Winemaker Trials

Using Leaf Pull to Increase Thiols in Sauvignon Blanc

Sauvignon Blanc is an uncommon variety in Oregon's Willamette Valley—so the wine studies program chair of Chemeketa Community College decided to lead his students in a study to discover how, if at all, leaf pull at fruit set can increase the fruit's aromatic compounds.

Stacy Briscoe

SCOTT DWYER, WINE STUDIES program chair at **Chemeketa Community College,** was drawn to the wine industry after completing his graduate education at the **University of Virginia**. He worked for several years as the assistant winemaker at **Pollak Vineyards** in Greenwood, Virginia. During this time, he also became the research coordinator and co-founder of the **Winemaker's Research Exchange**, a wine research non-profit focused on promoting innovation and education in the wine industry. In 2016 he took on the roles of winemaking instructor and program chair for the Chemeketa Community College Wine Studies Program, located in the Willamette Valley.

Winery: Chemeketa Cellars

Objective: This trial measures the increase of thiol concentration levels in Sauvignon Blanc, using heavy early leaf pull compared to standard practice.

Trial Description: Immediately following fruit set, every other row of four identical rows of Sauvignon Blanc (Musquè Clone 101-14 rootstock) was 100 percent hand-leaf-pulled in the morning on the east side. Two rows had zero leaf pull throughout; though these rows were monitored for signs of disease and mildew pressure, neither presented during the growing season. The two lots were picked separately but identically on the same day into four 16A non-slotted macrobins (two trial, two control). Immediately following harvest, each bin was treated with 10mg/L SO_2(l) and cooled overnight at 6° C. The following day each lot was pressed separately but identically with 50mg/L SO_2(s) added to the press pan and transferred to separate 500L stainless steel tanks. The tanks were juice-fined and cold-settled (6° C) for 48 hours, after which they were racked into a different set of 500L stainless steel tanks. After 48 hours, the temperature increased to 12° C, and both tanks were inoculated with 20g/hL Excellence FTH yeast. After 36 hours, signs of fermentation were present, and YAN was increased by 100mg N/L using DAP. Both lots were fermented dry, and 8g/hL extralyse was added. Eleven days following extralyse, 35ppm SO_2 was added, and both tanks were moved to storage at 12° C. Both tanks have identical head space and were layered with inert gas (argon) once a week.

LOT 1: Control - No leaf pull **LOT 2:** Trial - Leaf pull

ANALYSIS NAME	LOT 1	LOT 2	UNITS
free sulfur dioxide	<2	<2	mg/L
molecular sulfur dioxide	<0.10	<0.10	mg/L
total sulfur dioxide	35	40	mg/L
titratable acidity	8	7.9	g/L
pH	2.95	2.96	
volatile acidity(acetic)	0.18	0.21	g/L
sulfides (GC/SCD headspace)			
hydrogen sulfide	<0.5	<0.5	µg/L
carbon disulfide	<1.0	<1.0	µg/L
methyl mercaptan	0.6	0.6	µg/L
ethyl mercaptan	<0.5	<0.5	µg/L
dimethyl sulfide	1.8	1.8	µg/L
dimethyl disulfide	<1.0	<1.0	µg/L
diethyl sulfide	<0.5	<0.5	µg/L
methyl thioacetate	9.5	7	µg/L
diethyl disulfide	<0.5	<0.5	µg/L
ethyl thioacetate	<5.0	<5.0	µg/L
Glutathione HPLC MS/MS (QQQ)	9.9	9.5	mg/L
3-isobutyl-2-methoxypyrazine GC MS/MS	<1.0	<1.0	ng/L

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Conclusion: Initial impressions are that thiols are higher in the control but seem to lean toward the "reductive thiols" rather than the boxwood/gooseberry component that is the goal. While the control may have more thiols in the true chemical sense, it may have less of the "right" ones.


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Winemaker's Postmortem

Why were you interested in measuring thiol concentrations of grapes using heavy early leaf pull versus standard practices? Why did you choose to work with Sauvignon Blanc specifically?

Dwyer: Thiols, most specifically 3-Mercaptohexan-1-ol (3MH), 3-mercaptohexylacetate (3MHA) and 4-methyl-4-mercaptopentan-2-one (4MMP) are responsible for the aromas many people find desirable in certain styles of Sauvignon Blanc. Leaf pull is a commonly used method in many areas to increase the concentration of these compounds by increasing UV exposure and fruit zone temperature. In our 8-acre student vineyard, we have a small block of Sauvignon Blanc and wanted to investigate the downstream differences of leaf pulling versus non in our own vineyard.

Was there a problem you were looking to solve or a benefit you were hoping to achieve through this study?

Dwyer: There have been several previous studies showing that heavy leaf pull at fruit set results in increased concentrations of these thiols. Sauvignon Blanc is not terribly common in the Willamette Valley, so in addition to being able to observe the effects of leaf pull on a finished wine, our goal was also to see if our results were similar to, or consistent with, previous experiments. If so, perhaps early and aggressive leaf pulling can be used as a tool to help increase thiol concentrations of Sauvignon Blanc throughout the Willamette Valley.

Can you explain what steps you took in setting up your trial?

Dwyer: In a single block (0.25 acres) with four identical rows of Sauvignon Blanc (Musque Clone 101-14 rootstock), every other row was 100 percent leaf-pulled on the morning (east) side within and up to approximately 30cm above the fruit zone immediately following fruit set. The "control" rows were left as-is and monitored for signs of disease or mildew pressure, neither of which presented during this growing season.

What were some of the complications you encountered during the course of your trial? How did you address these issues?

Dwyer: The most challenging part of this experiment was ensuring that the two lots were treated identically following harvest. Having completely equal treatments is difficult when exploring compounds that are extremely volatile. Luckily, I was working with a great team of people who went to painstaking lengths to ensure the experiment carried out according to plan.

What was the opinion of your team members with whom you worked on this trial?

Dwyer: As a class/team, we were excited for this trial, both to work with Sauvignon Blanc and to reinforce the ever-important connection of the winery to the vineyard. The results were a little confusing, but both ended up being excellent wines, so no one was too disappointed.

Can you briefly describe the results of your trial? Did the outcome reflect your expectations?

Dwyer: The trial and control were very different throughout fermentation; but as time progressed, they became more and more similar sensorially. From the standpoint of making an aromatic and thiol-rich Sauvignon Blanc, we were successful with both lots. From the standpoint of demonstrating leaf pull as a tool to increase thiols, we fell short. Our results didn't exactly align with our expectations or previously published research on the subject. In fact, they were the opposite. (See below.)

Thiols	3MH (ng/L)	3MHA (ng/L)	4MMP (ng/L)
Control	264.6	16	536.8
Leaf Pull	202.5	7.5	406.4

Knowing what you know now, will you at all adjust your vineyard management or winemaking practices?

Dwyer: Since Sauvignon Blanc is not typical wine for us, I don't think these results will really alter our current program. If we considered making it in the future, I would still likely use leaf pull, as it has advantages beyond increasing thiol production.

What were some of the comments from your team members after the trial? Which wine did they prefer and why?

Dwyer: As we worked with the wine each day during fermentation, there were significant differences between the two lots. Though we couldn't comment on the concentration of thiols, as a group we very much preferred the "trial" whose profile was much heavier in what we presumed to be 3MHA (grapefruit passion fruit) as compared to the control whose profile appeared heavy in 4MMP (box tree). Once fermentation was complete, it became harder and harder to differentiate between the two samples. However, in a blind tasting of the finished wines, a significant majority of participants identified the control as having higher concentrations of thiols, which was later confirmed through analysis.

A blind sensory panel (n=27) showed a statistically significant perception of increased aromatic intensity in the control wine as compared to the trial wine ($p<0.01$). On average, tasters reported increased green aromas in the trial, as well as increased fruit intensity in the control, though laboratory testing showed <1.0 ng/L of 3-isobutyl-2-methoxypyrazine in both wines (ETS).

Do you plan to do a follow-up trial to re-test these results? If so, would you run the same test on the same grape, or try the same test on a different grape variety?

Dwyer: Yes, I think the same trial repeated with the same block across different growing seasons would be interesting in confirming or not confirming the outcomes of this trial. Additionally, repeated trials could eventually show a degree day/thiol correlation or define specific processing techniques that help to capture a greater concentration of thiols in finished wine. **WBM**

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Grape Berry Ripening: How Can We Help You?

Are there products available that can speed the ripening process?

Mark Greenspan

Dr. Mark Greenspan has more than a quarter-century of scientific viticulture research and viticultural field experience. He specializes in irrigation and nutrition management, yield and canopy management, vineyard climate and microclimate, vineyard design and vineyard technology. He is the founder of Advanced Viticulture, Inc. based in Windsor, California (*www.advancedvit.com*), providing consulting, technology, vineyard management and vineyard development for wineries, winemakers and wine growers devoted to producing premium wines. Please direct queries to *mark@advancedvit.com* or 707-838-3805.

AS LONG AS I'VE been in this industry (close to a quarter century in the non-academic sector), it seems like I've been bombarded with "snake oils:" specialty products that will increase yields and Brix while also elevating wine quality. I recall having to tell many of these vendors that we don't always want higher yields for fine wines nor do we necessarily want higher Brix. And, what again do you mean by "higher wine quality?" Usually the response just bounced to higher Brix again, which we don't necessarily equate to high wine quality, especially in warm and sunny California.

That said, are there some products that could be something greater than snake oil? I think so, but nothing beats good viticultural practices.

What is Ripening?

First, let me better define what I am referring to when I discuss ripening. Ripening can mean different things to different people. Indeed, many people do think of Brix as the determination of ripeness; and even though most of us have moved on from that simple notion, we still track Brix, and it is still our indicator of, at least, when to taste fruit for harvest. In marginal climates where attaining a decent Brix is not easy (notwithstanding climate change), Brix can be an essential indicator of ripeness. But in California, we're spoiled. Unless we are growing the wrong variety for the regional climate we're in, or if the vineyard is not overcropped, attainment of desirable Brix is not very difficult in California. Oh, well, except for Red Blotch-affected vineyards, but I'll discuss that in an upcoming column.

So, what I am really referring to when I think of ripeness is really everything else besides sugar concentration. Of course, acid and pH are important, but acid (and hence pH) are a primary metabolite, so I'm really not talking about that either. For white varieties, that largely includes aromatic compounds and their precursors, but for red varieties it will include those, as well as mostly phenolic compounds responsible for color and color stability, mouthfeel, "structure" and simple attributes such as bitterness and astringency. Flavor, aroma and phenolic compounds develop largely separately from sugar importation into the fruit. Rather, they are called "secondary metabolites" and are produced naturally by the fruit, in essence, to increase the desirability of the fruit to be consumed by animals, ostensibly to be pooped out by that animal somewhere else, thus spreading the seed contained within the fruit.

For us, we are interested in developing flavor, aroma and mouthfeel in the fruit for making the best wine from a vineyard. Sugar really has nothing to do with flavor, though its conversion to ethanol during fermentation does provide flavor and body to the wine. Nevertheless, we are really more focused on developing the ideal color and mouthfeel, appropriate and desirable flavor and aromatics, as well as a minimization of undesirable properties, such as vegginess, bitterness and astringency.

The holy grail for fine winegrowing is to achieve "flavor ripeness" (and by that I mean all the above) at a reasonable sugar content and before the fruit begins to shrivel. In my mind, once fruit begins to shrivel, the flavors go quickly into pruney and raisiny characteristics—wines lack freshness and longevity; they become uninteresting and, frankly, undesirable. Couple that with the yield loss that accompanies berry dehydration and no one is happy. So, in regions where sugar accumulates fairly easily, our goal should be to accelerate flavor development.

PHOTOS SCOTT SUMMERS

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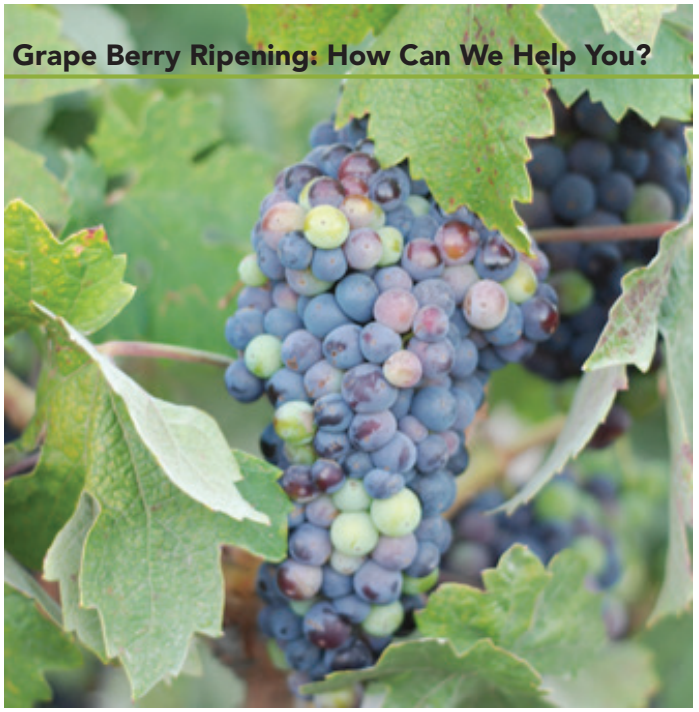
Grape Berry Ripening: How Can We Help You?



Are there some products that could be something greater than snake oil? I think so, but nothing beats good viticultural practices.

A Brief Physiology of Ripening

The secondary metabolism of the grape berry is fueled by its primary metabolism, which is essentially the metabolism of malic acid, the fuel source, after *veraison* begins. The secondary metabolism is a complex set of interlined reactions catalyzed by, as for all biological processes, enzymes. These enzymes are encoded in the vine's genome and are expressed a little bit before *veraison*. They may continue to be expressed after *veraison*, but the big push occurs prior to *veraison*, roughly during the lag phase of berry development.

What do I mean by "expressed?" The encoding sequence on the DNA is transcribed by RNA, making essentially a copy of that DNA template. The RNA then encodes proteins by sequencing amino acids to form peptides, or small proteins. The proteins themselves fold, twist and wrap, depending on their specific sequences, forming unique shapes that, in turn, are specifically designed to catalyze one specific biochemical reaction. There are numerous enzymes that are encoded in this manner, all of which act in concert (not really, but we like to think so) to conduct the miracle of grape berry ripening. By the way, I'm a viticulturist, not a molecular biologist, so if I got some of that wrong, too bad—its close enough for this discussion.

The expression of these genes is not completely automatic. Well, it is automatic in that it will occur when the phenological time clock says it is time, but the relative expression of these enzyme-encoding genes can be influenced. In other words, the amount of enzyme produced per berry is not fixed and can be modulated by the vine.

It turns out that one of the main motivations for expression of the ripening genes into enzymes is stress. Vines under stress want to get their fruit to its tastiest state before they potentially lose the ability to maintain that fruit (and themselves). So, we can kick the vine into extra ripening enzyme production through stress. We can induce stress on the vines in many ways, including cultural, physical, biological and chemical.

Cultural and Physical Influences on Ripening

One of the most commonly used cultural practices for ripening enhancement is water stress management, a subject I've written about numerous times (and will again). Essentially, vines that are water-stressed elevate the plant growth regulator (a.k.a. hormone) abscisic acid (ABA) throughout the vine, including in the berry. ABA, the stress hormone, is one of the most important plant growth regulators when it comes to affecting ripening. ABA itself has been shown to enhance expression of many ripening-associated genes/enzymes. So, enhancing ABA will help us achieve our objective of accelerating flavor ripening in our vines.

Crop load is often associated with wine quality in that high crop loads are usually associated with poorer wine quality. While there is always debate about the true yield-quality relationship, I do believe there is a relationship. Some of the relationship likely has nothing to do with the actual crop load, but on the spatial separation of clusters and uniformity of exposure in the fruit zone. But there may be a source/sink relationship between ABA and berry mass. That's just speculation, of course, and berries are not really a true "sink" for ABA, but there could be a concentration effect of some sort. Please don't repeat that one as scientific fact. Just think about it.

