife living the dream of working in the medium they love to the benefit of those that wish to share their dream.

Their visit even provoked David McIntyre to write a splendid article in The Washington Post. (<http://wapo.st/1oONY7x>)

It all goes back to the whole concept of soil as a living biological ecosystem to be nurtured and loved. The very definition of love is the joy that one experiences from the act of giving for the nurture and betterment of someone or some living creature that you value. So it is with the soil — the more you give, the more you receive

If one exploits the soil, the opposite is true — by using industrial chemicals, the yield increases, but eventually the soil dies and the result is loss of the very thing you were given to nurture.

I am a big Biodynamic fan, but I am also a pragmatist.

Way back in 2004 I visited the Loire valley and met with biodynamic growers Guy Boissard and Claud Papin. I even paid abeyance to the biodynamic guru of all: Nicholas Joly at Coulee de Serant. At all biodynamic vineyards I was able to witness a living soil versus a dead soil.

The Bourguignons approach grape growing with the same biodynamic sensibilities as Ed and Sarah Boyce at Black Ankle Vineyards in Maryland and Christine Vrooman at Ankida Ridge — and some old world vineyards such as Romani Conti.

So, how is it that Romani Conti and the big names can be biodynamic?

The answer I think is simple — it is micromanagement.

In my opinion, it is not that a belief in biodynamics *per se* causes the soil to be rich.

It is that the practice of biodynamic principles — micromanagement — result in the soil being rich.

In some instances it works and in others it does not. One of my favorite comments about Nicholas Joly, who just happens to own one of the best growing sites in the whole of the Loire Valley, is that, "the wines of Coulee de Serant are wonderful despite Nicholas

wines that are more industrial and international and less distinctive expressions of place.

Vines that are planted closer together and mechanically cultivated will have more deep roots and fewer shallow ones, all of course depending on the nature of the soils they find themselves in.

Lucie believes that there is a key issue here for Virginia growers.

"Our young Virginia wine industry is just scratching the surface when it comes to understanding relationships between our soils and wine quality," she said. "Also our wines range from \$10 to \$100 per bottle and the viticultural practices that go into producing the various price points will be as different as they are in the rest of the world."

As a slight aside, Lucie quipped that she "enjoys Kraft Singles on a cheeseburger and Roquefort on a crisp apple slice. One of the cheeses is microbiologically 'dead' and the other has live fungus growing in it—*vive la difference*."

Polarizing and harmless fringe issues like buried cow horns or moon-phase based activities associated with Biodynamics should not take much of our attention, Lucie added.

"What we need to remember is that our own human health is directly related to the health of our air, soil and water," she said.

Of immediate concern to her is the upcoming "drenching" of Virginia farmlands with 2,4-D herbicide made possible by patented GMO field crops that can take it.

But while new versions of corn, soybeans and cotton will be resistant to 2,4-D, grapevines are not, and so vineyards will be at some risk to spray drift.

Tremain Hatch covers this issue as well in the most recent issue of Tony Wolf's Viticulture Notes (<http://bit.ly/1q52Yzw>). To prepare for these changes, he said, "take a moment to consider methods to improve your communication with neighbors (especially those who grow row crops near your vineyard) and your own recordkeeping procedures. Communicating with neighbors is a necessary part of agriculture; there will always be risk of drift from other cropping systems and some right-of-way land management practices.

Lucie worries that these new crops will provide "quick fixes" for cheap food, but end up being very costly to many life forms, including us, in the long run, and thinks that more research should be done on the impact on vineyards.



Exploited soil on the left, well-tended soil from a biodynamic vineyard in the Loire Valley on the right.

Joly."

So if you are lucky and you have a great site and you practice micromanagement in the guise of biodynamic viticulture it will only make matters better — if you do not have great site, then it will not.

What the Bourguignons did was to bring soil to the front of our thinking. They believe that deep rooting is very important in buffering vine responses to rainfall and in allowing vines to draw minerals from parent rock which allows and accounts for the expression of "terroir."

Vineyards with shallow rooting that draw most of their nutrients from the organic rich top soils where chemical fertilizers and annual herbicide applications have destroyed the natural microbiological systems will produce

Studying “K” Uptake by Grapes

Editor’s Note: Lucie Morton is conducting an important study on the role of clay mineralogy on the uptake of potassium (K) by wine grapes. A short message was posted to the Virginia Vineyards Association web site in June that explained how growers could participate in the study. Hopefully, many did, since the data will almost certainly lead

to improvements in Virginia viticultural practices.

