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Inside This Issue: Storytelling in the Wine Industry

ONCE UPON A TIME *there was a publication tailored to the ever-growing wine industry, tasked to keep wineries up to date on viticulture, winemaking, marketing, sales and technology. Each and every day, its editors worked hard to ensure that it remained an essential information resource for wineries and growers. The days were long and the deadlines fast-approaching, but the editors knew that the articles found inside its pages had to be so compelling that they were almost magical. They wanted to do their part to keep the industry strong and reached out to all the experts in all the lands to identify opportunities, new production methods, tools to increase quality and ways to lower production costs.*

Some detractors would scream that traditional print media was dead, but this publication had a happy ending to its tale: Wine Business Monthly is still at it today.

As you may have deduced, this issue includes an article about storytelling in the winery.

Stories make wine memorable. Folks that aren't diehard wine aficionados won't always remember a wine they've tried by varietal, vintage or even region. Tell a good story, though, and the customer remembers the wine and the winery. The trick is that the tale must be authentic.

The slogan "No Wimpy Wines," was coined after Joel Peterson, founding winemaker for Ravenswood, told a business partner he wouldn't make White Zinfandel for cash flow. Peterson told this and other stories about his wines early in his career while selling his product to restaurants and retailers. The stories made the wines and the Ravenswood brand memorable. Ravenswood thrived.

There are also a few stories to tell about oak: Much of this edition delves into developments related to oak and winemaking. Robert Mondavi Winery's long-time chief winemaker Genevieve Janssens, at the forefront of California winemaking for three decades, reflects on the evolution of oak cooperages and on the use of oak when it comes to making age-worthy Cabernet Sauvignon. We also present an update on the supply and demand situation in the barrel market and an article about new research on how oxygen moves through barrels.

As wineries gear up for the 2019 harvest and work on budgeting for the coming year, this issue includes articles on lead times and other considerations for ordering tanks, and for ordering glass. As some of our readers may have heard, the wine industry is directly feeling the effects of the Trump administration's trade policies, with those sourcing bottles from Chinese factories seeing double-digit increases in pricing and less availability. The tariffs are also affecting the availability of stainless steel tanks.

That just scratches the surface of what you'll find inside this month—but it's my story and I'm sticking to it.

Here's to making and selling great wine.

Cyril Penn – Editor

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who's talking in this issue

Joel Peterson, founder, Ravenswood Winery, "Storytelling: Authenticity is Key," page 82

"Storytelling is a gateway into the mysteries of wine. It's like a doorway that can open up this whole amazing world of wine that we live in."

Erica Harrop, president, Global Package, "Tariffs on Chinese Goods Continue to Disrupt Winery Glass Supply," page 72

"Have a real conversation with your glass company. We are looking for solutions. We're looking to do the right thing for you, but it's a very disruptive situation right now for glass suppliers."

Mario Zepponi, principal, Zepponi and Company, "2019 Winery Economics Report," page 88

"The saying goes, 'When Ste. Michelle gets a cold, the Washington wine industry catches pneumonia,' and that is playing itself out right now."

John Cunningham, director of innovation, G3 Enterprises,
"The Art and Science of Capsules: From Design to Bottling Line," page 76

"We see the market changing as people who buy wine are not as traditional as they used to be and are instead looking for more value and ease of use. A screw cap from a technical perspective is a really good closure. I can tell you that we are seeing increased interest for screw caps and continue to explore innovations in this area."

Genevieve Janssens, chief winemaker, Robert Mondavi Winery, "Genevieve Janssens on the Evolution of Oak," page 18

"Some winemakers like many different coopers because they think they will bring a lot of different flavors. I'm not from that school. I think if you know a cooper well, they will give you a lot of different flavors by telling you the different way of aging their staves, the different way of tasting the barrels, the different forest, tightness of grain or area inside of the forest."

Steve Sullivan, founder, StaVin, "Behind the Scenes: Steve Sullivan," page 40

"I figured we were on to something when I was sitting in a room with one of the French coopers who identified the StaVin-infused wine as coming from his barrel. That's when I knew I had a business."

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Top Stories from WINE BUSINESS.com – In Case You Missed It

"Grandfather of British Columbia Wine," Harry McWatters, Dies

Wine pioneer **Harry McWatters**, known as the "Grandfather of British Columbia Wine," died July 23 at home in Summerland, British Columbia. He was 74. He was president and chief executive officer at **ENCORE Vineyards Ltd.**, an Okanagan-based wine company whose brands include **TIME Winery**, **McWatters Collection** and **Evolve Cellars**. McWatters career spanned more than 50 years. McWatters founded **Sumac Ridge Estate Winery** in 1980, considered British Columbia's first estate winery. Over the years, McWatters served a number of organizations. In 1990 he was appointed the founding chairman of the newly created **British Columbia Wine Institute**. He was also the founding chairman of the **British Columbia Wine Information Society**, the **Vintners Quality Alliance of Canada** and the **British Columbia Hospitality Foundation**, and served as director of the **Canadian Vintners Association**.