Canopy management directly affects the environment of the clusters, both with regard to light and temperature. Both will have a direct effect on berry composition, especially on boosting anthocyanins and flavonols and degrading methoxypyrazines. But, I'm frankly not so sure how much, if any, of this involves enhancement of enzyme expression. While clearly important, I would not place canopy management into the ripening rate enhancement category.

As mentioned, ABA is perhaps the most well-known stress hormone, though there are other plant growth regulators that respond to stress, including methyl jasmonate and brassinosteroids. On the other side, growth regulators, such as gibberellic acid, cytokinin and auxin, are growth-promoting hormones and may be thought of as the yin to the stress hormones' yang. Under stress, vines produce more stress hormones and less growth hormones and vice-versa.

A company called **AgroThermal Systems** manufactures equipment that generates high heat that is blown on vines by towing the unit with a tractor through the vineyard periodically. The brief exposure to high heat is reputed to induce a stress response in the vines, akin to the stresses from water stress or pathogen stress. According to the company, this has the effect we are discussing here, that is to stimulate the process of ripening to enhance phenolic ripeness in the fruit. I have not tested this technology myself, but it appears to be a feasible concept.

Chemical and Biological Influences on Ripening

Since the stress hormones can stimulate ripening processes, could we just apply them to the vines and get the response we wanted without all that pesky deficit irrigation? The answer is yes and no. Yes, plant growth regulators, such as ABA, may be sprayed on the vines to help promote ripening, but no, they probably won't replace sound water stress management. There is a commercial ABA-containing product, but I'm not aware of other stress-related plant growth regulators that are available commercially in California. I've witnessed some growers who have applied ABA to vines around *veraison* (sometimes by my suggestion), and the results have been lackluster. I think the lack of positive results may be due to timing (probably should be applied during lag phase, not *veraison*) and application target (foliage not fruit). The target, I think, may be an important factor. Grape berries have a thick waxy surface and getting anything to penetrate through that barrier is probably futile. ABA is generated in the leaves (and roots), so the leaves should probably be the target and not the fruit. Likewise for any other hormone that is, or will be, available to apply to vines.

Biostimulants, usually plant and/or sea kelp extracts, are good at stimulating vegetative growth, and we use them routinely in an effort to even up the shoot lengths in our vines during the grand period of growth. But these biostimulant products usually contain gibberellic acid and are generally counter to the stress hormones. So, I would suggest that those products are not desirable to apply just before, during and after *veraison*.

I'm sure we will continue to see novel materials to apply to vines to promote ripening. I was recently introduced to a product from **Lallemand** called **LalVigne**. This is a deactivated yeast product that can be foliar-applied to grapevines. It is not a plant growth regulator, so it does not have an EPA registration, is listed as an organic material and is considered to be in the "generally regarded as safe" category. They make two products, one called LalVigne AROMA and the other called LalVigne MATURE. The former is intended to enhance aromatic ripening in fruit while the latter is intended to enhance phenolic ripening in fruit. They work by inducing a stress in the grapevine, as the deactivated yeast are perceived by the vine as a pathogen, even though the product is "dead" and cannot infect the vine. As I've been saying all along, the stress response of the grapevine is to accelerate the reproductive cycle or, in other words, stimulate ripening. The company recommends applying the material at the onset of *veraison* and again about 10 days after the first application.

Of course, I am skeptical of any product like this. However, I recently had the opportunity to taste numerous trials conducted by many wineries that use this product against control treatment wines made by vines not treated by the product. The effects ranged from subtle to dramatic. I felt that the more flawed the control wine was (lacking something like color, structure or another mouthfeel component or having excessive vegginess), the bigger the difference was between the control and the treated wine. Better wines had some perceptible differences, but the improvement was marginal. However, there were some amazing differences in the wines.

Encouraged, but still skeptical, we will be trialing the product this year in some difficult vineyards and will see for ourselves what the utility of this product really is for us.

Possibly even more far-fetched, but still intriguing, is a product sold by **Enartis** and made by their sister company **BluAgri** called BluVite. Like LalVigne, they have two formulations (for both red and white grapes). The difference here is that the product is not intended to be applied to the vines themselves but to the soil. The product contains sulfur, magnesium and yeast hydrolysate (there's that yeast again). It is intended to stimulate the native microbial populations of the soil which, in turn, stimulate root branching, better nutrient turnover and overall healthier vines.

They have data to show how it has improved vegetative qualities relative to untreated controls. This includes longer shoots/canes of larger caliper, higher leaf area index with greater chlorophyll content and overall more biomass production. If the product indeed stimulates microbial populations (difficult to prove), I can see how it would have the effects they claim.

What is more difficult to comprehend is how their claims of improved fruit and wine quality come about. That said, they do have data that indicate improvements in berry composition. Why would a soil microbial stimulant have a benefit to wine quality? This may be, at least in part, due to improvements in uniformity of fruit maturation, from set through veraison and onto harvest. While not a stress-inducing product like those mentioned above, it may nevertheless have a benefit to wine quality. I suppose this is more akin to the canopy management influence than a stress-inducing ripening stimulant. Again, this product is worth trialing, so we're doing just that.

All-in-all, we can combine good vineyard practices with a few choice spray-on concoctions to enhance the natural ripening of the grapevine. Continue to be skeptical about "snake oils" while remaining open-minded about products that may actually work. Don't trust photo comparisons alone when someone tries to sell you on a product. Insist on seeing scientific research with charts and tables that indicate whether or not the treatment differences were significantly different from the control. That is sound skepticism. WBM

PW PRACTICAL Winery & Vineyard

Can the Effects of Grapevine Red Blotch Disease Be Mitigated with Cultural Practices?

Dr. Alexander Levin

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SINCE ITS CHARACTERIZATION IN 2008, Grapevine Red Blotch Disease (GRBD) has been a major concern for the North American grape industry. GRBD was first discovered and characterized as distinct from Grapevine Leafroll Disease (GLD) in a Cabernet Sauvignon vineyard at the **University of California, Davis Oakville Experimental Vineyard**[3], and the causal agent—Grapevine Red Blotch Virus (GRBV)—was identified shortly thereafter[7].

While mostly localized in the western grape-producing regions of the United States, GRBD has been positively identified in many other economically-important grape producing regions of the United States, Canada and Mexico[6,8,11]. Moreover, there is documented vector-mediated viral spread throughout vineyards in afflicted regions[4,5].

The negative economic impact of GRBD has been estimated to range from $885 per acre in eastern Washington to $27,419 per acre in Napa County, California[13]. These losses are primarily due to concerns about the negative effects of the disease on fruit and wine quality, though GRBD may also reduce vine productivity. With a lack of information regarding infected vine response to cultural management practices, many growers have resorted to removing infected vineyard blocks altogether. However, extensive vineyard replanting may not be economically viable for many growers, and any newly replanted blocks may become re-infected due to surrounding vector activity. Thus, nationwide industry sustainability is threatened. While entomological and viral research continues, grape growers desperately need more viticultural information on how to successfully farm GRBV-infected blocks in the interim period.

To address this need, field trials were initiated in Southern Oregon in 2017 to test common cultural practices, such as irrigation, fertilization and crop thinning in commercial winegrape vineyards to determine their effectiveness at mitigating the negative impacts of GRBD. A summary of preliminary research results from these ongoing studies follows a short review of GRBD symptoms. Current best management practices are included.

KEY POINTS

- Since 2017, Oregon State University-led field trials are testing the effects of vineyard management practices on Grapevine Red Blotch Virus-infected grapevines.
- Preliminary data show that deficit irrigation practices exacerbate the negative effects of the disease, but supplemental irrigation may somewhat mitigate disease severity. In contrast, supplemental fertilization or reducing crop load has minimal to no impact.
- Current best management practices continue to consist of planting certified virus-tested plant material, recognizing symptoms and removing infected vines and avoiding environmental stress in heavily-infected blocks.

PHOTOS BY ALEXANDER LEVIN

Early season foliar symptoms of Grapevine Red Blotch Disease in Pinot Noir in Rogue Valley AVA near Ashland, OR. Photo taken approximately one week prior to *veraison*, August 1, 2018.

Review of GRBD Symptoms

Much like leafroll virus, foliar GRBD symptoms first appear in mid-summer (near *veraison*) on the oldest (basal) leaves and progress up the canopy as harvest approaches[14]. In red-fruited cultivars, foliar symptoms are distinct in some cultivars (such as Cabernet Franc and Cabernet Sauvignon) with red blotches and red veins but may not be readily recognizable in other cultivars (such as Malbec, in which the entire leaf blade may turn red; Pinot Noir symptoms can be easily confused with those of grapevine leafroll virus). Moreover, leaves of red-fruited cultivars tend to turn red in response to other environmental stressors, such as nutritional deficiencies or physical damage (girdling or shoot breakage). In contrast, foliar symptoms in white-fruited cultivars (Chardonnay and Sauvignon Blanc) resemble those of nutritional disorders—interveinal chlorosis appearing at *veraison* leading to necrosis at harvest. It should be noted that symptom onset has been observed approximately two weeks before *veraison* in both northern coastal valleys of California and in southern Oregon. In general, symptom onset can be quite variable across years, sites and cultivars.

The negative effects of GRBD on grape production can be direct—stunted vine growth, lower production and reduced fruit quality; and/or indirect—revenue loss due to removal and replanting, or due to contract restrictions/cancellations.[13] Prior to discovery of the virus, early work from UC Davis found that GRBD-symptomatic Cabernet Sauvignon grapevines in Napa

County had significantly reduced sugar concentrations at harvest[3]. This early work also showed that symptomatic grapevines had increased acidity, reduced juice pH and reduced anthocyanin concentration—all undesirable characteristics for premium wine production.

Given the relatively recent discovery of GRBV, there have been few published reports on infected vine responses to management practices. A broad characterization of GRBV effects on grapevine molecular physiology has recently been published[2]. Field observations have found that GRBV infection and the effects of GRBD can vary substantially with geographic regions, cultivar/rootstock and weather patterns during the growing season. New work has corroborated some of these observations, showing differential vine response to GRBV infection among rootstocks[10]. Nevertheless, infected vine response to management practices remains anecdotal.

Preliminary Results from Management Trials

The Southern Oregon management trials were generally designed to either increase or decrease inputs across infected (GRBV+) and healthy (GRBV-) vines. In all trials, healthy and infected vines were confirmed by polymerase chain reaction (PCR)-based assays, and GRBD progression and severity were monitored at regular intervals throughout the growing season. Vine water relations, gas exchange and fruit growth and development were monitored until harvest. At harvest, crop yield and quality were determined.

Late season foliar symptoms of Grapevine Red Blotch Disease (together with nutritional deficiency and mechanical damage) in Pinot Noir in the Rogue Valley AVA near Jacksonville, OR. Photo taken just prior to harvest, September 6, 2018.

Late season foliar symptoms of Grapevine Red Blotch Disease in Pinot Noir in the Rogue Valley AVA near Jacksonville, OR. Photo taken just after harvest on September 28, 2016.

Crop yield was consistently higher (+23 percent) in GRBV+ fruit—contrary to some previous reports—and was likely due to a higher vine water status conferred by GRBV infection. A reduction in post-*veraison* stomatal conductance was associated with the higher water status and lower photosynthesis in GRBV+ vines. While these phenomena were observed in Oregon-grown Pinot Noir, similar responses have recently been documented in California-grown Cabernet Sauvignon as well[10].

In most cases—but not all—GRBV+ fruit did not ripen to commercial maturity as total soluble solids (TSS) plateaued around 21° to 22° Brix. Notably, increasing irrigation tended to reduce the TSS difference between GRBV+ and GRBV- vines, but increasing fertilization or reducing crop had little effect. Increasing irrigation reduced GRBD symptom severity, but increasing fertilization or reducing crop load had no effect. Thus far, there have been no consistent effects on organic acid concentration and juice pH, corroborating observations that effects of GRBD on fruit quality are highly variable across years, regions and cultivars.

Reducing irrigation increased skin anthocyanin concentration in GRBV+ fruit (+16 percent) but to a lesser degree than in GRBV- fruit (+35 percent). Total (skin + seed) tannin and total (skin + seed) phenolic concentration in GRBV+ fruit was reduced (-10 percent) but was not altered with any cultural manipulations, indicating that the genetic control over these processes by GRBV was stronger than environmental control by cultural practices. Taken

together, these results suggest that keeping vines well-watered may mitigate some of the negative effects of GRBV, but ultimate changes in secondary metabolism due to GRBV infection may necessitate using infected fruit for different wine programs or blending with lots from healthy vineyards.

It is important to highlight that previous reports of GRBD reducing TSS by up to 5° Brix at harvest failed to consider that in growing regions where high TSS are easily attainable, the difference in TSS between GRBV+ and GRBV- vines will be exaggerated. Because harvest TSS are often a function of cultivar and wine style, the organoleptic impact of GRBD may depend more on those two factors.

For example, negative impacts of GRBD may be stronger on fruit destined to make a full-bodied red wine, whereas they may be weaker or not noticeable on fruit destined to make an aromatic, light-bodied wine. Although this may be a subtle distinction, it should be considered when deciding how to manage various infected blocks, particularly when there are certain economic restrictions.

Non-replicated wines were made from some experimental field treatments, and some were subjected to blind—though informal—sensory evaluation by growers and winemakers during a technical meeting in 2018[9]. In general, tasters preferred GRBV- wines, but the differences in preference among treatments were surprisingly small (2 to 4 percent). Indeed, many tasters reported that they preferred some characteristics of the GRBV+ wines or could not tell the difference. Though not rigorously scientific, the tasting results underscore the previous assertion that the impact of GRBD depends on wine style as these were medium-bodied red wines made from Pinot Noir.

Best Management Practices for GRBD

1. **Plant material:** The first step in any virus management strategy is always to start with certified virus-tested plant material produced by nurseries that participate in statewide certification programs. There is no cure for GRBD; when a vine becomes infected with GRBV, it will remain infected. Remember: nurseries are not certified; plants are. This means that the same nursery can sell you vines from certified and non-certified blocks. Be sure to ask your nursery if the plants you are purchasing are certified. In addition, be sure to confirm the that your state's grapevine registration and certification program has included GRBV as a pathogen of concern.

2. **Recognize symptoms and mark symptomatic vines:** Because the best way to control GRBV in the vineyard is to remove sources of inoculum, become familiar with the expression of foliar symptoms across cultivars, and mark vines that are symptomatic. Test samples of symptomatic vines to confirm presence of GRBV. Remove infected vines and replant with clean vines.

3. **Avoid environmental stress:** Maintain a regular program for monitoring both the water and nutrient status of your blocks. Correct for any nutritional deficiencies but do not over-fertilize. Be sure that vines are not stressed for water (particularly early in the season) by applying supplemental irrigation (if available).

Note About Insect Vectors

In management of related viral diseases, such as Grapevine Leafroll Disease, control of the insect vector is an important component of any suite of best management practices. Thus far only one insect species, a type of treehopper—specifically, the threecornered alfalfa hopper, *Spissistilus festinus*—has been found to vector GRBV[1]. Apart from being a feeding host, grapevines have recently been shown to be a reproductive host for *S. festinus* as well[12].

In some growing regions, other treehoppers that are closely related to the threecornered alfalfa hopper have been found in vineyards together with infected vines[5], though their ability to vector GRBV remains an open question. Ultimately, because there are no materials labeled for treehopper control in vineyards, vector management is currently limited as a potential tool to control GRBD in the field. **WBM**

Acknowledgements: The author would like to thank Dr. Achala KC and Rick Hilton at the Southern Oregon Research and Extension Center for helpful discussions related to the preparation of this text, and the Oregon Department of Agriculture, the American Vineyard Foundation, the Oregon Wine Board, the Oregon Wine Research Institute and the Rogue Valley Winegrowers Association for funding support of the work summarized herein.