Below, you can read Lucie’s oral presentation on March 24, 2014, for the Virginia Wine Board, which funded the study, as well as excerpts from the full proposal. In the nearby box, you’ll find a reprise of the information from the VVA web site on how you can participate in the study.

I am here today to represent growers who are at the receiving end of what I have come to believe is poor advice about potassium nutrition for wine grapes.

This flawed advice can lead to serious negative repercussions in the cellar and is therefore deleterious to our industry.

In Virginia, grapevine tissue analysis commonly shows K uptake far in excess of what the soil analyses indicate.

Tangentially, high potassium in red fruit is a big issue for winemakers here.

Using “boilerplate” calculations, national laboratories and state extension offices often advise applications of large amounts of potash fertilization when K levels are below 200 ppm or are less than 5% of CEC. (Cation exchange capacity is a measure of the fertility or nutrient holding capacity of the soil.)

Composite samples for these calculations are often taken from a depth of six to eight inches in spite of the fact that grapevines grow into a profile of 2.5 to 6 or more feet.

This is in contradiction to Virginia State Viticulturist Tony Wolf’s use of 75 to 100 ppm of K as an acceptable range in the Mid-Atlantic. In my own experience, vineyards with 20 ppm K and less than 1% K of CEC show no deficiencies and make excellent wine.

The purpose of this proposal is to gather data that will educate all industry stakeholders from agronomic consultants to winery owners about the driving mechanisms behind potassium dynamics in Virginia vineyards. This study will embrace and elucidate complex interrelationships between soil depth (subsoils matter!!), texture, pH, moisture, mineralogy, and parent material. And it will point to the influence of rootstock and scion varieties on potassium uptake.

Excerpts from the proposal:

Potassium (K) in fruit plays a critical role in the pH of must and wine, and pH is known to be a major influence on a number of wine quality factors including color, acid balance and microbiological stability.

How you can participate

If VVA members would like to participate and add baseline survey information to the study, they can provide data to this email address: vitiptpoint@gmail.com. Here’s what they’re looking for:

1. Digital copies of soil reports from their vineyard blocks. They can be from multiple years and can be in spread sheet form. Please provide information on how the sampling was done, and at what soil depths.

2. Digital copies of tissue analyses from those vineyard blocks. They can be from multiple years and can be in spread sheet form. Please specify whether they are from petioles or leaves. (Note: bloom is a standard time for petiole sampling.) You should provide the time of sampling and the age of the vines. Also, specify the cultivar and rootstock varieties.

3. Recommendations that were made about soil amendments.

4. Information about actions

that were taken with regard to soil amendments.

The information collected for this study is not being examined for anything other than generic information and basic trends. It will be logged into the study database by geographic location with a code and not by name of business.

Please note, this is a research project that will ultimately lead to improvements in viticultural practices in Virginia, but it is not intended to provide immediate information to growers.

There will be no reply to growers beyond an acknowledgement that the information has been received. There will be no follow-up contact or opinions from the study team including Lucie. She and her team are simply amassing as much raw data about linkages between soil analyses and tissue analyses in Virginia vineyards as possible.

Potassium availability in the soil can vary greatly and deficiencies can occur; however, in Virginia, excess K absorption by wine grapes is much more common than K deficiency. Growers are commonly led to believe by laboratory analysis that potassium levels in their soils are low, when petiole analysis from the same location often shows elevated K levels in the plant tissue.

In 2004, Paul Chu of A&L Eastern Laboratories in Richmond relayed the following summary of results from 168 grape petiole analyses from 7 Eastern seaboard states, mostly from Virginia, taken in May-July 2004 (personal communication with Lucie Morton):

For potassium: very high = 47 analyses,

high = 49, sufficient = 61, low = 10, and deficient = 1

For magnesium: very high = 0 analyses, high = 2, sufficient = 94, low = 67, and deficient = 5

In spite of the importance of potassium in wine, growers commonly see no correlation between measured potassium levels in their soil and potassium levels in their fruit and wine. This study will help growers learn about the soil mineralogy they can expect to find in specific mapped soils and geology, and how it affects potassium levels in their fruit. This will translate to better nutrient management practices and cost savings.