Napa Valley Vintners Signs Porto Protocol

In July the **Napa Valley Vintners** became the first North American wine trade association to become signatories to the **Porto Protocol**. About 150 companies have joined the international effort to do more to mitigate climate change. **Taylor Fladgate**'s executive officer **Adrian Bridge** launched the initiative in 2018 based on the idea that everyone can play a role in addressing climate change. The Napa Valley Vintners has about 550 members. Napa Valley vintner **Robin Lail** is the U.S. representative of the Porto Protocol.

Starmont Winery is Sold; Winery Becomes Home for Duckhorn's Migration

Duckhorn Wine Co. plans to open a tasting room for its **Migration** brand at the former **Starmont Winery and Vineyards** in Carneros. The winery changed hands in July when **Merryvale Vineyards** of St. Helena sold the property to **Orsi Family Vineyards** of Tiburon. The deal did not include the Starmont brand, which will continue to be produced at Merryvale Vineyards in St. Helena. The **Schlatter** family/**Merryvale Family of Wines** also keeps about 40 acres of vineyards near the winery.

Twomey Buys Lazy Creek Vineyards in Mendocino County

Ferrari-Carano Vineyards and Winery LLC has sold **Lazy Creek Vineyards** and 38 acres of vineyards near Philo, Calif., to the **Duncan** family, owners of **Silver Oak Winery**, **Twomey Cellars** and **Ovid Napa Valley**. The acquisition allows Twomey Cellars to process fruit closer to its sources, including **Monument Valley Vineyard**. Lazy Creek Vineyards will produce Twomey Cellar's Anderson Valley Pinot Noir wines. Ferrari-Carano kept the Lazy Creek brand and inventory. **Don** and **Rhonda Carano** acquired Lazy Creek Winery in 2008.

Republic National Distributing Co. and Young's Partners Co. Merger Finalized

Regulators with the **Federal Trade Commission** have approved the merger of **Republic National Distributing Co.** (RNDC) with **Young's Partners Co.** (Young's). The merger then closed on Aug. 1, 2019 and now Young's operates as a division of RNDC. RNDC leads sales and operations for wine and spirits accounts in 32 states and the District of Columbia and employs nearly 13,000 people. Earlier this year, the Federal Trade Commission rejected a proposed merger between RNDC and **Breakthru Beverage** citing "significant concerns" about anticompetitive harm if the deal went through, according to the federal agency.

Ste. Michelle Wine Estates Buys Napa Valley Vineyard

James and **Jill Mooney** have sold **Greenwood Vineyards,** a 56-acre property north of Calistoga, to **Ste. Michelle Wine Estates** of Woodinville, Wash. The deed was signed July 10. Greenwood Vineyards is planted mostly in Cabernet Sauvignon. It also produces some Merlot and Valdiguié, a red wine grape. The vineyard will supply fruit to **Stag's Leap Wine Cellars' Artemis** Napa Valley Cabernet Sauvignon program. The Mooneys had owned the vineyard since the mid-1980s.

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Wine Communications Group held its first Pacific Northwest event, Wine Business Northwest, on July 16 at Chateau Ste. Michelle in Woodinville, Wash. The event ended with an al fresco dinner, a chance for attendees to network.

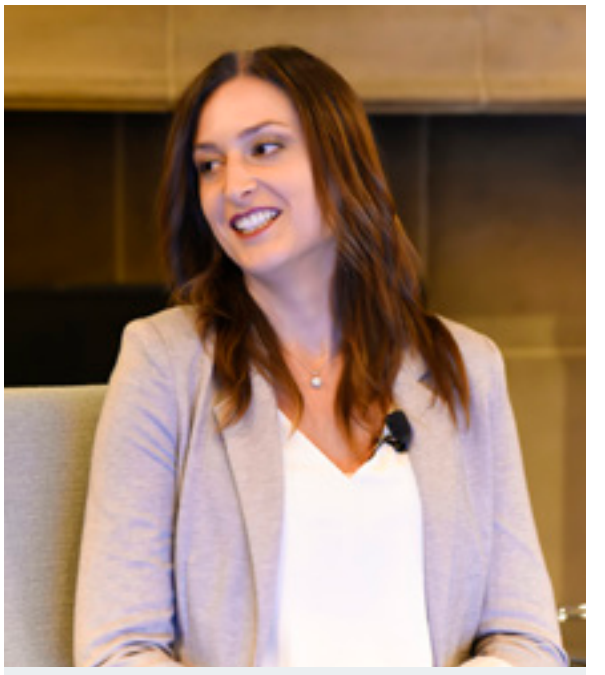
Andrew Browne, CEO of Precept Wines, joined in the discussions with several questions about the role of Washington wines in the broader market.