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WINE BUSINESS MONTHLY svb SiliconValleyBank

Tasting Room
SURVEY REPORT

Visitor Counts Increase in Emerging Regions, Decline in Napa

Results of the 2019 Wine Business Monthly/Silicon Valley Bank Insights to Successful Consumer Wine Sales Survey Report indicate the tasting room model is maturing with the rate of growth slowing in more established regions while increasing in emerging destinations.

Cyril Penn

DIRECT-TO-CONSUMER (DTC) SALES REPRESENT 65 percent of an average winery's revenue. Most direct sales growth has taken place over the past decade and growth has accelerated during the last five years, driven by tasting rooms and clubs.

Tasting Room Openings Outnumber New Wineries

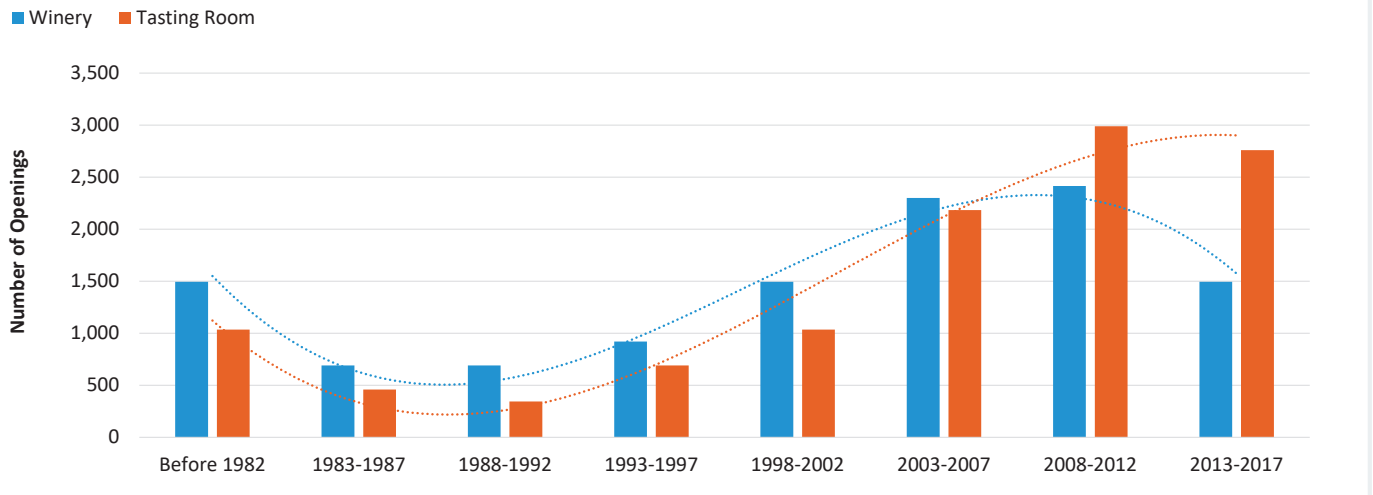
FIGURE 1 shows the number of winery openings for the last few decades. In the last 30 years, wholesale consolidation accelerated, and three-tier sales became even more challenging for smaller wineries. To build profit margins and find new ways to reach consumers, many turned to the DTC sales model, and the pace of new tasting room openings increased. In 2008, the tide turned, and the number of new tasting rooms beat out the number of new winery facilities.

Today, many of those hospitality centers are satellite tasting rooms or "urban" tasting rooms. This year's survey delved into the trend of opening tasting rooms in "urban" areas. More than 90 percent of urban tasting rooms in existence today opened in 2003 or later; 40 percent have opened since 2013.

During a webcast held to release and discuss top line findings of this survey, **Silicon Valley Bank** wine division founder and executive vice president **Rob McMillan** asked, "Is that the way we're going to increase our sales—by just opening more tasting rooms? Is it rational?" It was an open-ended question.

"We've done a pretty good job with tasting rooms, but now the growth options for the tasting room are probably more limited than they used to be," McMillan said.

FIGURE 1 Winery and Tasting Room Openings



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

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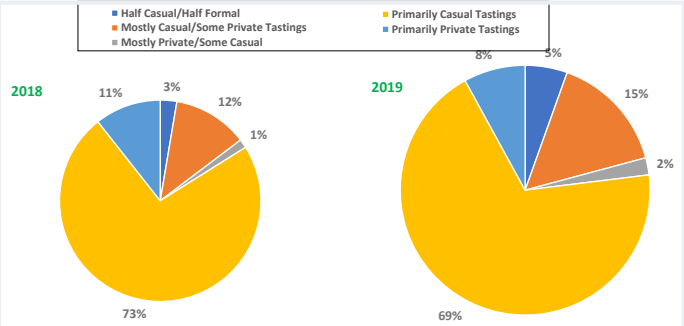
Shifting Toward Casual Tastings

Tasting room service style greatly affects purchasing and spending. For the last five years, we've noted a trend for wineries to offer more by-appointment tastings. The 2014 survey report showed formal seated tasting led to the highest average sales per customer and higher club conversion rates, something that many club managers and tasting room managers took to heart. The 2019 survey, however, showed that many wineries are moving back toward a more casual model for several reasons.

FIGURE 2 **Tasting Room Style: Casual vs. Formal by Year**



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

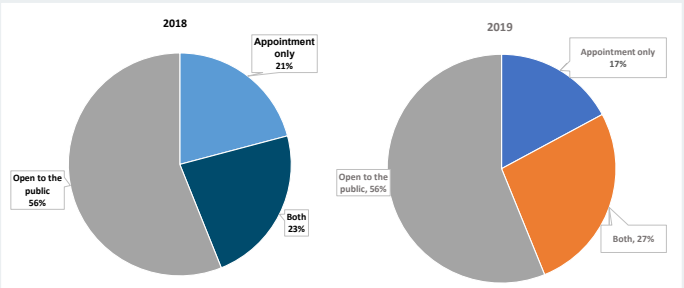
Winery hospitality teams have shifted toward more casual tasting experiences, rather than formal.

During the webcast, **Lisa Kislak**, chief marketing officer at **Crimson Wine Group**, noted that this finding mirrors a trend in the restaurant industry: diners are looking for communal experiences. Sometimes this means that a host (or in the case of a winery, a member of the tasting room staff) will sit with a guest and have a dialogue, which sets a relaxed tone and contributes to a more communal environment.

Tammy Boatright, president of **VingDirect**, said the finding reflects the trend she's seeing and cited the example of a Sonoma County client with a luxury brand that concluded it had too many visitors on weekends and not enough during the week. The client dialed in a combination of walk-in and appointment-only experiences.

Wineries increasingly recognize that today's consumer is looking for choice when it comes to their individual experiences. Wineries are endeavoring to offer open tastings and tastings by appointment, as shown in FIGURE 3. Twenty-seven percent of respondents are refining their models to include both by-appointment and walk-in traffic, up from 23 percent who said the same last year. Wineries are recognizing that one of the benefits of a reservation-only policy is that it facilitates the collection of consumer data: names, email addresses, and more.

FIGURE 3 **Proportion of Appointment Only vs. Public Wineries**

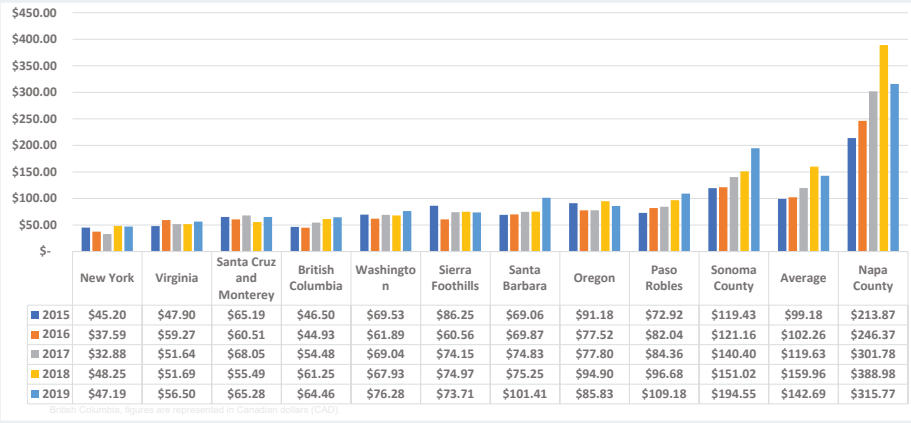


SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

The use of by-appointment tastings is evolving. Eight years ago, Napa represented the majority of by-appointment tastings in this survey. To some extent, that was because Napa county regulations restrict the number of wineries that can be open to the public. The survey, however, revealed that by-appointment and seated tastings deliver better outcomes in terms of sales dollars and volume. Other regions soon followed suit and moved toward by-appointment tastings.

Average Tasting Room Purchases Rise: Is Napa Pricing People Out?

FIGURE 4 Trend of Average Tasting Room Wine Purchases



	New York	Virginia	Santa Cruz and Monterey	British Columbia	Washington	Sierra Foothills	Santa Barbara	Oregon	Paso Robles	Sonoma County	Average	Napa County
2015	$45.20	$47.90	$65.19	$46.50	$69.53	$86.25	$69.06	$91.18	$72.92	$119.43	$99.18	$213.87
2016	$37.59	$59.27	$60.51	$44.93	$61.89	$60.56	$69.87	$77.52	$82.04	$121.16	$102.26	$246.37
2017	$32.88	$51.64	$68.05	$54.48	$69.04	$74.15	$74.83	$77.80	$84.36	$140.40	$119.63	$301.78
2018	$48.25	$51.69	$55.49	$61.25	$67.93	$74.97	$75.25	$94.90	$96.68	$151.02	$159.96	$388.98
2019	$47.19	$56.50	$65.28	$64.46	$76.28	$73.71	$101.41	$85.83	$109.18	$194.55	$142.69	$315.77

British Columbia, figures are represented in Canadian dollars (CAD)

SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

FIGURE 4 indicates trends in the average dollar amount spent on tasting room purchases, which varies depending on the region. Sonoma County saw average tasting room wine purchase prices rise this year, and there's upward momentum in Washington, Paso Robles and British Columbia.

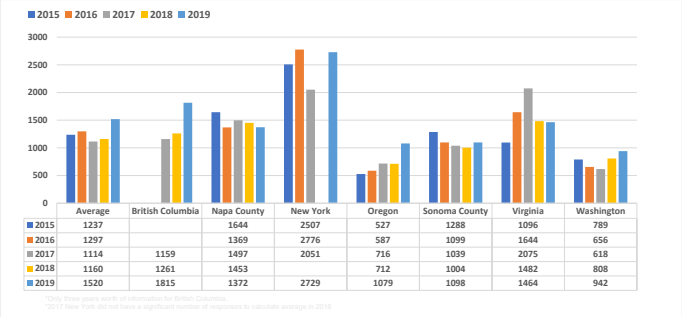
If one looks across different regions, most are showing increases. In Napa and in Oregon, though, average tasting room purchases appear to have declined. The overall average is down in part because it is weighted by Napa.

The average tasting room purchase increased during the last four years but decreased from a high of $159.96 in 2018 to $142.69 in this survey; a drop of 11 percent.

The apparent dip in average spending in Napa represents just one data point. There is typically some variability in survey findings depending on respondents. That said, the findings that average tasting room purchases in Napa declined this year are directionally consistent with findings in the 2019 **Sovos/Wines Vines Analytics Direct to Consumer Shipping Report**. Based on an analysis of shipment data—not a survey—the report indicated the overall average price per bottle increased 2.4 percent averaged over all regions this year, the most significant one-year price spike since 2011. It found that Sonoma County was a standout among regions with the total volume of shipments increasing 19 percent and the value of shipments increasing by 18 percent. In Napa, however, both the volume and value of direct-to-consumer shipments fell in the Direct to Consumer Shipping Report. The findings led to philosophical questions and speculation as to whether pricing in Napa has gone too far, pushing some customers out of the market.

Trending Average Monthly Visitors by Region

FIGURE 5 Trend of Average Monthly Visitors by Region



	Average	British Columbia	Napa County	New York	Oregon	Sonoma County	Virginia	Washington
2015	1237		1644	2507	527	1288	1096	789
2016	1297		1369	2776	587	1099	1644	656
2017	1114	1159	1497	2051	716	1039	2075	618
2018	1160	1261	1453		712	1004	1482	808
2019	1520	1815	1372	2729	1079	1098	1464	942

*Only three years worth of information for British Columbia
*2017 New York did not have a significant number of responses to calculate average in 2018

SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

FIGURE 5 indicates more people are visiting tasting rooms in general. Emerging regions, including British Columbia, Oregon and Washington, saw strong gains. These regions are increasingly being recognized as destinations by consumers.

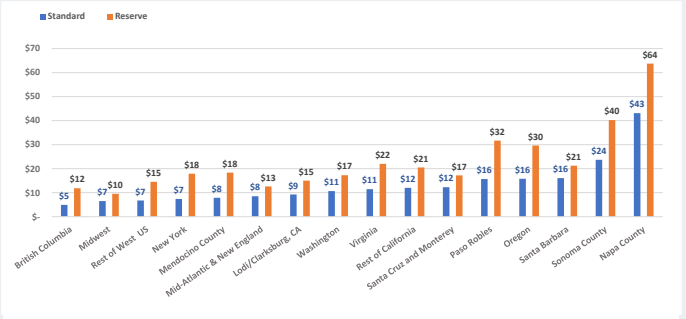
On the other hand, the survey shows declines in average tasting room visitation over time in Napa and Sonoma counties. There are many factors at play, including the recent wildfires. Rising tasting room fees could also be one of the factors slowing visitation, especially with younger consumers.

One of the most likely drivers, though, is the move to slower, seated tastings.

The data indicates winery visitation in Napa tasting rooms is falling despite other reports that more tourists are visiting Napa Valley. Napa, as a region, has set the bar in terms of direct sales—especially when it comes to personalized service. Again, the apparent decrease in tasting room visitation in Napa is in part a result of more personalized experiences, with consumers visiting fewer tasting rooms but staying longer during each visit. People are sitting down for extended periods of time so wineries physically can't see as many people as they did in the past.

Average Tasting Fees – Napa Leads the Pack

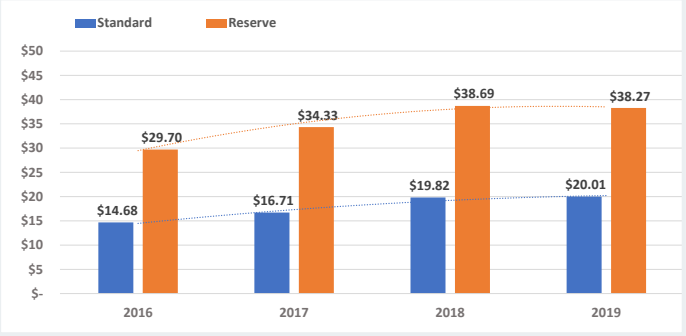
FIGURE 6 Average Tasting Fee by Region



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

FIGURE 6 provides average tasting fees by region. Unsurprisingly, Napa leads in this category with reserve tastings that average $64 and standard tasting fees that average $43. As is often the case, Napa is in its own category.

FIGURE 7 Four Year Trend of Tasting Fees

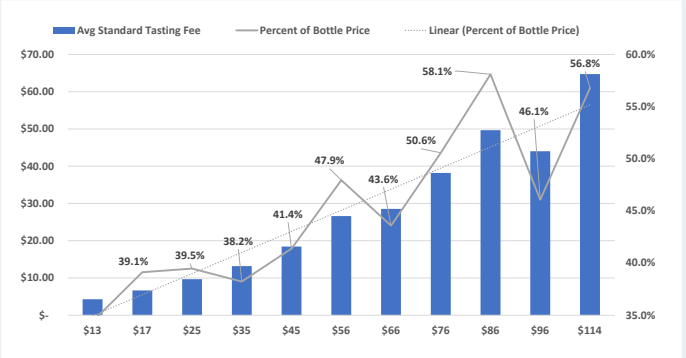


SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

This year's survey indicates the year-to-year growth in average tasting fees recorded in prior surveys has paused. This could reflect the maturing of wine regions and of the tasting room model in general.