As a consulting viticulturist, Lucie Morton

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has a protocol for all new vineyards whereby soil pits are dug in strategic locations and soil analyses taken from upper and lower soil strata.

Given her experience with grapevines in Virginia showing high levels of K in petioles of vines in soils with low (20-70 ppm) K, she advises making no amendments until the vines are established and tissue analysis can be done. Her files are filled with data supporting this strategy.

Four forms of potassium in soil

However, she believes we need to have a better understanding of this phenomenon in order to see what cultural measures, such as amendments with competing cations, for example, or alternate rootstock choices, might be taken to reduce high K uptake, which can lead to high pH in the fruit. It is a complex situation with no simple solution, however, understanding the potassium supply from the parent materials of soils and the dynamics of its bioavailability is a fundamental first step.

Potassium exists in the soil in four forms (in order of decreasing availability to plants):

soil solution, exchangeable, nonexchangeable (or fixed), and mineral.

Soil-solution and exchangeable K are the forms that are readily available to plants and account for about 2% of the potassium in the soil system. These are also the forms of K that are easily measured in laboratory soil tests.

Nonexchangeable K and mineral K (about 98% of all potassium in soils) are not detected in common soil tests, but are slowly made bioavailable over time. The sources of potassium in these less available forms and the kinetics of the chemistry of its bioavailability are largely dependent on which minerals are present in the soil.

The most common rock-forming minerals that contribute K to soils are (in order of decreasing availability to plants): biotite, muscovite, orthoclase, and microcline. Variable geology across the Commonwealth manifests itself at the surface in the form of variable soil mineral assemblages with different amounts and forms of K.

Initially, we will focus our research on 6 to 8 Virginia vineyard sites, each with unique geology and soils. We will select sites in the Valley and Ridge, Blue Ridge, Piedmont, and Coastal Plain provinces, to include a

wide representation of the role of mineralogy in potassium nutrient management in different bedrock geologies across the Commonwealth.

We expect to find different soil mineral assemblages at each site, each of which is expected to contribute to potassium bioavailability in different ways.

Expected outcomes and benefits

We expect to help growers understand the importance of the specific soil mineralogy at their site. We will help growers learn what soil mineralogy to expect in different areas based upon mapped soil series and bedrock type, and how it's related to K chemistry and fruit quality.

Only with this understanding of the actual site-specific potassium availability will growers be able to save money from unnecessary inputs of fertilization that would adversely affect wine quality. In future cases growers may wish to implement phytoremediation, utilizing a high-K uptake cover crop such as Alfalfa to remove excess soil solution and exchangeable K from their site.

This research will bring an important wine quality parameter to the nutrient management program in Virginia vineyards and may help change commercial laboratory K recommendations for Virginia growers. This work is also important for the selection of future vineyard sites; with a deeper understanding of how the geology affects potassium availability in the vineyard, superior sites will be selected, resulting in top quality wines.

Study participants (Principal Investigators) include:

- Lucie Morton (100% time commitment)
Viticulturist, Morton Viticulture
Email: mortonviticulture@gmail.com

- Ernest Beasley, MS, PG (100% time commitment)
Geologist, HydroGeo Environmental
Virginia Certified Professional Geologist
Email: ernestwbeasley@gmail.com

Cooperators:

- Dr. Lance E. Kearns, Mineralogist
Professor of Geology, James Madison University
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Email: kearnsle@jmu.edu

- Clifford Ambers, PhD
Clay Mineralogist
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and lower alcohols. As the personality of our terroir unfolds, we are learning to maximize our advantages. I would like to share some of my thoughts and practices.

Theory

I grow two different crops at Linden: red wine grapes and white wine grapes. Red-fruited varieties are now on steeper slopes with low nutrient, low water holding capacity soils. The best wines come from vines that require very little canopy work because they are naturally balanced. They also stop their vegetative growth by the onset of véraison. White-fruited varieties are on more water retentive, more fertile soils. They produce the best wines when the canopy is full and the fruit is mostly shaded, especially from the hot west side.

With the diversity of soils, varieties and vine age at our estate vineyard (Hardscrabble), canopy management has to be finely-tuned to each of our 32 blocks. Fortunately Linden has a full time production staff, some of whom have been here for 25 years. Skilled labor and timing are the keys to precise canopy management.