Cyril Penn, editor of *Wine Business Monthly*, updated attendees on the latest in smoke taint research, climate change mitigation efforts and other winemaking practices.

Following the seminars, a cocktail hour featured wines from the Ste. Michelle Wine Estates' portfolio.

Jon Moramarco, managing partner of bw166 (left), and Andrew Adams, editor of the *Wine Analytics Report* (right), presented some of the latest findings from their respective publications and provided specific insights and data on the wine industries of Oregon and Washington.

Linda Chauncey, director of education for Ste. Michelle Wine Estates, created a tasting that showcased a series of firsts: whether the first vineyard block in Washington or the first Super Tuscan, each celebrated a special moment in the company's history.



Wine Business Monthly managing editor Erin Kirschenmann discussed the latest in e-commerce trends as well as some of the noteworthy international developments based on her time reporting and as a wine judge.

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Genevieve Janssens on the Evolution of Oak

Robert Mondavi Winery's chief winemaker discusses her practices for using barrels in Napa Valley wines

Jim Gordon

ROBERT MONDAVI WINERY

THE CHIEF WINEMAKER AT Robert Mondavi Winery, Genevieve Janssens, has been at the forefront of California winemaking for 30 years, working for an organization that popularized the use of new oak barrels and led numerous other advances in winemaking techniques. She recently took some time to reflect on the evolution of oak cooperage during that period and how to use it to make age-worthy Cabernet Sauvignon.

Janssens, born in Morocco to a French winemaking family, has one of the most impressive resumés in the wine industry. Her father was a winemaker. She studied enology under the noted researcher, **Emile Peynaud**, at the **University of Bordeaux**. She managed her family's vineyards in Corsica and France and opened an enology lab in Provence. All this was before she came to Napa Valley in 1978 and began working in the winery lab for Robert Mondavi in Oakville, Napa Valley.

Opus One Winery, the partnership of Robert Mondavi and **Baron Philippe de Rothschild** of **Chateau Mouton Rothschild**, also located in Oakville, named Janssens director of production in 1989. Then in 1997 she moved back across Highway 29 to Robert Mondavi Winery as director of winemaking.

She was responsible for the quality of one of California's most collectible wines at Opus One for eight years and is now in her twenty-second year in charge of another classic wine, Robert Mondavi Cabernet Sauvignon **To Kalon Vineyard** Oakville Reserve. Her title changed to chief winemaker in 2018, and she looks forward to serving in an emeritus role soon.

Janssens said her use of wood in winemaking has not changed as much as other winemaking practices have or as much as the production of barrels has during her long career.

"Forty years ago, we were extracting much less, and now we are extracting much more," she said. "Definitely, the barrel now is impacting the wine less than in the past because we have so much substance from the winemaking. In the past it was a more Claret-style of winemaking, so definitely the oak was impacting in a bigger manner."

Pressuring the Coopers

She applauds the progress of coopers. "Today they are always moving. They always show us the new things they are doing. Twenty years ago, when we were tasting the wine, often the barrels were a little on the green side, on the harsher side. So we worked hard to let them know that they cannot do that, and they did a good job making them better. Now I cannot compare the wood of the past with the wood of today. Actually, the wood of today is excellent," she said.

Janssens uses French oak barriques—all new each vintage—to age the Robert Mondavi Cabernet Sauvignon Reserve after fermenting it in 16-ton oak tanks made by **Tonnellerie Taransaud**, based in Cognac, France. The Bordeaux-style, 60-gallon barrels for the Reserve come from seven or eight coopers, but the winery, as a whole, uses about 12 coopers.

She explained that when Robert Mondavi built his winery in 1966, French barrels were difficult to find in California, and the French coopers were not proactive about selling to the fledgling fine-wine industry here. Her understanding is that the **Seguin Moreau** cooperage, also based in Cognac and a supplier to the nearby Bordeaux chateaus, was one of the first and has remained an important part of the oak mix today.

In the early years, Robert Mondavi went to France to convince more coopers to begin selling to California wineries. "I think it started with Mr. Mondavi when he shook the world of the cooper, saying, 'If you bring me your barrels, bring me good barrels and not bad barrels.' I think if you talk to coopers in France, they all admit that Mr. Mondavi has helped them big time to be known and appreciated for winemaking and brought them a big export business.