One of this year's findings is that the average tasting fee runs between 40 and 55 percent of a winery's median bottle price—a data point that should be considered when thinking through and setting tasting fees.

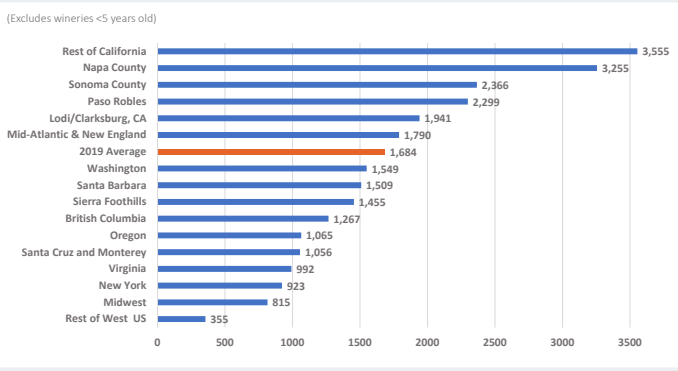
FIGURE 8 Standard Tasting Fee as a Percent of Median Bottle Price



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

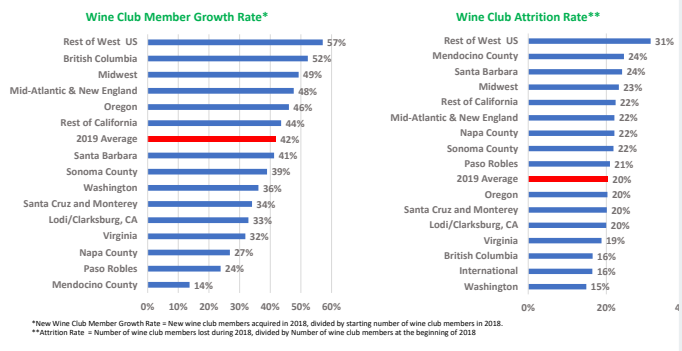
Feeding the Beast, Growing the Wine Club

FIGURE 9 Average Wine Club Size by Region



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

FIGURE 10 Wine Club Member Growth Rate* and Attrition Rate**

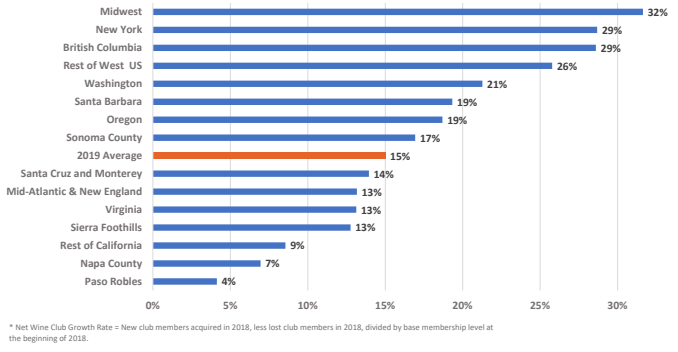


SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

While wineries are continually signing up new members, they are simultaneously losing them. This isn't inherently new. Wine club and DTC managers have been talking about new and innovative ways to retain club members for ages. Fortunately, wineries continue to gain more members than they lose. The 2019 average wine club member growth rate is 42 percent, while the average attrition is 20 percent.

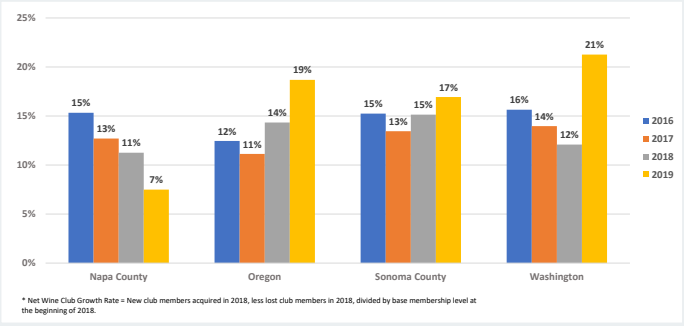
The survey shows nearly all regions experience a similar attrition rate of 15 percent plus or minus 5 percent, with an average wine club membership length at 29 months, consistent with prior surveys.

FIGURE 11 Net Wine Club Member Growth Rate*



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

FIGURE 12 Four Year Trend - Net Wine Club Member Growth Rate*



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

Oregon continues to mature, as does Washington. As some of the other results of this survey have shown, it was a good year for Sonoma County tasting rooms in general, fires notwithstanding. This slide shows Napa's net wine club member growth rate has slowed to 7 percent—roughly half what it was four years ago. Some of what's driving that could be saturation: as clubs get larger, older wineries need to maintain or increase the number of visitors to keep feeding the beast. The number of tasting room visitors falling probably affects wine club signups. To be sure, visitation isn't down at all wineries in Napa —many are working hard to get people to their wineries. Getting more people to come is a top priority for tasting room and club managers. Many work strategic and proactive partnerships with other wineries, hotel concierges, restaurant staff and other influencers.

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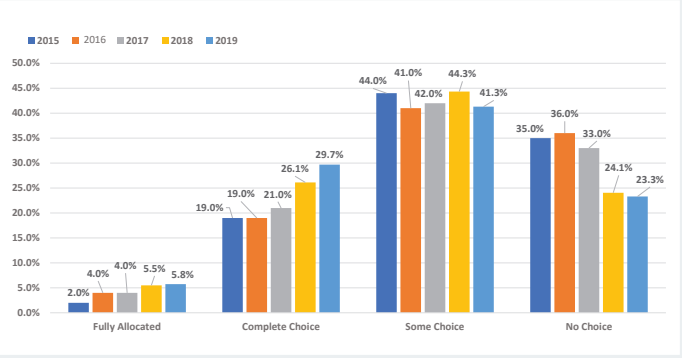
Club Members Have More Options for Each Offering

FIGURE 13 shows that more wineries offer better choices in the types of wines and/or the frequency of club shipments. The number of wineries not offering at least some choice continues to drop.

FIGURE 13 Four Year Trend of Wine Club Shipment Options



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

Providing selection in rate, number and type of wine has been shown to increase average spend and result in higher wine club conversion rates.

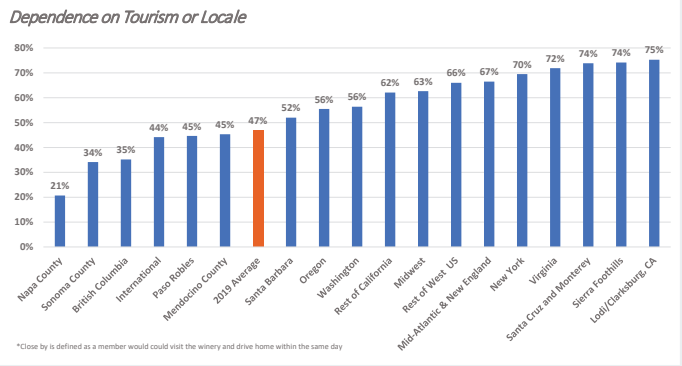
"A few years ago, people in the survey mostly responded that no, they didn't give people (much) choice. Obviously, we've overcome that," SVB's Rob McMilan said. "If the industry is to be successful managing two different demographic cohorts [Boomers and Millennials], choice is going to be important," he said.

Giving options to club members increases the odds of recruiting a new club member, even if some customers prefer trusted curation.

While choice of product probably makes it easier to convert a customer into a member, the data doesn't prove it necessarily leads to longer average time in the club.

Taking the Message Beyond the Tasting Room

FIGURE 14 Members Who Live Close By*



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

This metric, which we started tracking in 2017, underscores the need for wineries to connect with consumers living far away. It is defined by whether people can come to a given winery location and leave the same day or if they need a hotel. Really, the need for wineries to raise the bar in reaching out to these customers is one of the key takeaways from the survey results.

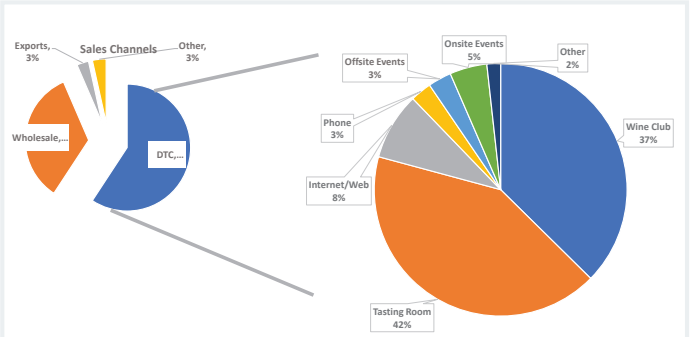
Napa County is 80 percent dependent on people that reserve a room at a hotel. That speaks to the need for wineries to be better at staying in touch with remote consumers after their visit. It also means investing in the ability to have those consumers be able to try wines without physically making it to the tasting room.

The Lodi AVA participated in larger numbers in this year's survey, allowing a breakout of their information. One difference between Napa/Sonoma and Lodi customers is proximity. Seventy-nine percent of Napa's club members are tourists, while in Lodi just 25 percent of club members are tourists. Lodi/Clarksburg's sales are driven by locals while Napa/Sonoma is driven by tourism.

Lodi/Clarksburg is driven by locals. They need to simultaneously appeal to their current and local customer base while driving in new tourism. Napa, conversely, needs to engage more locals, it seems, in order to sustain business.

The Average Winery's Breakdown: Where Direct to Consumer Sales Come From

FIGURE 15 Average Winery's Composition of DtC Sales



SOURCE: 2019 WBM/SVB TASTING ROOM SURVEY REPORT

This chart breaks out the average winery's compositions of DTC sales. The left side of the chart includes the wholesale channel while the right side only includes direct sales. That's why internet/web sales are 8 percent of sales. They are smaller when one factors in the wholesale channel.

Clearly internet and web sales are an untapped area many wineries are increasingly turning their attention to. *Wine Business Monthly* will report more on winery efforts in the e-commerce space with the results of the 2019 Technology Survey, which will run in the August 2019 issue. **WBM**

TIMELINE: Takeaways from Past Survey Reports

2018

VISITOR COUNTS DOWN?

The 2018 WBM/Silicon Valley Bank tasting room survey pointed to a drop in average visitor counts in Napa, Sonoma, Washington and Virginia, even though data showed average purchases were increasing in value and wineries saw steady average club membership rates of 29 to 30 months. It was initially attributed to wineries doing a better job counting visitation but later was attributed to other factors: the sheer number of tasting rooms increasing, and more tasting rooms engaging guests in more-involved and time-consuming experiences. The evolution of how people engage with appointment-only and more experiential activities causes visitors to spend more time at each location, leaving time to visit fewer locations in a day.

INCENTIVES FOR CLUB RETENTION

Results showed an increasing number of wineries offering tasting room employees residuals for wine club retention, payments for exceeding team goals and incentives for exceeding goals. Despite incentives trending up, this showed room for improvement with just 8.2 percent of wineries offering payment for contact data capture and just 5.7 percent offering residuals for wine club retention.

ROLE OF URBAN TASTING ROOMS

Urban tasting rooms underperformed tasting rooms at the winery in every metric: less visitation, fewer wine club signups, lower wine sales.

2017

REVENUE RISING

Responses showed the value of tasting room sales growing 15 percent nationally between 2015 and 2016. The volume of wine sold increased, but growth in revenue outpaced growth in volume, reflecting higher bottle prices. Average wine club conversion rates rose to 7 percent, while average tasting room purchases reached $122.

DAY TRIPPERS VS. TOURISTS

The survey asked about day-trippers and the number of wine club members living within a day's drive—ie: the number of wine club members that can come to the tasting room and go home the same day without needing hotel reservations. It had been assumed that tasting rooms in Napa and Sonoma relied largely on day-trippers—people from the San Francisco Bay area driving up for the day. However, the survey showed 80 percent of tasting room visitors in Napa weren't day trippers – a reminder for wineries to focus on ways to maintain relationships with club members living far away.

SERVICE AND STYLE REMAIN KEY

For a fourth year, the survey showed that tasting room service style greatly affects purchasing. It found wineries that are open by appointment only report average purchase amounts that are higher than for wineries that are open to the public. It demonstrated that the choice of tasting room experience greatly influences the success of DTC programs, including conversion rates to wine orders, conversion to wine club members and more. Seated private or formal tasting experiences represent a small segment but a disproportionate share of revenue for some wineries.

2016

ENHANCING GUEST EXPERIENCES

The theme continued to be the escalation of higher-end guest experiences—not just in Napa and Sonoma but in regions across the country—the overarching finding being that wineries were doing a better job at turning tasting-room visitors into club members. The survey showed club conversion rates tripled over three years. Growth varied by region, but wineries saw club memberships grow at double-digit rates the prior year. The average net wine club growth rate across the country was 16 percent.

SERVICE AND STYLE

The survey for a third time asked about tasting purchases by service style, whether tasters typically were standing at a tasting bar, seated at a tasting bar, seated in a casual tasting or group or if visitors participated in formal seated tastings. Service style again correlated greatly with spending, with formal seated tastings leading to the highest average sales per customer. The survey showed wineries that were by appointment-only reported average purchase amounts that were more than three times higher than wineries that were regularly open to the public.

REIMBURSING TASTING FEES?

The survey asked about different tasting fee reimbursement methods. While 52 percent of wineries credited back the tasting fee if a specific number of bottles were purchased, 18 percent set a specific dollar amount and 35 percent waived the fee if the customer joined the club. Sixteen percent said they didn't reimburse tasting room fees. Wineries were encouraged to consider adding value in other ways besides reimbursing fees.

INCENTIVES FOR CLUB RETENTION

For the first time, the survey asked about the payment of residuals for wine club retention. While just 5 percent of respondents said they paid residuals for club retention, it remains an emerging area. Incentives for straight wine sales were also seen increasing. While 34 percent of those surveyed said they offered straight commissions, 21 percent offered bonuses for reaching individual goals.

TIPPING IN THE TASTING ROOM

The survey revealed 74 percent of wineries allow tipping in the tasting room.

TIMELINE: Takeaways from Past Survey Reports

2015

REVENUES INCREASE – SO DOES PROFESSIONALISM

Tasting room revenues increased between 2013 and 2014 as wine clubs grew on average a net 14 percent. Volumes and revenues were up. The average number of cases sold increased 15 percent, with revenues up 18 percent. Results were attributed to consumer interest; legal barriers to interstate wine shipping falling; the economy being relatively stable; and wineries getting better at connecting with consumers—i.e. the level of professionalism increasing.

SERVICE AND STYLE

For a second year, the survey showed a large number of wineries, nearly one in three, offering seated tastings of some sort. Seated tastings were associated with higher average purchases and wine club conversions.

TREADING WATER VERSUS GROWING THE CLUB – OR, WHY IT'S HARD TO GROW

The survey showed club attrition rates in the wine industry averaging about 18 percent, with many finding growing clubs to be a challenge, in part because of the need to sign up so many new members to maintain a given size. The survey showed wineries in Napa needing to overcome a 23 percent annual attrition rate to grow.

THE VALUE OF CLUB MEMBERS

The survey indicated how valuable wine club members are in terms of revenue, with the average wine club member spending $637 per year per club—a figure that reached $1,023 in Napa. The survey showed the average wine club member had a lifetime value of $1,491, or $2,258 in Napa.

2014

SERVICE AND STYLE

For the first time the survey showed that the type of tasting experienced offered matters. It asked about tasting room purchases based on type of tasting. Wineries that were open by appointment only reported average purchase amounts of nearly $294 while wineries regularly open to the public reported average purchase prices of $70. The survey asked about tasting purchases by service style, whether tasters typically were standing at a tasting bar, seated at a tasting bar, seated in a casual tasting or group, or if visitors participated in formal seated tastings. Service style correlated with spending. The survey found formal seated tastings leading to the highest average sales per customer; in 2014 the figures were $172 versus an average purchase of $78 for tasters that were standing at the bar.