Practice

SHOOT THINNING: Shoot thinning is our principal method of achieving cluster positioning, yield control, and maintaining vine architecture. The number of shoots retained depends on yield goals and historical cluster weights. Two to three shoots per canopy foot is typical, and two thinning passes are usually made.

The first pass starts once the clusters have revealed themselves and shoot length and direction can be determined. This is typically at about 8 inches length. We leave extra back up shoots in the head region on varieties that have fragile shoots prone to breaking during thunderstorms (Chardonnay and Petit Verdot).

The second pass is usually just before flowering in order to clean up the head area where new adventitious shoots have grown. Hardscrabble is mostly cane pruned so the job goes quickly. The cordon-pruned vines often require a third pass due to the continuing development of adventitious shoots. This third pass happens in conjunction with leaf pulling.

SHOOT POSITIONING: This unavoidable job takes way too much time. I've never liked movable catch wires as I find they bunch and crowd shoots. We still use Tapener tying tools, making constant passes. Timing is critical. If we get to each block before shoots start to fall, the job

goes quickly and the shoots are uniformly spaced.

LEAF AND LATERAL REMOVAL: Never has the pendulum swing been so dramatic as with leaf pulling. Twenty years ago we got a bit carried away with 'bare naked' clusters hanging in the breeze. The hot western sun melted away the acidity and fresh fruit aromas, taking with it most of the character of the wines. With each block we try to achieve a Goldilocks balance of allowing enough aeration and spray coverage with just the right amount of dappled sunlight.

Aromatic whites now receive only a very light removal of east side leaves that hide clusters. Merlot and Petit Verdot get about the same treatment with some additional lateral removal. In Cabernet Sauvignon and Cabernet Franc we are more meticulous about removing cluster zone laterals to prevent pyrazine accumulation.

"Hats" or "umbrella" leaves are always left above clusters to shade from direct sun. In order to leaf pull precisely we use small, low riding wheeled carts so our eyes are at fruit zone level, otherwise, in order to see what they are doing, workers will strip the umbrella leaves.

Leaf pulling is done early and quickly, usually at or just after bloom. This opens up the fruit zone in order to make the critical post bloom sprays effective. We have experimented with very early pre-bloom leaf removal, but have found the excessive sun exposure to be a bit much.

In most vintages the first pass is the only pass, but in some cases we fine-tune in July while cluster thinning. Additionally, in the event of a wet harvest, once the sun lowers and loses intensity in September, we may do a "Hail Mary" pull for better aeration against rot.

HEDGING: At Linden we continue to hedge by hand, initially using Christmas tree machetes when the shoots are succulent, and then later in the season switching to long handled shears. Due to our slopes, uneven ground, and 30 years worth of trellis experimentation, mechanization would be impossible.

Timing is critical. We wait until the shoots have elongated about 18 to 24 inches above the top wire, but before they begin to bend downward. Cutting just a few nodes above the top wire stiffens the shoots so that when laterals take over the upward growth,

the permanent canopy height is ultimately extended 18 inches above the top trellis wire. I find that we seem to frantically hedge just before a thunderstorm. The associated wind and rain can bend down shoots and we would lose our window of opportunity.

With white grapes the goal is 'shabby chic': we want a canopy with side laterals sticking out, especially on the western side, as long as they don't fall back into the canopy. Canopy tops are left a bit disheveled also. It's not your photogenic hedgerow look, but it shades and cools the fruit zone. Reds are more manicured for fear of accumulating the dreaded pyrazines. The occasional exception might be Merlot, which can benefit from a bit more shading to retain freshness in the wine.

CLUSTER THINNING: Linden's cluster thinning operation has become simplified over the years. We basically do an aeration thinning, making sure that no two clusters nest or touch each other. This is done to reduce bunch rot problems.

With a few exceptions, this usually is enough to keep our yield goals in line. Lag phase, or about 40 to 50 days past bloom (but before véraison) is the ideal time to do cluster removal so as to prevent berry enlargement compensation. If done too early, berries will increase in size resulting in tighter, more compact clusters.

In red varieties we do a final 90 percent véraison pass removing lagging green/pink clusters or shoulders.

A balanced vine with the right variety grown on the right soils makes Linden's best wine. Pre-plant decisions trump all other decisions, but it is hard to get it all right in such a new viticultural region.