"It is funny when you think about it, so full circle." Janssens said. "He went to France, he loved the Bordeaux wine barrels, and he said, 'That's what I want to do,' and he brought them back here."

By the time Janssens was put in charge of Mondavi production, she found an overabundance of barrel brands in the cellar. "I realized that working with a lot of coopers, they all have ideas and a different approach on wood, and all were proposing five, six, seven different ideas each year. If you multiply that by 20 coopers, it was way too much for us. I thought it would be better to have fewer coopers, our best coopers, and then we could go in depth with what they can offer us," Janssens said.

It's not as simple as having seven or eight barrel types, however, because she usually buys a variety of toasts and wood sources from each. Heavy toast was important in the early years, she said, but a large percentage of barrels for the Reserve Cabernet today are medium toast. About 40 percent are medium-plus, 5 percent or less are heavy toast and the balance medium toast.

Regarding the heavy toast barrels, Janssens said the wildfires that swept through Napa Valley in 2017 left an impression that extends to oak selection. "We use a medium-plus toast now if we want some smokiness or complexity with that technique. It's less and less heavy toast. Now, after the fire, I can't stand any more smokiness. When I taste heavy toast, it just reminds me so much of that fire."

The Cooper Evaluation Process

Robert Mondavi began a practice of cooper evaluation in the 1960s to test which coopers and toasts worked best for his wines. Janssens learned the method at Opus One and still uses it today.

She and her team meet representatives of each cooperage at least once a year at the winery. During that time, the coopers bring her up-to-date on their improvements, new barrels and features. "Then we taste the Reserve wines together," Janssens said, "The Cabernet Sauvignon Reserve, Fumé Blanc Reserve and Chardonnay Reserve. Always.

"I ask them to taste the wines and see for the future, or even for the current order, if they can recommend something that will fit our style, bring us something interesting. It's a total communication and partnership.

"Some winemakers like many different coopers because they think they bring a lot of different flavors. I'm not from that school. I think if you know a cooper well, they will give you a lot of different flavors by telling you the different way of aging their staves, the different way of toasting the barrels, the different forest, tightness of grain or area inside of the forest."

In this way she finds a wide diversity of oak influences within a small number of coopers.

The winery's annual oak trials test how well the coopers' recommendations will work. "We take, for example, an Oakville vineyard, which is usually a bigger piece of volume: we put 10 coopers on the same wine, and then we evaluate them. We do that on Pinot Noir, Chardonnay, Sauvignon Blanc and Cabernet Sauvignon.

"We do one white and one red. And Cabernet Sauvignon, we'll do it every year. It's pretty exciting. I like to do that because you realize that every cooper will bring something different." Janssens' team tastes each barrel trial separately and then blends them all together and tastes.

"Then we remove one barrel type from the blend. We try to say, 'Oh, this barrel is not as good, so let's remove it, and let's blend without and with.' But each time, we like the wine with all the coopers blended. So definitely, we value each cooper. Each cooper will bring personality to the wine in a different manner."

She said coopers have made great improvements in the selection of wood, the seasoning and toasting over the past generation. "I think their principles have not changed, but their way of seeing a forest has changed. Now they work more with tight grain or loose grain than just the forest.

"In the past, it was forest. But we were not sure what we were getting, what area they were calling forest. When you think about a forest, you have so many different wood types. You could receive a barrel from a forest known for tight grain but with very loose grain."

Now coopers are more specific about forest locations, wood grain tightness and toasting using machines and heat sensors, but the improvements go further than that, according to Janssens. "They are more specific; and if we explain that we want to age 18 months or 24 months, they tell us, 'Okay, you take this grain because this grain is really excellent for your wine.' It's more like *haute couture*. They tell you exactly what to use when you explain well what your needs are."

Janssens said coopers, in general, are more consistent in maintaining their brand identities today "because every cooper is a brand. Consistency is very important so the winemakers know exactly what they are

Jim Gordon, editor at large for *Wine Business Monthly*, writes and edits articles on grape growing, winemaking and wine marketing. He has been covering wine and the wine business for more than 35 years, notably as the editor of *Wines & Vines* from 2006 through 2018. A role as contributing editor for *Wine Enthusiast* magazine began in 2014, in which he reviews California wines and reports on various California wine regions. He was executive director of the annual Symposium for Professional Wine Writers at Meadowood Napa Valley from 2008 to 2015. Dorling Kindersley (DK Books) of London published his first book as editor-in-chief, *Opus Vino*, in 2010, which was chosen as a finalist in the James Beard Awards. In 2002 he was co-creator and managing editor of the long-running Wine Country Living TV series for NBC station KNTV in San Jose/San Francisco.