MELON SQUEEZERS

The survey asked about the conversion rate of visitors to sale but by flipping the question around and showed that on average, 36 percent of all tasting room visitors across all regions were "melon squeezers," or those that didn't purchase any wine at all.

ECONOMY RECOVERING

In a sign of the economy improving, tasting rooms received more visitors, customers spent more across all the regions. Tasting room traffic the prior year averaged 1,302 visitors per month; an 11.5 percent increase, which followed an 8.5 percent growth in traffic reported the previous year. Napa led in tasting room traffic with more than 2,000 monthly visitors per tasting room.

BEST PRACTICES: FOCUSING ON CONVERSION RATES

The survey report emphasized three key conversion rates wineries should always track: conversion rate to wine order; conversion to wine club membership; and conversion rate to the mailing list.

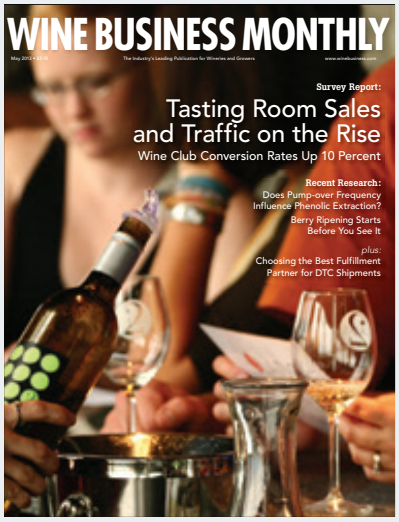
2013

SALES RISING

The survey showed sales through winery tasting rooms increasing, particularly in the premium range (above $40), with price increases becoming more tolerated and accepted. It found that tasting room traffic had increased 8.3 percent on average across all regions in 2012. Santa Barbara County saw the largest increase. The average tasting room purchase amount in 2012 was $69. Napa's average was $164. All regions saw an increase in overall tasting room revenue in 2012, with an average increase of 8.9 percent. Tasting room case sales increased 9.4 percent on average over the previous year.

MORE TASTING FEES

The survey showed a record number of tasting rooms charging tasting fees—79 percent in 2012 compared to 70 percent in 2011, with 68 percent of all tasting rooms reimbursing the fee when a purchase was made. Of all wineries surveyed, 83 percent now had a wine club, compared to 77 percent the previous year.



TIMELINE: Takeaways from Past Survey Reports

2012

PARTNERING WITH SILICON VALLEY BANK – STATISTICALLY SIGNIFICANT FINDINGS BY REGION
Wine Business Monthly first partnered with Silicon Valley Bank to jointly produce the annual tasting room survey in 2012. The partnership resulted in a significantly larger response rate—over the course of three years that rate more than doubled. The survey report for the first time provided a comprehensive review of tasting room and wine club trends, broken down across all regions of North America. The survey added regional benchmarks for wineries by region, making it a more valuable industry resource.

REBOUNDING FROM A RECESSION
Results showed a rebound from a prior recession, with nearly every region experiencing growth in the number of tasting room visitors. Survey results showed, though, that some regions were more negatively impacted by the economy than others. There was a 7 percent growth in the average tasting room purchase across all regions while Napa's average tasting room purchase grew 12 percent.

MORE WINERIES CHARGE TASTING FEES
The survey found 70 percent of North American wineries charging tasting room fees. Even in regions where most wineries were pouring their wines freely to guests, at least a third of the wineries now charged at least some tasting fee.

2011

WEATHERING THE STORM
While the Great Recession saw discretionary spending fall, WBM's sixth annual Tasting Room Survey Report found sales stabilizing and even increasing in 2010 on into the first quarter of 2011. While tasting room sales held steady as a sales source, wine club sales growth fell, as did Internet sales.

MORE SKUS FOR TASTING ROOMS
Having exclusive wines or wines that are only available in the tasting room is a differentiator. The sixth annual tasting room survey report showed wineries increasing the sheer number of differing wines available for purchase. Fifty-five percent said the number of SKUs, or stock-keeping units, in their tasting rooms had increased while 38 percent said that number was the same. Some 93 percent of wineries said that the number of SKUs in their tasting rooms had either stayed the same or increased.

BARRIERS TO GROWTH?
A lack of DTC marketing tools such as CRM software or web analytics software were cited by 60 percent of respondents as a barrier to DTC wine sales. Facing a capital-constrained environment, respondents cited a lack of resources, such as people, time and money; effective technology and systems; acquiring customers; and a lack of DTC marketing tools, such as those for customer relationship marketing (CRM) and Web analytics.

TELESALES A DRIVER
Wineries reported both in-house and out-of-house, telesales becoming more of a driver of new DTC sales.

2010

MORE WINERIES OFFERING CHOICE
Data showed sales growth via the tasting room outpacing ecommerce and wine clubs, and wineries starting to offer multiple wine club options. Wine club attrition rates fell in early 2010. While the outlook was mixed, direct to consumer sales held their own. The report showed an increasing number of wineries starting to watch their metrics, measuring attrition and wine club conversion rates.

RECESSION HANGOVER
By all accounts, it had been a challenging year for wine sales in general, particularly at higher price points. The survey showed price points where most wineries were selling direct dropping slightly, with more wines sold in the $14 to $24.99 category and slightly fewer wines sold direct in the $25 to $49.99 category.

WINERIES INCREASINGLY DEPENDENT ON DIRECT SALES
The percentage of DTC sales derived from the tasting room increased over 2009 but wine club and ecommerce sales were pretty flat. Because of compliance headaches, one quarter of all wineries reported shipping to just one state. On the other hand, 42 percent of wineries said they were licensed to ship in more than 10 states.

CALIFORNIA ALLOWS WINE BY THE GLASS IN TASTING ROOMS
The survey asked wineries if they serve wine by the glass. The practice was already widespread in most of the country but was new to California. State law legalized the practice in 2009.

TIMELINE: Takeaways from Past Survey Reports

2009

RECESSION STRIKES, CONSUMERS BAIL ON CLUBS

The 2009 survey showed direct-to-consumer sales and wine club sign-ups slowing. Two-thirds of wineries with wine clubs reported an increase in membership cancellations. Fewer wineries charged for tastings compared to the previous year, signaling a leveling off, and more tasting rooms were applying the fee to wine purchases

SHARPENING THE FOCUS

Successful wineries used the time to hone their expertise and leverage traffic. Readers were reminded that even with decreasing traffic, there was still much that could be done. Wineries worked to up conversion rates for the wine club, for example, with the same number of visitors by evaluating staffing and providing additional training. The report included discussion reminding people to view tasting room traffic as a jumping-off point for future relationships and to emphasize the ABCs of direct-to-consumer sales: Always Be Collecting—customer information.

2008

MAXIMIZING REVENUE

The survey found more wineries seeking to maximize revenue by charging higher tasting fees and increasing wine club sign-ups by offering greater cash incentives for employees enrolling new club members. Sixty five percent of wineries were charging a fee for tastings (6 percent more than the previous year), and charging tasting fees in the "above $5" range was becoming considerably more popular (up 17 percent over 2006). Seventy four percent of wineries reported having wine clubs (although there were nearly twice as many associated with West Coast wineries), with 15 percent of wineries now paying an incentive of $15 or more for each wine club sign-up (up 7 percent over 2006).

2007

CHARGING FOR TASTINGS

Results showed 59 percent of tasting rooms now charging a fee for tastings, an 8 percent increase over the previous year. The survey found communication with customers and information collection primarily being conducted via email newsletters (77 percent) as opposed to print newsletters and postcards (43 percent). At this point, results showed most tasting fees ranging between $3 and $5, with 77 percent of western wineries and 47 percent of non-western wineries indicating they were in this range. A significant number of non-western wineries (41 percent) said that they charged less than $3. Just ten percent of western wineries charged more than $10.

FINDING STAFF

Much discussion focused on compensation with tasting rooms tending to under-staff and under-pay. Some things don't change.

2006

TASTING ROOMS HAVE MUCH IN COMMON

WBM's first tasting room survey report showed similarities between wineries across the country with many establishing multiple off-site tasting rooms, creating fee-based regular and reserve tasting options, and focusing on non-wine sales revenues in the tasting room. The survey confirmed the obvious: smaller wineries were more dependent on tasting room sales than larger wineries.

TASTING FEES WERE LOWER

Results showed half of respondents charging for tasting. Things change. At the time the editors were surprised it was that high. Average fees were between $3 and $6 across the country, with some wineries outside the West Coast not charging for tastings at all. WBM

Message in a Bottle:
Innovations in Glass are Born by Marketing and Aesthetic Needs

Most innovations in glass bottles are a direct result of glass vendors pushing the envelope and moving beyond their existing stock line to serve a previously untapped market need. More and more frequently it's the wineries that are looking for ways to differentiate their products by customizing their glass packaging.

Michael S. Lasky

Michael S. Lasky is the former editor of *AppellationAmerica.com* and is the author of hundreds of articles for national magazines and newspapers.

AS RETAIL SHELVES ARE obviously crowded with a legion of stock wine bottles, which for the most part are differentiated mainly by labels, capsules and other adornments, it follows that any innovation of the actual glass container, be it for aesthetics or specific function, will truly stand out. Of course the shape, or mold, of a bottle is an important element in defining the glass as innovative. But it is the function-driven design that reveals a bottle's true, unique pedigree.

Wine Business Monthly sought out new glass designs from both glass manufacturers and distributors, as well as bottle-savvy wine companies and négociants. Here are some of the truly innovative bottle designs: Some have been available for a number of years but are deserved for more widespread attention, and others are proprietary to a single company and are represented here as inspirational examples of bottles proactively designed to fill both a marketing aesthetic and utilitarian end.

The examples of proprietary glass, exclusive to a particular company, will be so noted and bottles available for sales to winery will include website addresses for specific ordering information. All bottles shown here are promised to work on automated bottling lines.

187ml Single-serve Wine Bottle

Ardagh Group, *ardaghgroup.com*

With the increasing popularity of single-serve containers mostly limited to aluminum cans, **Ardagh Group**, one of the largest domestic manufacturers of glass bottles, realized there was a growing niche for single-serve glass wine bottles. Together with **GPS Global Brands**, whose focus has been on providing luxury single-serve options for the wine industry, Ardagh has introduced a 187ml single-serve glass wine bottle, available in colored and flint glass, boxed in 24-pack cases. The company boasts that the new bottles are "100 percent infinitely recyclable packages."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Super Punt: Bordelaise Cru Classé

Saverglass, *saverglass.com*

Everything old is new again—at least when you consider the **Saverglass** Heritage Collection, of which the Bordelaise Cru Classé is an eye-candy example. Despite the constraints of an automated production process and refusing to compromise on any aesthetic or technical aspect, the bottle provides a modern flair while replicating the bottles of another age. No doubt its 75 mm deep, angular punt separates this from any other punt-centric bottle. In fact, the 75 mm punt is the deepest cavity ever achieved in any automated production process. The Bordelaise Cru Glassé's extended, slender neck accentuates its broad shoulder. Despite this atypical glass mold, it works without an issue on bottling lines.

Solstice: Sustainability at Large

Saverglass, *saverglass.com*

The purpose was straightforward in filling a previously overlooked trend but growing too much to be ignored: Creating a bottle whose design easily conveyed to consumers that the wine inside was organic or biodynamic. With an eye to the expanding presence of sustainably farmed wines, France-based Saverglass has started to roll out bottles specific to this growing market. Distinguished by its earthen shape, which follows the ovoid contours of the vats often used by organic and biodynamic wine producers, the Solstice has a small, round, semi-circular punt, measuring 21 mm deep, that is intended to represent the quarter moon. Solstice also incorporates a more practical design element—similar to decanters, the bottle's slender neck, combined with its ovoid-shaped body, effectively helps to aerate the wine.

Vinebox Tasting Tubes: Tasting Room To-Go

Proprietary design for direct-to-consumer sales only, getvinebox.com

Former corporate attorney **Matt Dukes**, the CEO and co-founder of **Vinebox**, a subscription-based service of six to 12 seasonal boxes of wine samples, each packaged in proprietary-designed, 100 ml test tube style cylinders, said he was inspired by the single serving successes of **Keurig** coffee and **Nespresso**. He combined that marketing concept with the glass tube presentations he saw French winemakers use when sampling each other's wines, while he was living on a small family winery in Bordeaux. Every quarter Vinebox subscribers receive a box comprised of a potpourri of mostly European varietal wines. It's sort of a "tasting room-to-go." Cross-pollinating the science lab glass into a consumer sampler proves truly innovative and actually came from the previous success Dukes had with another Bunsen burner-inspired, single-serve wine sampler, **Usual Wines**.

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Usual Wines' By-the-Single-Glass Bottles

Proprietary design for direct-to-consumer sales only, usualwines.com

Although glass manufacturers are the source of most of the innovative bottles, more and more frequently wine companies that seek to differentiate their products push the design (and marketing) envelope with unique molds. For Usual Wines, a recent DTC-only start-up, bottle innovation was not only the raison d'être for marketing appeal, explained CEO Matt Dukes, but also for the wine's consumption. The company hired well-known industrial designer **Karim Rashid**, who is best recognized for his **Method** soap bottles, with the concept to make their wine bottles stand out from any other single-serve bottle with the goal of separating the quality of the wines from what could be termed "airplane wines." The resulting 6.7 ounce, wide-bottomed, screwcap bottles are an artistic take on glass containers you would find in laboratories and are filled with French rosé and red blends from California. Wine that would ordinarily be filled in 750 ml bottles can be stretched to fill four times as many 187 ml containers—pure marketing genius.

Sommelier Mouth: No Drip

Global Package, *globalpackage.net, estal.com/en*

The often heard complaint from sommeliers, let alone other wine consumers, is that all wine bottles tend to drip a bit after each pour. Spain-based packaging distributor and glass manufacturer **Estal** seems to be the first to successfully produce a line of wine bottles to both stop the drip and drop the bottling line issues that rise with improper capsule fittings. The continuous straight neck and mouth result in a cleaner silhouette. The design can also allow the neck to be thicker, which is a characteristic of premium and luxury wine and allows for the seamless, no wrinkling installation of capsules, be they polylaminate, aluminum or tin. The sommelier slot below the lip facilitates the cut of the capsule, resulting in a clean, straight cut at the neck of the bottle. Unlike standard mouths, the cutting line is unequivocal and guided—plus doubles as an anti-drip barrier. Moreover, these features of the bottle help to enhance the unique, non-stock bottle shape while maintaining the use of the same capsule, cork, production speed, bottle height and weight. The Sommelier is distributed in the United States exclusively by Napa-based **Global Package**.

O-I/Amorim Helix: Screwcap/Cork Hybrid

O-I or Amorim Cork America, *helixconcept.com*

Despite a screwcap's resealing convenience and ability to maintain wine flavors for years without the possibility of cork taint, many consumers have been reluctant to embrace the alternative closure. They miss the traditional bottle opening ceremony and that ensuing initial pop. Cork giant **Amorim** combined forces with global glass goliath **O-I** to produce an inner-groove bottle and a matching, screw-shape cork so consumers could have their wine and drink it too. The Helix bottle looks like your standard stock glass bottle but sports an internal thread in the neck to accommodate Amorim's ergonomically-designed screw-shaped cork. Although the Helix combo has been available since 2013, its acceptance by wineries has been slow but steady, embraced mainly by the under $10 category like **Bronco Wine Company**'s **Charles Shaw** (aka Two Buck Chuck) and its **Great American Wine Company**. As the novelty of its innovation has faded since its first availability, the Helix's low-key awareness by consumers has surprisingly begun to rise. Despite this, wineries might be reluctant to adopt the Helix because it requires using bottles exclusively from O-I and corks from Amorim, thus forsaking existing glass and cork supplier contracts.