The more the vines are out of balance (excessive growth in most cases), the more time and expense we spend on canopy management. This constant beating back of the vines is known as band-aid viticulture, which will rarely produce wines of note. Hardscrabble has many corners, ends, and sections of red blocks that are excessively vigorous because of soil inconsistency. To make the highest quality wines, those vines have to be harvested separately for a lesser wine, or removed.

If our goal is to make globally competitive wine, we cannot fall short on any aspect of viticulture. Our climate punishes bad timing and shortcuts, but rewards diligence.

► *Pre-plant decisions trump all other decisions, but it is hard to get it all right in such a new viticultural region.*

Studying Organic Viticulture in France

'WWOOF' offers an opportunity to work abroad, with room and board thrown in

Editor's Note: A Virginia Tech graduate reports on a program that allows U.S. citizens to work in vineyards abroad.

By Brycen Hill

To other young, aspiring Virginia Wine industry members:

I am a recent graduate of Virginia Tech looking to become another valuable piece of the Virginia Wine industry. I graduated with a degree in Chemistry and have worked summer jobs at Boxwood Estate Winery and the Alson H. Smith Jr. Agricultural Research and Extension Center, under Dr. Tony Wolf.

After graduating, I spent three months in the Corbières-Boutenac appellation of Southern France working for an organic wine producer of 360 hectares, named Famille Fabre. I'm

writing this brief article to impart how this amazing experience became possible, and how anyone else can do the same.

The French government is infamous for its red tape, which is excessive, turning many simple tasks into massive headaches. Unemployment is very high in France and thus jobs for citizens outside of France and the European Union are very hard to come by. For an American, options are limited to receiving a work permit, student visa, or marrying a French citizen.

However, if you are looking for a work experience to put on your resume, while having the freedom to explore and enjoy a beautiful new place, there is an alternative.

World Wide Opportunities on Organic Farms (WWOOF) is an excellent organization that can make this entire experience possible. WWOOF is an exchange program that can give any person the opportunity to work on

organic farms in over 100 different countries. Many people know this organization because it gives people the chance to travel with room and board included, in return for work on an organic farm.

What some people might not know is that it can also provide a great working and learning experience for someone aspiring to work in the wine industry.

There are countless organic wine producers around the Mediterranean area that compete with some of the best wines in the world. Their focus on biodynamics and devotion to preservation of the environment, as well as respect for the customer is a fast-spreading model for wine producers.

In the United States, and especially in the East, this style of winegrowing remains fairly underdeveloped. All it takes is a short registration on the website (www.woof.fr) and you can search by keyword, region, or host name.

My experience lasted three months, and I was able to work in a variety of areas at Famille Fabre. My work was not limited to the vineyard; I was able to help in the winery and see the business side as well (distribution, sales, exportation).

Experiences vary from host to host, but registering with WWOOF provides an excellent opportunity to travel and learn with limited expenses.

Being a WWOOFer gave me the experience of a lifetime and contributed tremendously to my career path. Fluency in the language of the host country is extremely helpful, but not completely necessary (languages spoken by the host will be provided on WWOOF site).

So, if you are looking for a great learning experience and an amazing travel experience, I encourage you to look at WWOOF.

Cheers,
Brycen Hill

Editor's Note: Louis Fabre, the head of Famille Fabre, came to Virginia in 1978 to participate in harvesting at Morland Vineyard, King George, VA. His uncle, Professor Robert Cordonnier, taught Lucie Morton enology at Montpellier and asked if he could send his nephew through Virginia on a US tour to learn English. Lucie and Louis have enjoyed "exchanging" young people, including their own children, ever since. In 1978, the Fabre Family vineyard was 400 hectares and the Morton Family vineyard was one hectare. Brycen Hill is their first Woof'er!

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Virginia Vineyards Association

Summary of Draft Strategic Plan

The purpose of this plan is to guide the activities of the Virginia Vineyards Association in its role as a major participant in the growth of the Virginia wine industry. The VVA will be a key player making Virginia the Eastern capital of the American wine industry.

Mission: To improve the quality, profitability and sustainability of wine grape production in Virginia

Vision: Internal: Be the recognized voice for Virginia Winegrape growers.

External: Virginia vineyards will supply the quantity and quality of grapes needed by the Virginia wine industry.

Organizational Objectives

- Growth of commercial grape-growing as a major component of the Virginia agricultural sector.