What's the Cost Per Bottle of a New Barrel?

Genevieve Janssens affirmed that a good barrel, used properly, will increase the value of a wine. "I'm sure, yes, and also increase the quality of the wine," she said. And the expense is not extravagant.

Her math starts with two facts. A 60-gallon French oak barrel costs $900 new, and the barrel holds 300 bottles (25 cases of 12 750ml bottles). So, if that barrel matured one vintage, the cost per bottle would be $3. But if it's used for at least three vintages, as at Robert Mondavi Winery, the cost comes down to $1 per bottle.

"As soon as you talk about $50 or $60 a bottle with oak, I don't think the price of oak should be a factor," she said. "I think it's important that we have oak to make it more complex for a certain price point. Of course, if you sell your bottle for $5, that will be super expensive, but if you are in the $100 range, it's not a problem.

"I will spend the money. If it is too expensive for you, increase your bottle $2 to absorb the price of the barrel. When you think about the organoleptic impact, you buy the barrels. You want your new barrel on your best wine."

going to get. The coopers have made huge efforts in their facilities to be consistent. They've spent a fortune just for the toast to be consistent and for everything to be consistent. There is a nice evolution toward quality in the cooperage."

Different Tiers, Different Barrels

The Robert Mondavi Cabernet Sauvignon To Kalon Vineyard Oakville Reserve (retail price $175) is made in moderate quantities, averaging about 8,000 cases per year. The Reserve is aged in 100 percent new French oak each year.

The next tier down for Cabernet Sauvignon is the Oakville AVA bottling ($63), which gets about 80 percent new oak and 20 percent used barrels from a previous vintage of the Reserve. The next tier is Spotlight, a series of 200- to 1,000-case bottlings sold directly to consumers, which use less new oak, and finally the Napa Valley tier of Cabernet Sauvignon ($34) for which some barrels are as old as six years before they are retired.

Janssens said the application of new oak is not directly about the price of the wine but the location and AVA where the fruit was grown. The Reserve Cabernet grapes grow in Mondavi's To Kalon estate vineyard on the property contiguous with the iconic winery.

"A more recent barrel will go to the stronger terroir," she said, "and the Napa Valley will get a little bit older barrels. I think if a wine cannot support the intensity of the wood, it doesn't need to have a lot of wood. This is a classic approach."

She added that the winery makes no changes in oak maturation for wines heading to different markets.

Oak for Fermentation, Too

Since 2000, Janssens has been able to use oak uprights to ferment her top Cabernet Sauvignon lots. An addition to the winery was designed specifically to hold three-dozen oak tanks with 16-ton capacities. She said they bring more depth and color than a stainless steel fermentation, and even during the first vintage they did not give excessive oak flavors or tannins to the wines.

"There are not a lot of wineries on earth with 36 oak tanks because it's a lot of work," she said. "It's a live material, so you can kill the material if you don't do what is necessary to maintain them." It helps that Taransaud built them, and Mondavi has contracted with Taransaud to send technicians every year in June to check the tanks' condition, including soundness of the staves and soundness of the bolts.

Is No Oak a Viable Option?

Janssens said wineries need to be careful not to put too much emphasis on oak. "The young generation seems to enjoy less oak, more fruit, more simple wines. So I think we need to be careful not to put too much emphasis on oak. When you go to Europe, you don't have an oaked wine but you pay $10 a bottle and it's delicious. Here, sometimes you pay $10 for an oaked wine and it's really bad. I don't like it. You have to be very careful with oak in California."

When asked if the Mondavi Reserve Cabernet Sauvignon could exist without oak aging, Janssens said, "A Cabernet Sauvignon with no oak can be painful. There is no charm." Then she described several ways in which wood helps a classic style of wine.

When you go to Europe, you don't have an oaked wine but you pay $10 a bottle and it's delicious. Here, sometimes you pay $10 for an oaked wine and it's really bad. I don't like it. You have to be very careful with oak in California.

"Definitely, the barrel is helping to refine the tannins. The tannins of To Kalon are so big, creating big structure, austerity, and it's bold. The barrels are making it rounder, bringing the weight in the middle palate much stronger. You have an entry, you have a middle, you have an end. It's a complete finished product, the wine."

She said the main role of barrels in enhancing texture, aroma and flavor in wine has changed little during her career.