JNSQ (je ne sais quoi): Market Researched Bottle Design Sells Itself

Proprietary design for direct-to-consumer sales only, *jnsq.com*

Like the Millennial women for whom it was made, **JNSQ** (short for je ne sais quoi) makes a statement inside the bottle and out. Inspired by the artistry of classic luxury perfume bottles, the JNSQ Rosé Cru's first-of-its-kind shape and signature rose stopper were designed and manufactured by expert glass-makers in France. The goal was to create a unique bottle whose curves would stand out on the shelf, behind the bar or in the middle of the table—and is the result of dozens of prototypes. "Long after the wine inside has been enjoyed, the bottle becomes a keepsake for displaying fragrances, bath salts or even premium water," according to the corporate marketing mission. **The Wonderful Company**, best known for its **Fiji Water**, **Wonderful Pomegranates** and **Almonds**, produced the bottle from a brain-stormed concept for this new wine brand without a winery—and an innovatively designed bottle as a package that sells itself, not necessarily what's inside. **WBM**

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Retail Sales Analysis:

Wine Sales Increase as Volume, Packaging Shrink

Wines Vines Analytics

Wine Sales Up More Than 1 Percent by Value

Total off-premise wine sales value rose 1.4 percent from a year ago to nearly $14.4 billion in the 52 weeks ended April 20, according to scan data tracked by **Nielsen**. Sales slipped 1 percent in the four weeks ended April 20 versus the same period a year earlier, totaling $1.1 billion.

Sales Volume Continues to Slide

Off-premise sales volume exceeded 161 million 9L cases in the past 52 weeks, a decrease of more than 1 percent. The four weeks ended April 20 saw an even sharper drop, as volumes fell more than 3 percent to 12.1 million 9L cases.

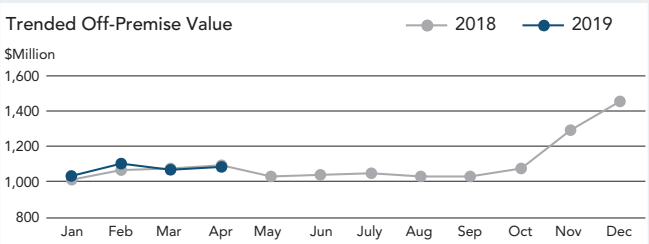
Volume Growth Linked to Packaging

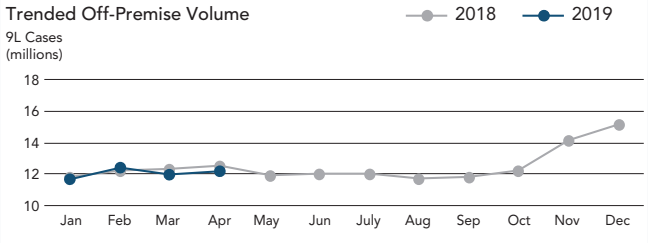
Packaging type points to sales growth, with wines in smaller, alternative packaging posting the strongest advances. Box wines priced at $4 per 750 ml have been especially successful, with 9.6 percent growth by value and 10.2 percent growth by volume in the 52 weeks ended April 20. Sales totaled $800.6 million on a volume of 13.5 million 9L cases.

The steadiest growth by packaging type among box wines occurred in the 3L format, with sales up nearly 8 percent to total $644.6 million and volume rising more than 7 percent to 12.5 million 9L cases in the latest 52 weeks. However, the strongest overall growth was seen among 1L boxes, which gained 11.7 percent by value to more than $30 million in sales over the period, while volumes increased 9.1 percent to 453,582 9L cases.

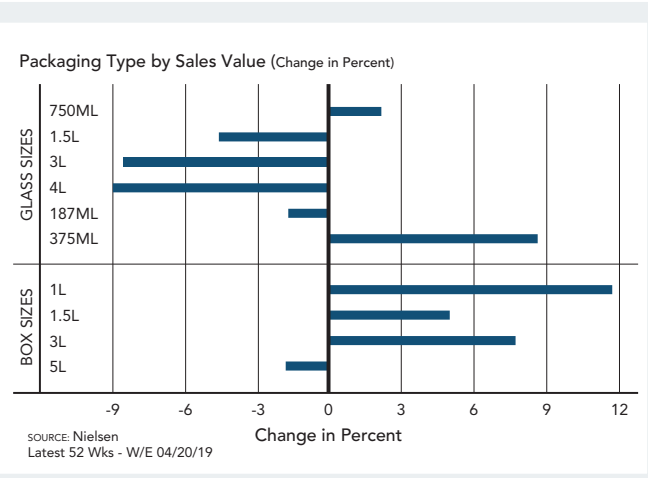
Wines in Tetra Pak also saw strong growth, with sales increasing 12.7 percent to $223.7 million in the latest 52 weeks. Volumes increased 10.8 percent to more than 3 million 9L cases.

The appeal of smaller, more convenient packaging types was also apparent among table wines in glass. Typically, the larger the package, the greater the decrease in sales during the period. A significant exception was wines in 375 ml glass bottles, which saw sales increase 8.7 percent to $18 million. Volume growth kept pace, rising 8.6 percent to 69,140 9L cases. The average price of these wines was $21.70 per 750 ml, reflecting not only the popularity of more expensive wines but also consumer preference for smaller portions. **WBM**





SOURCE: Nielsen. Latest 4 Wks - W/E 04/20/19



SOURCE: Nielsen
Latest 52 Wks - W/E 04/20/19

Methodology

Sourced from Nielsen, these figures represent off-premise retailer wine sales to the consumer aggregated across a variety of channels nationwide, including grocery, drug, mass merchandisers, convenience, dollar, military, as well as a selection of warehouse clubs, and liquor channel geographies and liquor channel retail chains. Nielsen figures are updated and released every four weeks.

Nielsen Table Wine Category Segments **MARKET:** Total US xAOC+Conv+Military+Liquor Plus **PERIOD:** Week Ending **April 20, 2019**

		Dollar Value		Dollar Value % Chg YA		9L Equivalent Volume		9L Equivalent Volume % Chg YA		Avg Equivalent Price Per 750ML	
		Latest 52 Wks - W/E 04/20/19	Latest 4 Wks - W/E 04/20/19	Latest 52 Wks - W/E 04/20/19	Latest 4 Wks - W/E 04/20/19	Latest 52 Wks - W/E 04/20/19	Latest 4 Wks - W/E 04/20/19	Latest 52 Wks - W/E 04/20/19	Latest 4 Wks - W/E 04/20/19	Latest 52 Wks - W/E 04/20/19	Latest 4 Wks - W/E 04/20/19
	TOTAL TABLE WINE	**14,350,470,645**	**1,086,393,844**	**1.4**	**-0.9**	**161,202,891**	**12,121,298**	**-1.2**	**-3.3**	**7.42**	**7.47**
PRICE TIERS BY CONTAINERS	BOX	1,369,939,365	107,169,377	4.8	4.9	33,483,761	2,564,345	2.1	1.1	3.41	3.48
	$0-$3.99	568,980,891	43,235,688	-2.0	-2.4	19,998,283	1,497,418	-2.4	-3.9	2.37	2.41
	$4+	800,595,323	63,693,076	10.2	10.0	13,480,702	1,064,103	9.6	8.8	4.95	4.99
	Total Table Wine Glass	12,726,476,311	958,751,675	0.8	-1.8	124,475,961	9,306,329	-2.4	-4.8	8.52	8.58
	Value Glass $0-$3.99	678,707,413	50,111,361	-5.0	-8.4	17,011,156	1,239,204	-6.5	-10.1	3.33	3.37
	Popular Glass $4-$7.99	3,213,190,816	237,930,285	-5.3	-7.1	48,914,825	3,605,157	-5.8	-7.6	5.47	5.50
	Premium Glass $8-$10.99	3,359,953,725	250,491,633	-1.3	-4.7	29,690,187	2,219,423	-1.9	-5.2	9.43	9.40
	Super Premium Glass $11-$14.99	2,774,251,820	214,446,353	7.4	3.6	18,356,663	1,420,726	6.8	3.3	12.59	12.57
	Ultra Premium Glass $15-$19.99	1,377,115,939	107,477,395	7.4	5.7	6,716,746	527,891	6.4	6.0	17.08	16.96
	Luxury Glass $20-$24.99	565,902,616	42,848,770	7.0	3.1	2,167,521	164,076	5.4	2.2	21.75	21.75
	Super Luxury Glass $25+	752,003,721	53,476,985	4.4	1.2	1,579,626	114,053	1.3	-1.1	39.66	39.06
IMPORTED	IMPORTED	3,792,729,545	287,775,412	1.6	-0.9	40,142,544	3,023,118	-0.7	-2.9	7.87	7.93
	ITALY	1,191,184,941	89,493,213	1.5	-0.1	10,479,920	778,151	-1.0	-3.4	9.47	9.58
	AUSTRALIA	726,958,729	54,796,687	1.0	-4.3	11,956,364	899,329	-0.9	-3.7	5.07	5.08
	FRANCE	462,909,379	33,460,116	9.1	3.3	2,987,521	211,919	8.5	2.2	12.91	13.15
	CHILE	254,890,225	20,041,614	-4.4	-7.8	3,821,681	303,049	-3.3	-5.7	5.56	5.51
	SPAIN	163,304,632	11,707,407	-3.0	-8.7	2,066,535	149,004	-2.0	-7.5	6.58	6.55
	GERMANY	82,795,821	5,873,950	-4.3	-6.7	821,047	58,563	-1.0	-4.3	8.40	8.36
	NEW ZEALAND	479,401,149	39,177,525	9.4	12.3	3,458,016	282,446	9.0	12.7	11.55	11.56
	ARGENTINA	338,682,430	25,084,436	-7.6	-8.3	3,711,296	274,927	-9.6	-9.2	7.60	7.60
	SOUTH AFRICA	24,278,554	1,750,931	-7.3	-3.0	210,013	15,330	-8.1	-3.3	9.63	9.52
	PORTUGAL	41,454,831	2,628,091	9.3	-9.3	449,746	27,263	3.6	-16.3	7.68	8.03
DOMESTIC	DOMESTIC	10,557,741,100	798,618,432	1.3	-0.9	121,060,347	9,098,180	-1.4	-3.5	7.27	7.31
	CALIFORNIA	9,512,111,053	720,361,842	1.2	-0.7	112,403,892	8,442,213	-1.6	-3.4	7.05	7.11
	WASHINGTON	616,409,773	45,567,844	1.7	-5.9	5,145,364	382,686	1.1	-6.5	9.98	9.92
	OREGON	199,844,367	15,317,371	13.4	11.7	1,018,643	77,820	12.3	10.4	16.34	16.40
	TEXAS	32,253,778	2,445,532	-1.1	-3.4	393,553	29,117	-3.2	-5.4	6.83	7.00
	NEW YORK	34,980,909	3,521,117	-5.8	-11.4	484,622	53,198	-7.6	-6.8	6.02	5.52
	NORTH CAROLINA	40,691,194	2,894,864	1.7	-2.2	422,922	30,195	0.3	-4.6	8.02	7.99
	INDIANA	23,637,278	1,744,136	-0.5	-3.8	261,677	19,071	-1.2	-4.7	7.52	7.62
	MICHIGAN	22,148,589	1,407,717	-2.4	-5.5	241,718	15,031	-1.9	-6.4	7.63	7.80
TYPES	RED	7,402,370,627	554,670,418	0.6	-3.3	74,142,735	5,551,011	-2.2	-5.6	8.32	8.33
	WHITE	5,852,504,006	449,726,904	0.7	1.0	70,638,424	5,357,645	-1.2	-1.5	6.90	6.99
	PINK	1,094,284,876	81,975,385	11.5	4.9	16,408,109	1,212,438	3.2	-0.8	5.56	5.63
VARIETALS	CHARDONNAY	2,548,239,092	196,314,999	0.2	0.3	30,080,177	2,288,065	-1.9	-2.5	7.06	7.15
	CABERNET SAUVIGNON	2,645,095,658	201,509,305	3.2	-0.2	24,697,791	1,890,198	0.3	-2.2	8.92	8.88
	PINOT GRIGIO/PINOT GRIS	1,316,740,535	101,904,278	2.0	3.2	17,166,087	1,318,099	1.2	2.1	6.39	6.44
	PINOT NOIR	1,085,895,030	82,164,893	2.5	-1.1	8,449,321	635,032	-0.1	-3.8	10.71	10.78
	MERLOT	734,531,539	54,029,471	-6.3	-9.7	10,225,302	746,934	-7.6	-11.2	5.99	6.03
	SAUV BLANC/FUME	957,199,820	76,309,897	6.9	8.5	8,421,486	667,076	5.0	7.0	9.47	9.53
	MUSCAT/MOSCATO	646,525,440	47,580,410	-2.2	-5.0	9,865,212	716,978	-3.6	-6.6	5.46	5.53
	WHITE ZINFANDEL	281,968,637	20,736,904	-8.0	-8.4	5,712,089	414,557	-8.9	-9.6	4.11	4.17
	MALBEC	261,584,190	19,496,106	-7.6	-9.3	2,455,493	183,472	-9.0	-10.1	8.88	8.85
	RIESLING	242,599,967	17,435,185	-5.9	-9.1	2,690,423	190,706	-6.2	-10.8	7.51	7.62
	ZINFANDEL	227,374,664	16,577,177	-1.9	-7.6	1,620,244	118,106	-5.4	-10.0	11.69	11.69
	SHIRAZ/SYRAH	150,479,880	10,837,047	-7.1	-12.9	1,723,109	123,181	-10.5	-14.9	7.28	7.33
	WHITE BLENDS (ex. 4/5L)	224,920,716	16,439,586	-5.0	-5.9	2,742,945	202,334	-4.5	-6.3	6.83	6.77
	RED BLENDS (ex. 4/5L + CHIANTI)	1,859,194,022	136,702,798	2.1	-3.1	17,160,281	1,261,241	0.5	-4.5	9.03	9.03
	ROSE BLEND	524,884,148	39,897,726	37.5	20.5	4,544,145	343,935	40.9	22.3	9.62	9.66
GLASS SIZES	750ML	10,354,938,105	781,556,797	2.1	-0.9	82,709,653	6,208,926	-0.3	-3.5	10.43	10.49
	1.5L	2,092,962,940	156,361,838	-4.7	-5.6	36,149,513	2,686,930	-5.6	-6.7	4.83	4.85
	3L	62,442,870	4,686,396	-8.6	-9.1	1,636,685	120,067	-10.1	-12.2	3.18	3.25
	4L	79,105,642	5,817,530	-9.0	-11.1	2,522,822	183,705	-11.9	-13.3	2.61	2.64
	187ML	106,485,952	7,954,311	-1.8	-5.3	1,307,914	96,175	-3.5	-6.8	6.79	6.89
	375ML	18,005,573	1,459,386	8.7	5.0	69,140	5,301	8.6	-2.6	21.72	22.96
BOX SIZES	ex. 4/5L	882,711,819	70,361,052	8.9	9.2	15,740,949	1,244,969	7.8	7.6	4.67	4.71
	1L	30,026,157	2,358,001	11.7	13.9	453,582	35,274	9.1	11.3	5.52	5.57
	1.5L	14,855,610	1,147,558	5.0	7.2	242,581	18,778	6.2	9.5	5.10	5.09
	3L	644,576,564	51,143,921	7.8	8.7	12,452,738	986,797	7.2	7.7	4.31	4.32
	5L	487,224,640	36,808,264	-1.9	-2.5	17,742,733	1,319,373	-2.5	-4.3	2.29	2.33
	TETRA	223,673,536	18,105,933	12.7	10.8	3,049,427	239,754	10.8	7.0	6.12	6.30

Source: Nielsen

Top Growers in Sonoma County

Kerana Todorov

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SCOTT SUMMERS

A ***WINE BUSINESS MONTHLY*** survey indicates **Jackson Family Wines** still grows the most fruit in Sonoma County, followed by **E&J Gallo**. Other top growers include the pension fund owned by **TIAA-CREF**, **Treasury Wine Estates** and **Rodney Strong Vineyards**.

The survey was completed by phone, email and analysis of **Sonoma County Agricultural Commissioner** records and other public databases.

Growers in the survey noted that planted vineyard acreage is bound to change as they pull vines, replant or let their land lie fallow for a while.