- Education and information sharing for potential and practical varieties of grapes, and improvement of cultivation practices.

- Improving communication among grape growers, winemakers, and other key players.

- Promotion of viticultural interests of the Commonwealth of Virginia through the use of Virginia grown grapes in the production of wine and other products.

- Establishment, maintenance, and enhancement of mutually beneficial relationships with local, state, and federal governmental agencies and other associations and organizations with objectives similar to those set forth above.

Strategic Goals

- Increase Virginia producing vineyard acreage by 200 acres per year through 2020.

- Improve the quality of wine grapes to attain 25% in the premium/ultra premium wine categories by vintage 2015, reaching 40% by 2020.

- Continue the VVA's solvency, growth, and reach, to increase membership in excess of 7% per year for the next 3 years, and to achieve a specified membership penetration among growers by 2020, with a correspondening increase in website hits, Grape Press views, membership growth, etc.

Goal 1: Increase Virginia producing vineyard acreage by 200 acres per year.

Objective: Improve vineyard profitability

- 1) Strategy: Pursue preferred vendors and terms for capital, loans, crop insurance, etc.

- 2) Strategy: Promote/disseminate research

into reduction of vineyard inputs

- 3) Strategy: Explore options for mechanization

Objective: Reduce the financial risk of grape growing

- 1) Strategy: Update VT published vineyard economics

- 2) Strategy: Disseminate/distribute new growers brochure

- 3) Strategy: Develop and promote standardized sample contracts for vineyard leases, grape sales, and land leases

- 4) Strategy: Increase awareness of vineyard management companies

- 5) Strategy: Develop cost share program

Goal 2: Continue improving the quality of grapes grown in Virginia

Objective: Improve the quality and accessibility of reference materials and resources for quality grape growing.

- 2) Strategy: Promote development of vineyards at high quality sites by using the site evaluation tool

- 3) Strategy: Support research that promotes quality

- 4) Strategy: Advocate key varieties by region

- 5) Strategy: Sponsor educational programs that promote quality

- 6) Strategy: Promote the availability of information sources and services

Objective: Expand the content and usability of the VSWAG tool

- 1) Strategy: Enhance and upgrade via revisions through addition of materials from new research findings, other state programs, field research, and grower feedback.

- 2) Strategy: Develop and publish BMP checklists showing key practices by annual vine growth stages.

Objective: Publicize and highlight member activities and VVA efforts to achieve quality grape growing.

- 1) Strategy: Refocus Grower of the Year program on quality

- 2) Strategy: Expand Grape Press and website to disseminate quality practices and results achieved

Objective: Increase the visibility of vineyard contributions to premium Virginia wines

- 1) Strategy: Identify areas of lax enforcement adversely impacting Virginia growers. Promote needed statutory change.

- 2) Strategy: Promote the increased use of designated vineyard labels.

- 3) Strategy: Actively support and promote the logical definition of new or expanded AVAs

Goal 3: Provide advocacy/leadership for the Virginia vineyard community by continued growth, education/training, reach, and fiscal sustainability to support the membership organization as measured by an increase in membership in excess of 7% per year for the next 5 years and to achieve a specified penetration among growers by 2020, with accompanying increase in website hits, Grape Press views, etc.

Objective: Increase the reach (relevance, scope) of VVA and its ability to support the organization and its members.

- 1) Strategy: Develop membership measures

- 2) Strategy: Create plans for recruitment and development of members to fill leadership and other key positions within the organization

Objective: Improve intra-member communications

- 1) Strategy: Further develop VVA website and expand the use of social media

Objective: Improve the financial position of the organization

- 2) Strategy: Examine expanding funding sources for VVA activities

- 1) Strategy: Explore opportunities for investment of cash reserves

Objective: Identify, evaluate, and recommend opportunities to leverage professional resources from other entities.

- 1) Strategy: Tap into resources at other State grower groups, ASEV, USDA, Farm Bureau, etc.

- 2) Strategy: Explore paid position of executive director/staff via member fee (services) or Grant support

Objective: Explore, develop, staff, and actively promote workforce training and vineyard education programs.

- 1) Strategy: Recruit growers to partner with Community Colleges

- 2) Strategy: Identify and propose recognition programs for trainees, for grower practicum or winery interning, and for permanent hiring, etc.