"The barrels are going to enhance the mouthfeel and definitely the weight. For a great terroir like To Kalon, you want barrels because it's too beautiful, the two together. Trying to get rid of barrels, I think it's not for the style of the wine we are making. It just doesn't make sense." **WBM**

Barrel Prices on the Rise: It's All About Supply and Demand

Competition for raw oak among wineries and distillers, higher labor costs and weather-related disruptions limit this year's American oak harvest. Although new prices for 2020 won't be set until the end of this year, they are forecasted to be higher than usual.

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.

LIKE THE REGULARITY OF the tides, we can always depend on the steady rise in French oak prices. For the past few years the normal, annual increase ranged from 3 to 5 percent, and the domino effect passed along to cooperages. At the time this issue goes to print, suppliers couldn't commit to their expected prices. The 2020 prices will be set at the end of 2019 and be in place for the entirety of 2020. It is likely that prices will be above "normal" for both French and American oak barrels.

"Unfortunately, what you're going to see is something that's the same as, or a little bit higher than, this year," **Jason Stout**, vice president of sales and marketing at **Cooperages 1912** (part of the **Independent Stave Company** cooperage conglomerate) said. "That's because the French oak log pricing over the last couple of years has been increasing, especially the last two years, and with dramatic competition for the finite supply of wood we're going to see a slightly bigger increase in 2020.

"As far as American oak, there has definitely been some price pressure on American oak pricing, and the reasons for that are two-fold. It's related to the severe weather that the Midwest has endured, starting basically last summer through this spring: the amount of rainfall that we've had in the Midwest from Missouri, Kentucky and Tennessee has been unrelenting. This has significantly cut the amount of (dry) wood available. So that's done a lot to drive up pricing. Second, with the growing demand for bourbon and whiskey, we have the old supply-and-demand scenario," Stout added.

Chris Hansen, general manager at **Seguin Moreau Napa** also noted the demand for French oak, forcing coopers to compete at the auctions for the best wood and driving prices up. "Honestly, we can't match our price increases with what the raw material is going up because it's too high. In general, we see that the raw material pricing for French oak has risen considerably over the last couple of years, on par for 15 percent. Compared to previous expected increases, this is abnormal," he said.

Wineries and Distilleries Fight for Best Oak Available

As Hansen pointed out, oak prices are public knowledge because the **Office National des Forêts** (ONF) posts them on its website (*www.onf.fr/*). Likewise, the reasons for what will be a major uptick in prices for Midwest American oak are self-evident.

As noted previously, this last year has been the wettest winter on record in the Midwest, making it difficult for loggers to even enter forests, causing a shortage in log supply.

"Combine this with a lot of people vying for the same material: Cooperages like us that are buying staves for wine and other cooperages are buying logs for bourbon. So if the supply is low, then some suppliers will ask for more money, or certain cooperages will offer more money to try to get more supply," Hansen said.

This is one of the reasons why high-end, Napa-based **Silver Oak Cellars**, which uses American oak exclusively for its wine barrels, purchased Missouri-based **The Oak Cooperage** outright in 2015 after investing a half-ownership back in 2000. Silver Oak president **Tony LeBlanc** told ***Wine Business Monthly***, "Certainly, my biggest intention has been to focus on good acquisition of wood so we are able to maintain the supply we need to keep our aging program continuous. I can only speak for The

Oak Cooperage, but our barrels have been priced at $445 each for three consecutive years. But we are under pressure based on wood costs to increase that price."

Josh Trowbridge, vice president and general manager at **Tonnellerie Ô** cooperage, underscored LeBlanc's comment: "French oak barrels handle themselves pretty well with keeping the appropriate prices, but American oak barrels are very hard to make money on. It's an absolute struggle. The fact that American oak barrels are half the price of the French is, in my opinion, just not justified. American oak barrels should cost much closer to what a French barrel costs in order for it to be a sustainable business, in my opinion.

"I think the pricing was probably set back when the quality of American oak barrels was similar to the quality that they use in spirits," he continued. "As the quality of the wood being used and the quality of the craftsmanship has increased and the seasoning time has increased, cooperages like us haven't increased the price enough, haven't valued the product enough, to raise the price the way it should be."

Forecasting Next Year's Prices: Do the Research and Then, Pray

At **Canton Cooperage** in Santa Rosa, California, sales manager **Katie Mattahs** explained, "When we make our pricing for our barrels, those prices are set for the year. We have to forecast what we think we'll need to make a profit for the year, and then we also look for the years beyond to know our potential supply and the probable pricing. What we are now seeing is increased demand from the bourbon and whiskey industries as they are buying the same woods as the wine industry. That's why the prices keep going up in the wineries, and distilleries are having to fight for the same wood."

Because many cooperages air dry barrels and staves for years, they need to sercure sourcing early—even as much as two decades ahead.