Additionally, more vineyard transactions are anticipated in Sonoma County once again this year. **Joe Ciatti**, partner at **Zepponi and Co.**, said wineries acquire vineyards to have fruit under their control and prefer to purchase existing vineyards as there is very little open land left to plant in Sonoma County.

Tony Correia, president of **The Correia Co.**, also expects to see new vineyard transactions. Some may be driven by the lack of family succession planning by an aging ownership or "just plain owner fatigue" due to challenges property owners face, including labor shortages, weather, regulations, a slowing wine market and a soft grape market. Correia also predicts that larger wineries may decide to liquidate vineyards to improve financial performance.

Vineyard pricing in Sonoma, like in Napa, is either flat or up while prices in California's other wine regions are down, according to Ciatti's presentation during *Wine Business Monthly*'s **Vineyard Economics Symposium** (VES) in May.

Correia, who also spoke at VES, stated the average cost for prime vineyards in Russian River Valley or the Sonoma Coast runs between $175,000 and $180,000 per acre.

	Company	Acreage	Source/More Information
1	Jackson Family Wines/ Jackson Family	3,700	The Jackson family owns 3,700 acres of planted vineyards in Sonoma County, according to the company.
2	E&J Gallo and affiliated businesses	3,665	The biggest winery in the world owns 3,665 planted vineyard acres in Sonoma County, according to the company.
3	TIAA/Silverado Investment Management Group	2,000	TIAA/SIMCO has about 2,000 acres of planted vineyards in Sonoma County, according to the company.
4	Treasury Wine Estates	1,375	Treasury Wine Estates owns about 1,375 acres of planted vineyards in Sonoma County, according to the company.
5	Rodney Strong Vineyards	1,369	Rodney Strong owns about 1,369 acres of planted vineyards in Sonoma County, according to the company.
6	Ferrari-Carano Vineyards and Winery	1,285	Ferrari-Carano Vineyards and Winery owns about 1,285 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's database.
7	Constellation Brands	1,150	Constellation Brands owns about 1,150 acres of planted vineyards in Sonoma County, according to the Sonoma County Agricultural Commissioner's database and other public records.
8	Sonoma-Cutrer Vineyards	1,128	Sonoma-Cutrer Vineyards owns about 1,128 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
9	Foley Family Wines	1,100	The Foley family owns about 1,100 acres of planted vineyards in Sonoma County, according to the company. The vineyards include Roth, Foley Sonoma, Chalk Hill, Sebastiani and Lancaster Estate.
10	Sangiacomo Family Vineyards	1,100	Sangiacomo Family Vineyards owns about 1,100 acres of planted vineyards in Sonoma County, according to the company. The family also leases another 500 acres in the county.
11	Ledbetter Family	908	The Ledbetter family owns about 908 planted vineyard acres in Sonoma County, according to public databases. The family owns Lodi-based Vino Farms LLC.
12	Balletto Vineyards	784	Balletto Vineyards owns 784 acres of planted vineyards in Russian River Valley, according to the company. The vineyards are either fully owned or in partnerships. The vineyards include Cinque Terre, BCD and Balletto.
13	Cline Cellars and Jacuzzi Family Vineyards	729	Cline Cellars owns 729 acres of planted vineyards in Sonoma County, according to the company. The vineyards include Five Sisters, Jacuzzi Vineyards, Catapult Ranch and Diamond Pile.
14	Kunde Family Winery	650	Kunde family members own about 650 planted vineyard acres in the Sonoma Valley, according to the family.
15	Dutton Ranch	529	Dutton Ranch owns 529 acres of planted vineyards in Sonoma County, according to the company. Dutton also leases 350 acres and manages another 224 acres of planted vineyards within the county.
16	Vimark Vineyard Management	520	Vimark owns 520 planted vineyard acres in Alexander Valley and Russian River, according to the company.
17	Ehret Family Winery	500	The Ehret family owns Bavarian Lion Vineyards in Knights Valley, according to public databases.
18	St. Francis Vineyard and Winery	465	St. Francis Vineyard and Winery owns 465 acres of planted vineyards in Sonoma County, according to the company.
19	Lytton Rancheria	429	Lytton Rancheria owns about 429 planted vineyard acres in Sonoma County, according to the Sonoma County's Assessor's records.
20	Ken Wilson and Family	423	Ken Wilson and family own about 423 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissoner's public database. Holdings include Wilson Artisan Wineries.

Top Growers in Sonoma County

	Company	Acreage	Source/More Information
21	Korbel Champagne Cellars	415	Korbel Champage Cellars owns 415 planted vineyard acres in Sonoma County, according to the company.
22	Domaine Chandon	383	Domaine Chandon owns about 383 planted vineyard acres in Sonoma County, according to public records and the company.
23	Martinelli Winery	360	The Martinelli family owns about 360 planted vineyard acres in Sonoma County, according to public records.
24	Syar Family Vineyards	353	Syar Family Vineyards owns 353 planted vineyard acres in Sonoma County, according to the company.
25	Silver Oak	350	Silver Oak owns 350 planted vineyard acres in Sonoma County, according to the company.
26	Robledo Family Winery	350	Robledo Family Winery owns about 350 acres of planted vineyards in Sonoma County, according to the company.
27	Mulas Family/Alta Vista Vineyards	340	The Mulas family owns about 340 acres of planted vineyards in Sonoma County, according to the company.
28	Hoot Owl Creek Vineyards/Alexander Valley Vineyards	338	Hoot Owl Creek Vineyards and Alexander Valley Vineyards operate in a joint venture in the Alexander Valley. Their holdings include 338 planted vineyard acres, according to the company.
29	Mauritson Wines	323	The Mauritson family owns 323 acres of planted vineyards in Sonoma County, according to the family. Most of the fruit is for Mauritson Wines.
30	Ledson Wineries and Vineyard	300	Ledson Wineries and Vineyards owns about 300 acres of planted vineyards in Sonoma County, according to the company.
31	Munselle Vineyards	300	Munselle Vineyards owns about 300 planted vineyard acres in Sonoma County, according to the company.
32	Leveroni Vineyards	291	The Leveroni family owns about 291 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database and other public records.
33	Robert Young Vineyards/Robert Young Estate Winery	286	Robert Young owns 286 acres of planted vineyards in Alexander Valley, according to the company.
34	Crimson Wine Group	285	Crimson Wine Group owns 285 planted acres in Sonoma County, according to the company.
35	Vella Properties LLC	285	The Vella family owns about 285 planted vineyard acres in Sonoma County, according to public records.
36	Price Family Vineyards	276	Price Family Vineyards owns 276 planted vineyard acres in Sonoma County, according to public records.
37	Paul Hobbs Winery	276	Paul Hobbs owns about 276 planted vineyard acres in Sonoma County, according to the company.
38	Burdell Properties	246	Burdell owns about 246 planted vineyard acres in Sonoma County, according to the company. Holdings include Arroyo Lindo, Buena Tierra and Corazon Del Rio vineyards.
39	Hancock Natural Resource Group	244	Hancock Natural Resource Group owns 244 acres of planted vineyards in Sonoma County, according to public records.
40	Domaine Carneros	232	Domaine Carneros owns about 232 acres of planted vineyards in Carneros, according to the company.

	Company	Acreage	Source/More Information
41	**Ridge Vineyards Inc.**	220	Ridge Vineyards owns 220 planted vineyard acres in Sonoma County, according to the company. Ridge Vineyards leases an additional 80.8 planted acres within the county.
42	**Ricci Vineyards**	216	Ricci Vineyards owns 216 planted vineyard acres, all in Carneros, according to owner Dale Ricci. There are 110 acres of Chardonnay, 100 acres of Pinot Noir and 6 acres of St. Laurent.
43	**Windsor Oaks Vineyards and Winery**	210	Windsor Oaks Vineyards and Winery owns about 210 planted vineyard acres in Windsor, according to the company.
44	**Laird Family**	210	The Laird family owns 210 acres of planted vineyards in Sonoma County, according to the company.
45	**Cooley Ranch**	210	Cooley Ranch owns about 210 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
46	**Haire Management Co. LLC**	209	The Haire family owns 209 planted vineyard acres in Carneros, according to the family.
47	**Kenwood Vineyards**	208	Kenwood Vineyards owns about 208 planted acres of vineyards in Sonoma County, according to the company.
48	**Hanna Winery and Vineyards**	201	Hanna Winery and Vineyards owns 201 acres of planted vineyards in Russian River Valley, Alexander Valley and in the Valley of the Moon, according to the company.
49	**Donnell Ranch**	200	Donnell Ranch owns 200 acres of planted vineyards in Carneros, according to the family. The holdings include El Novillero ranch.
50	**Gloria Ferrer Caves & Vineyards**	197	Gloria Ferrer owns 197 acres of planted vineyards in Sonoma County, according to the company.
51	**Duckhorn Vineyards**	195	Duckhorn owns 105 acres in Alexander Valley and another 90 acres in Russian River, according to the company.
52	**Trinchero Family Estates**	178	Trinchero owns 178 acres of planted vineyards in Sonoma County, according to the company. The family-owned wine business is based in St. Helena.
53	**Kistler Vineyards**	176	Kistler Vineyards owns about 176 acres of planted vineyards in Sonoma County, according to the Sonoma County Agricultural Commissioner's and Assessor's public databases.
54	**Timber Crest Farms**	175	Timber Crest Farms owns about 175 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
55	**Peline Vineyards**	175	Peline Vineyards owns 175 planted vineyard acres in Alexander Valley, according to the company. The family-owned property is planted primarily in Cabernet Sauvignon.
56	**Rombauer Vineyards**	173	Rombauer Vineyards owns about 173 planted vineyard acres in Sonoma County, according to the company.
57	**Peter Michael Winery**	170	Peter Michael Winery owns about 170 planted vineyard acres near Jenner and in Knights Valley, according to the company.
58	**Iron Horse Vineyards**	164	Iron Horse Vineyards owns 164 planted vineyard acres in Sonoma County, according to the company.
59	**Sleepy Hollow**	162	Mark and Marilyn Herzog own about 162 planted vineyard acres in Sonoma County, according to public records.
60	**Eagle Creek LLC/UBS Realty Investors LLC**	154	Eagle Creek LLC/UBS Realty Investors LLC own about 154 acres of planted vineyards in Sonoma County, according to the Sonoma County Agricultural Commissioner's and the Sonoma County Assessor's public databases.

Top Growers in Sonoma County

	Company	Acreage	Source/More Information
61	Stuhlmuller Vineyards	150	Stuhlmuller Vineyards owns about 150 planted vineyard acres in Sonoma County, according to the company.
62	Reynoso Vineyards	150	Reynoso Vineyards owns about 150 acres of planted vineyards in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
63	Murphy Vineyards	150	Murphy Vineyards owns 150 planted vineyard acres in Alexander Valley, according to the company. The company includes Murphy Vineyards and KD Vineyards.
64	Carraro Family	148	The Carraro family owns about 148 planted vineyard acres in Dry Creek Valley, according to the Sonoma County Agricultural Commissioner's public database.
65	Hook & Ladder Vineyards and Winery	147	Hook & Ladder Vineyards and Winery owns about 147 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
66	Larson Family Winery	143	The Larson family owns about 143 planted vineyard acres in Sonoma County, according to the company.
67	The Donum Estate	142	Donum owns 142 planted vineyard acres in Sonoma County, according to the company.
68	Emeritus Vineyards	140	Emeritus Vineyards owns about 140 acres of planted vineyards in Sonoma County, according to the company.
69	Dry Creek Rancheria Band of Pomo LLC	139	Dry Creek Rancheria Band of Pomo LLC owns about 139 planted vineyard acres at Bellacana Vineyards in Sonoma County, according to public records. Bellacana Vineyards is near River Rock Casino in Geyserville.
70	Lago di Merlo Vineyards and Winery	137	The Merlo family owns about 137 planted vineyard acres in Sonoma County, according to the Sonoma County Assessor's Office. The Merlo family produces Lago di Merlo wines.
71	Passalacqua Vineyards	125	Passalacqua Vineyards owns about 125 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
72	Jack London Ranch LLC	125	Jack London Ranch LLC owns about 125 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commisssioner's database.
73	Bacigalupi Vineyards	125	The Bacigalupi family owns about 125 acres of planted vineyards in Sonoma County, according to the Sonoma County Agricultural Commissioner's database.
74	K L Barr LLC	121	Keven and Linda Barr of K L Barr LLC own about 121 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
75	Foppiano Winery	120	The Foppiano family owns about 120 planted vineyard acres in Sonoma County, according to the family.
76	Rued Vineyards and Family	120	The Rued family owns about 120 acres of planted vineyards in Sonoma County, according to the company.
77	Belle Terre Ranch	120	The Dick family owns 120 planted vineyard acres in Alexander Valley, according to the family.
78	Rochioli Vineyards and Winery	120	The Rochioli family owns about 120 planted vineyard acres in Russian River Valley, according to the family.
79	Williams Selyem Winery	120	Williams Selyem Winery owns about 120 acres of planted vines in Sonoma County, according to the company.
80	Jordan Vineyard and Winery	118	Jordan Vineyard and Winery owns about 118 planted vineyard acres in Alexander Valley, according to the company.

	Company	Acreage	Source/More Information
81	Saini Vineyards and Family	118	The Saini family owns about 118 planted vineyard acres in Sonoma County, according to public records.
82	Redwood Ranch and Vineyards	110	Redwood Ranch and Vineyards owns about 110 planted vineyard acres in Alexander Valley, according to the company.
83	Rio Lago Ranch and Vineyard	105	Rio Lago Ranch and Vineyard owns 105 acres of planted vineyards in Sonoma County, according to the company.
84	Furlong Estate Vineyards	103	The Furlong family owns about 103 acres of planted vineyards in Alexander Valley, according to public records and the family.
85	Donalie Acres Inc.	103	The Calonego family owns about 103 planted vineyard acres on Napa Road, according to public databases.
86	Rancho San Miguel Winery	102	Rancho San Miguel owns about 102 acres of planted vineyards in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
87	Eco Terreno Wines/ Mark Lyon	101	Eco Terreno Wines owns about 101 planted vineyard acres in Sonoma County, according to the company. Holdings include the Lyon Vineyard and Cisne Vineyard.
88	Joseph Phelps Vineyards	100	Joseph Phelps Vineyards owns 100 acres of planted vineyards near Freestone—20 acres of Chardonnay and 80 acres of Pinot Noir, according to the company.
89	Knights Valley Ranch	100	Knights Valley Ranch owns about 100 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
90	Los Chamizal/Haywood Winery	100	Peter Haywood owns 100 planted vineyard acres at Los Chamizal Vineyards in Sonoma County, according to public records.
91	Knights Valley Ranch/ Slusser	100	The Slusser family owns about 100 acres of planted vineyards off Franz Valley Road, according to the Sonoma County Agricultural Commissioner's public database.
92	D&L Carinalli Vineyards	100	The Carinalli family owns about 100 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
93	Hafner Vineyards	99.5	Hafner Vineyards owns about 99.5 acres of planted vineyards in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
94	Landmark Vineyards at Hop Kiln Estates	99	Landmark Vineyards owns about 99 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
95	Gundlach Bundschu	97	Gundlach Bundschu owns about 97 acres of planted vineyards in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
96	Olympic Sun LLC/ Washington State Investment Board	94	Olympic Sun LLC owns about 94 planted vineyard acres at Shone Farm in Sonoma County, according to public databases.
97	Santa Rosa Junior College/Shone Farm	94	Santa Rosa Junior College owns about 94 planted vineyard acres in Sonoma County, according to the Sonoma County Agricultural Commissioner's public database.
98	Mahoney Vineyards	91	Mahoney Vineyards owns 91 acres of planted vineyards in Carneros - Sonoma County, according to the company.
99	Kullberg Family	90	The Kullberg family owns about 90 planted vineyard acres at Stage Gulch Vineyards, according to the Sonoma County Agricultural Commissioner's public database.
100	Keller Estate	88	Keller Estate owns about 88 planted vineyard acres in Sonoma County, according to public records.

Succession Planning Starts With Communication

Winery owners share how their families made it to the second generation and beyond.