Seguin Moreau, like most cooperages, has enough supply for three years, according to general manager Hansen. "We have inventory typically for three years of production. We're forecasting out three years because obviously you know, too, that if there's a big vintage, you have to have more supply; and if there's a light vintage one year, then you're going to have more inventory going into the next year," he said.

For Cooperages 1912, the advance search for the right wood is on an aggressive path, as far as two decades ahead. "Most of our wine barrels air-dry for two to three years. We are continuously looking for the wood, bringing in logs so we have the log inventory before we process it. For a barrel that's going to be air-dried 36 months, we've probably been securing that wood anywhere from 42 to 48 months in advance. We are certainly thinking further out than that because we really always have to

Cooperages Affected by Labor Shortage

Labor shortages in vineyards and wineries have become a well-known and growing issue. There is, however, another industry problem associated with labor.

Rarely discussed around wood supply and its pricing, Cooperages 1912's Jason Stout noted that there is a palpable labor shortage for trained workers in the logging industry. "It's just educating people to get out there and understand how to manage their land and how to do it effectively with a long-term sustainability goal," he said. "But still, there are 10 times more trees that die than get harvested. Most cooperages and wood suppliers looking to ensure future oak supplies are aware of this issue and have been investing in this. There are initiatives that are supporting this."

The record-low unemployment rate may also have some ramifications further into the future. "Finding new workers at the cooperage is difficult, but we have a very good stable supply of coopers that worked with us for a long time, so it hasn't really affected us," said Seguin Moreau Napa's Hansen. "I know at the wineries some of the people have complained that it's very difficult to find new workers. I think labor will become another disruptive issue in the industry moving forward."

be thinking 10, 15, 20 years out in terms of where the whole market is going and how much wood are we going to need years from now, as well as what kind of infrastructure are we going to have to have in order to secure that kind of wood," Stout said.

As the Premiumization of Wine Goes, So Does the Demand for Bespoke Barrels

"As consumers continue to look and upgrade their choices, as they move up the price category in wine, the greater the chance that wine has been aged in a barrel. I think that's been a good, positive impact on cooperages," Stout said.

As consumers' profiles change, cooperages have to change with that. "Having a good relationship with a winemaker and following the pulse of what they're looking for lets cooperages adapt, and we manipulate how we make the barrels," Stout said. "Whether it's a changing style of a certain wine, or with innovation and premiumization, as they [winemakers] bring new products online, they want to do something different, so we've got to make sure that we can supply them with a barrel that fits their needs." **WBM**

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FIGURE 1 Experimental device installed at Château Phélan Ségur

Pressure and Oxygen Transfer in the Barrel During *Élevage*

Both are a function of cellar conditions in the cellar

Claire Roussey[1,2], Remi Teissier du Cros[2], Julien Colin[1], Joel Casalinho, Patrick Perré[1]

DYNAMIC TRANSFER OF LIQUID and oxygen through oak wood during the barrel-ageing (*élevage*) of wines and spirits is being studied by a partnership between **CentraleSupélec, Université Paris-Saclay,** and the **Chêne & Cie** barrel supplier's research and development department (which supplies **Taransaud, Kadar Hungary** and **Canton Cooperage**). These transfers are evaluated at stave level, in a laboratory, and at barrel level, in practical winemaking conditions. The study discussed here deals with an experiment undertaken during *élevage* of a red wine.

In the barrelling stage, wine in contact with wood is released through the staves. This phenomenon influences two parameters: The liquid loss generates a pressure inside the barrel lower than outside. Moreover, the impregnation of the liquid in the wood slows down oxygen transfer to the wine.

Experimental Device

An original experimental device was installed at **Château Phélan Ségur** (Saint-Estèphe appellation, Bordeaux, France) to study liquid and oxygen transfers. Numerous parameters were measured for four identical new 225L barrels containing a 2016 red wine (FIGURE 1). The barrel type is 225L transport (27 mm staves) made of French tight-grain oak seasoned 30 months. They were produced at the same time with the same wood lots that received medium toast.

Mass loss in the barrel, due to the evaporation of liquid, was measured by a high-precision pallet truck scale system. Pressure sensors attached to the top and bottom of the barrel were able to measure the internal pressure and the height of the liquid in each barrel via the wine's density. This density was measured on a single barrel through the positioning of a third pressure sensor. Concentrations of oxygen in the head space and in the wine were obtained with CHENOX sensors placed at the top and bottom of the barrel. To complete the mass balance, the level of dissolved carbon dioxide was measured in the bottom of the barrel (FIGURE 2). The environmental conditions in the cellar, including the humidity, temperature and atmospheric pressure, as well as barrel

[1]LGPM, CentraleSupélec, Université Paris-Saclay, Gif-sur-Yvette, France
[2]Chêne & Cie, Tonnellerie Taransaud, Merpins – Cognac, France

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Pressure and Oxygen Transfer in the Barrel During Élevage

FIGURE 2 Sensors installed on barrels

pressure values, were continuously recorded while the mass of each barrel and O_2 and CO_2 concentrations were measured only occasionally.