Jim Gordon

IT'S NOT DIFFICULT TO see that family-owned wineries are in a state of transition. The founders who established thousands of U.S. wineries from the 1970s through the 1990s have aged, retired or died, triggering transitions in management and ownership that have rocked the wine industry in this decade. Practically every week brings a new headline about a vintner family that created a business with passion, sweat and tears now selling that business to a private investor or one of the big existing wine companies that have the vision and the resources to keep expanding.

Almost 30 percent of winery owners said they were "likely" to sell or "seriously considering" selling in the next five years, according to **Silicon Valley Bank**'s 2018 Winery Conditions Survey. The smallest wineries surveyed, those producing 2,500 cases or fewer, revealed the highest likelihood of selling, almost 35 percent.

Many of those likely transitions may occur because the founders are not successful in encouraging younger family members to get involved. The phenomenon is hardly limited to winery businesses, however. "Only a third of family businesses in general will make it to the second generation," said **Peter Johnson**, director of the **Westgate Center for Leadership** and the **Institute for Family Business** in the **Eberhardt School of Business** at the University of the Pacific in Stockton, Calif.

"From the second generation to the third generation, only about 12 percent or 13 percent will make it," Johnson said. "Then if you look at going to fourth generation, you're talking about 3 percent. It's about different goals, different values."

Johnson and other professionals who specialize in family business stress the importance of succession planning to maximize the likelihood that the business can stay in the family, among other benefits. **Jay Silverstein**, a partner at accounting firm **Moss Adams** who has served the wine industry for more than 20 years, wrote in a ***Wine Business Monthly*** article in 2015: "Over the years, most business owners I've met have at least four things in common: They're concerned about growing and preserving the value of their winery or vineyard; they want to make sure they're financially secure; they want to provide for the welfare of their business; and they hate paying taxes.

"All these elements come down to succession planning. Yet many winery and vineyard owners—due to time constraints, the perceived complexity of succession planning or concerns about their own mortality—fail to adequately address their succession planning needs, which means they can't fully achieve their business and personal objectives," Silverstein stated.

Avoiding a Sad Scenario

Sometimes the process of succession planning is the only way to get vintner family members talking to each other honestly about their hopes and desires around the future of their winery. Johnson described a sad scenario about the lack of communication during a panel discussion on succession planning at the **Wine Industry Financial Symposium** last September.

"Now a lot of people go, 'Wow, two-thirds don't make it to the second generation, that's horrible.' Maybe, maybe it's not. Maybe the business ran its course; maybe it's a generational thing. But shouldn't that be the family's decision? What you hate to see is a great family business where the next generation wants to come into it, and they don't because, 'Dad never talked to me about it. I don't know if he wants me to come into it or not.' You talk to Dad, and Dad says, 'Well, you know, next generation never talked to me about it. I don't want to push anything on them.' They go their own ways, and the business is sold.

"We want to make sure it's the family's decision, that it happened because of planning, not because of lack of planning," Johnson said.

Three wineries that put a lot of thought into the transitions shared their "Tales of Successful Succession Planning" at the Wine Industry Financial Symposium, along with those of Johnson and **Russell Joy**, an executive who has run family-owned wineries and now is vice president of California operations for **Ste. Michelle Wine Estates**.

The family winery members were: **Cleo Pahlmeyer**, president, **Pahlmeyer Winery**, a 15,000-case operation in St. Helena, Calif., with an average bottle price of $135; **Peter Mondavi Jr.**, co-proprietor, **C. Mondavi & Family**, also based in St. Helena, a 1.5 million-case producer with an average bottle price of $11; and **Christine Wente**, whose title is "fifth-generation winegrower" at **Wente Vineyards,** in Livermore, Calif. The business produces 650,000 cases, averaging $27 per bottle.

Five Generations of Wentes

Christine Wente is one of six members of the fifth generation to own and run the family winery founded in 1883 by her great-grandfather. When her father, uncle and aunt inherited the business about 35 years ago they made all the decisions. But to bring in Wente and her brother, **Karl Wente**, as owners, they began creating an ownership and management hierarchy.

"We have, in this generation, really tried to formalize governance. I think it's pretty similar to what Peter Mondavi's family has done. Our philosophy has been to put things in place, before we need them, to make sure that we have structures in place before we have to make a dramatic decision."

The structures now include both a family council and a board of directors. The 10-member board includes five family members, the company's non-family CEO and CFO, and three outside advisors with expertise in operations, marketing and private equity.

"We haven't handed over the fiduciary vote, but we make decisions as a board," Wente said. "I think that's a fair way to say it. If something really came down to it, we would probably have to get into voting by share. We haven't had to, and we try to avoid that. I think something would be wrong if we got there."

WENTE VINEYARDS

LEFT TO RIGHT: Jordan, Karl, Christine, Niki, Carolyn, Eric and Phil Wente

C. MONDAVI & FAMILY AND THE CHARLES KRUG WINERY

The Mondavi families: (LEFT) Lia, Lucio, Katie, Peter Mondavi. (RIGHT) Riana, Alycia, Marc, Janice, Gigi, Angelina Mondavi

C. Mondavi Welcomes Generation Four

Peter Mondavi Jr. and his brother **Marc Mandovi** are the third generation of Mondavis to own C. Mondavi & Family and the **Charles Krug Winery**. Their grandparents immigrated to the U.S. from Italy in 1908 and purchased Charles Krug in 1943. Peter Mondavi Jr.'s father, who was also named Peter, and his uncle, **Robert Mondavi**, had a widely publicized disagreement about family winery succession that ended in Robert Mondavi leaving the family company to start his own winery in 1966.

Peter Mondavi Jr. said the transition from his father to him and his brother was not very structured. "Dad remained president of the winery until he was like 99 years old. A wonderful life there. So in the transition, when Mark and I came in, there was one patriarch, one leader. Marc and I came in to work organically and worked up into various responsibilities in the winery."

After Mondavi Jr. and his wife had two children and Marc Mondavi and his wife had four, "We saw the complexity of the situation," Mondavi Jr. said. "This is something that dad did not set up. He did an exceptional job on the estate planning. On his passing in 2016 when he was 101, I think he had $30,000 of assets to his name. So he did a tremendous job on that aspect of planning but not the governance planning. I think you have to have equal emphasis on both aspects, if you want to be successful for the next generations."

On the advice of a family business consultant, they first started an advisory board "to get our feet wet" and, after a year, created a seven-member board of directors composed of Mondavi Jr., Marc Mondavi and five outside experts. "They were brilliant, very successful in their own rights, but it really didn't work out because of the unique requirements of the wine business, the legal aspects of the system."

Deciding the board needed more family engagement, the brothers revised the membership to include themselves, Mondavi Jr.'s son, Marc Mondavi's daughter, the company's president and CEO **Judd Wallenbrock**, and two outsiders who were retired from the wine business. "I think that's been a tremendous improvement," Mondavi Jr. said. Later they started a family council to air issues that concern the family directly.

Management of the company is led by an executive leadership team, none of whom is a family member. As the head of the team, Wallenbrock reports to the board. "So we've gone completely non-family at that level in the company. Out of the six members of the fourth generation, only one is actually on the payroll full time," said Wallenbrock.

BRIANA FORGIE

Cleo and Jason Pahlmeyer

Pahlmeyer Founder Relinquishes Control

Cleo Pahlmeyer is president of the Napa Valley winery that her father, **Jason Pahlmeyer**, founded in 1986. But she worked in other industries for several years before joining the family business. "I was never pushed into this career, which I think is an important thing to know," she said. "My dad expressed an interest, a desire to step away from the management of the business. I thought I would become more and more interested in what he has been doing over the years. I thought, the family business is over unless I become a part of it at this point."

That was 10 years ago, and Pahlmeyer started out by answering phones, entering codes and taking orders. While she moved into managing the winery's direct-to-consumer sales, sales and marketing and public relations, non-family executives were making the big decisions.

"I guess it was always part of the plan for me to eventually run the company. But when my dad came to me about two years ago and said, 'I think it's time,' it was deer-in-the-headlights time. But with such a strong team it has felt like an incredible experience the last year and a half. At this point it feels like it has officially gotten to the next generation with our family winery."

Pahlmeyer said her winery does not have a board structure, like Christine Wente and Peter Mondavi Jr.'s families do. She said she relies on a network of individuals and the company's internal team for support. A voting structure was set up as part of the succession planning, and the company is owned equally by her stepmother, her two brothers and herself.

"We haven't had an issue because my dad hasn't been the generation that's been wanting to maintain control in every kind of way or anything like that. So each scenario has its benefits and its challenges. Having that sort of bridge, of an outside president running the company between my dad and me, has definitely made for a smooth transition."

Fair, but Not Equal, Roles

Russell Joy asked educator Peter Johnson and the panelists to address the fairness factor in passing ownership on to the next generation. Should each family member inherit an equal share of ownership, whether or not they end up working for the family business?

Johnson said, "With three or four kids, you'll have one that'll stay in the business, run the business, and two or three kids that aren't in the business. Now all of a sudden if there's three kids and you've got the one running it, as a third of the ownership, and the two that aren't have two-thirds, you create this challenge. You think, 'I'm a CEO, I'm running the business, I want to invest in this.' Or 'I think we need to re-invest money rather than pay dividends.'

"All of a sudden your siblings are sitting there going, 'Whoa, whoa, whoa, I'm more concerned about the dividends, the cashflow.' So, there are those challenges. You can have people that are not in the business, telling you how to run the business. There's this idea that fair and equal are the same thing, and they really aren't."

Johnson said he believes in encouraging families, where possible, to look at other investments, to be able to take care of those siblings that aren't in the business in a different financial way. An example was when the fourth generation of Wentes developed restaurant and golf properties in Livermore Valley to diversify.

"Here's the challenge: when you start to trim the family tree of who's in the family business. If we're all siblings up here, we buy these three out, their kids, as it is right now, won't have an opportunity to have ownership of the family business," Johnson said.

Wente responded, "We have gone the fairness route for ownership. So it's passed down from parent to child equally. We've gone the market compensation way for participation. So I'm currently working part-time as an active board member. I make a lot less than my brother, who is our COO. Totally fine with me because he is the round-the-clock winemaker, traveling, doing a fabulous job. Mine is a choice to work less, so that's very fair. It is fair in my book, actually, though it's not equal."

Mondavi Jr. added that virtually all the descendants of his Mondavi grandparents have stayed in the wine business, long after Peter Sr. and Robert split up and long after **Constellation Brands** bought the Robert Mondavi Winery from the family and its shareholders. "We're just so passionate about this business that we all stick with it. We're really on the same page as Christine and their family. Just equal all the way down.

"The shareholders, fourth generation and third generation, they vote, and their primary influence is the composition of the board. Then, we rely on the board to oversee the president of the executive leadership team to drive the future success of the business. For the family council, we do have two members, my son **Lucio** and **Mark** and **Genna**'s daughter, **Rhianna**, who are liaisons between the family council and the board. It's an informal thing, but it's trying to get the board in sync with the family's wishes. In this case, the family and the shareholders are one and the same," Mondavi Jr. said.

Talk About Who's Coming In

Johnson offered advice on how family businesses can learn about and begin using succession planning. "How to prepare the next generation? One of the things that I would definitely do is have a conversation, talk to them. Don't make assumptions about who's coming in and who's not coming in. I'm dealing with a company right now. They're thinking about selling the business because the kids aren't showing any interest. I asked, 'Have you had that conversation? Do they understand the business? If they want it, you're behind them 100 percent?' You need to have that conversation."

Wente added that good books and articles about the process are widely available from family business consulting groups because, "There is now an excellent body of knowledge about family businesses. Business schools figured out that we're a big part of the economy. So there are really good blueprints and books and resources."

She cautioned that succession planning is not just about the family. "The family does need to have all the stakeholders in the business aligned on the long-term vision and your mission and your values," she said. "Every decision you make—whether you're just keeping to tradition or changing—you're still all making sure that you have that touch point for, are we heading in the right direction ultimately?"

Wente added, "You need to have alignment with your every stakeholder, every family member and your leadership team. When everyone agrees on what is our long-term vision, what is our mission, then that makes other decisions easy because you go back to that touch point." WBM

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Is Your Winery's Website ADA Compliant?

As a series of lawsuits hit East Coast wineries, the industry pushes for best practices and education on accessible sites.

Stacy Briscoe

Stacy Briscoe is the assistant editor at *Wine Business Monthly*. She has been writing about wine professionally since 2015, freelancing for multiple publications including The *San Francisco Chronicle*, *Edible Communities* and *Napa Sonoma Magazine*, among others. She also maintains her own website, *BriscoeBites.com*, dedicated to wine reviews and tasting notes. Outside of wine writing, she also contributes as a freelance editor for the independent publisher She Writes Press. Stacy has a Bachelor of Arts degree in English-language literature from the University of California, Santa Cruz.

THE LAST FEW YEARS have seen a severe increase in **Americans with Disability Act** (ADA) web accessibility claims—lawsuits that allege certain websites are unusable by those with disabilities because said sites are not coded to work with assistive technology, such as screen readers. According to the **Seyfarth ADA Title III News & Insights Blog** (*adatitleiii.com*), written by ADA Title III specialty team attorneys, the number of suits filed in federal court under Title III of the ADA in 2018 numbered 2,258 cases nationwide, up 177 percent from 814 lawsuits filed the year before.

The Seyfarth ADA blog also states that the vast majority of these suits have originated, and continue to occur, in New York, with a total of 1,564 suits that make up nearly 70 percent of the total web-compliant suits in 2018.

The trend continues into 2019. **UsableNet**, a web and app accessibility consulting site, has been tracking the latest numbers on ADA website suits around the country. According to their report, lawsuits have increased 31 percent within the first quarter (Q1) of 2019, compared to the same quarter last year. Once again, New York takes the biggest hit, with 396 cases thus far in Q1 2019.

Why New York? The Seyfarth ADA blog points to the ruling in the 2017 case **Blick Art and Five Guys,** in which New York federal judges ruled that the rules outlined in the ADA cover websites—even those *not* associated with a brick-and-mortar establishment. Since that ruling, a flurry of suits from New York-based law firms and lawyers (which the blog lists by name) have been after companies whose websites also fail to accommodate the needs of the disabled.

Though businesses of all sizes have been affected (including big names like **Apple** and **Harvard**), the bulk of the suits seem to go to smaller establishments—such as wineries.

Winery Testimonial

Scott Osborn, president and co-owner of **Fox Run Vineyards** in New York's Finger Lakes District, said he first learned about the issue through the **New York Wine and Grape Foundation** (NYWGF), which alerted its members of the suits plaguing the East Coast wine industry.

"I started working internally with my marketing person and my daughter about getting an accessibility statement on the website," Osborn said. The **Bureau of Internet Accessibility** (BOIA) describes an accessibility statement as a business' "policy, goals, and accomplishments related to web accessibility…including instructions on how to use specific accessibility technology that is available on the website and how to contact the organization if a disabled visitor runs into problems."

Osborn also started working with a designer to update various pages of his website. The problem, however, is that designing a website to be completely accessible isn't as easy as updating the computer management software. All imagery—photos, bottle shots, event calendars—need to include "alt text," or an embedded written description, and the website needs to be coded in such a way that assistive technology software can read aloud those descriptions to the visually impaired. Similarly, any audio used on a website needs to include closed captioning capability for the audibly impaired. In addition, the entirety of the website needs to be accessible via keyboard navigation, as most visually impaired persons do not utilize a mouse.

"What was surprising to me is that I'm responsible for the third-party software as well," said Osborn, referring to his e-commerce point-of-sale system. "The shopping cart needs to be compliant; and if it's not, I can be sued for that." Osborn said his vendor, **Nexturnal**, is aware of the issue and "working extremely hard" to assist all their clients in creating ADA-compliant check-out experiences for customers.

So, he said, it takes time to find and fix all these little details. Though Osborn had an accessibility statement in place, ensuring that he and his company are in the process of working on the issue, Fox Run Vineyards was still hit with a lawsuit.