The experiment lasted six months. Racking occurred after the fourth month. Several data analyses were then undertaken to link the changes in the measured barrel parameters to the cellar conditions.

The alcohol loss was observed as the wine density that slightly increased from 993 to 996 kg.m^{-3}.

Wine Evaporation

Analysis of mass loss in the barrels showed a balancing phase between the barrels and the environment. The first phase lasted around 40 days. This was the time required for the liquid to reach maximum impregnation depth in the staves. Then the evaporation of wine in the four barrels was at its highest, at 20 grams per day, on average (FIGURE 3).

Once the impregnation front was stable, evaporation of wine depended mainly on the air humidity in the cellar. The higher the humidity in the cellar, the lower the rate of wine evaporation. The data acquired throughout the experiment showed that slightly more than 2 liters of wine were impregnated in the wood. From barrelling to racking, a period of 100 days for our experiment, slightly more than 1.5 liters of wine evaporated.

Internal Barrel Pressure

The analysis of internal barrel pressure demonstrated several phenomena. First, changes in internal barrel pressure were related to fluctuations in humidity in the cellar. **FIGURE 4** illustrates an extract of internal pressure changes for Barrel 2 (the red line) between days 18 and 70 of the experiment and fluctuations in humidity in the cellar (the blue line). An increase in humidity in the cellar generated lower pressure in the barrel, observed at day 29. The opposite phenomenon was observed, for example, at days 25, 50 and 53. This trend was also observed for the three other barrels all along the experiment.

When the change in humidity level and the relative pressure in the barrels were correlated for the entire experiment, the following correlation was obtained: As shown in **FIGURE 4**, large humidity and pressure changes create peaks or valleys all along the monitoring. All four barrels of the experiment had synchronised internal pressure variations suggesting that an external factor ruled this behavior. Statistical analysis allowed us to find a link between internal pressure and cellar humidity.

After smoothing the signals to keep only major variations during the 184-day experiment, peaks and valleys of cellar humidity were selected with their corresponding barrel pressure values. **FIGURE 5** displays the change in the internal pressure (difference between successive peak and valley) as a function of the related change in cellar humidity. **FIGURE 5** can be read like this: take the point at the bottom right (cellar humidity at nine percent, barrel pressure at -22 mbar) meaning that the increase of nine percent relative humidity in the cellar created a drop of -22 mbar of the pressure of Barrel 2. The cloud of points has a regression coefficient of 0.722 which illustrates a good correlation between these factors.

How can the phenomena be explained? The internal face of the stave is saturated with wine and its dimension is fixed. But the external face is not saturated with water and its moisture content fluctuates with the cellar environment such as temperature and humidity. Wood dimensions are tightly linked with its water content if wood is not saturated with water. When the moisture content of the wood increases, the wood swells. On the other hand, when the humidity content of the wood decreases the wood shrinks. For example, the greater the increase in the cellar's humidity, the lower pressure in the barrels. This can be seen around day 29 in **FIGURE 4**. The moisture content of the wood of the barrel increased as cellar humidity reached 93 percent. This caused the wood to swell and to increase the pressure between each stave. There was a slight, but sufficient, increase in the volume of the head space to have a direct effect on internal pressure that decreased to 970 mbar or -35 mbar if expressed in relative pressure. The opposite phenomenon is observed at day 25.

With this sharp drop in pressure, air was increasingly attracted to the inside of the barrel. From a certain threshold of negative relative pressure, air bubbles formed and were transferred in the wine from the gaseous atmosphere of the cellar through the staves. This air percolation phenomenon can be observed in **FIGURE 6** under the black arrows. When air bubbles abruptly entered the barrel, its internal pressure increased very rapidly. **FIGURE 6** shows that percolation pressure was achieved in the barrel simultaneously to an increase in the cellar humidity or a high humidity value. In both cases, caused a decrease in pressure inside the barrel.

FIGURE 7 illustrates how percolation occurs. This picture has been taken in a barrel with a glass head where a depression was artificially applied with a vacuum pump. Bubbling paths of various size and intensity can be observed.

The bubbling appears when the capillary force is lower than the force caused by the depression. Another way to explain this phenomena is that we could imagine a tiny tube (wood vessel for instance) filled with air and liquid connected with the cellar atmosphere and the liquid inside the barrel.

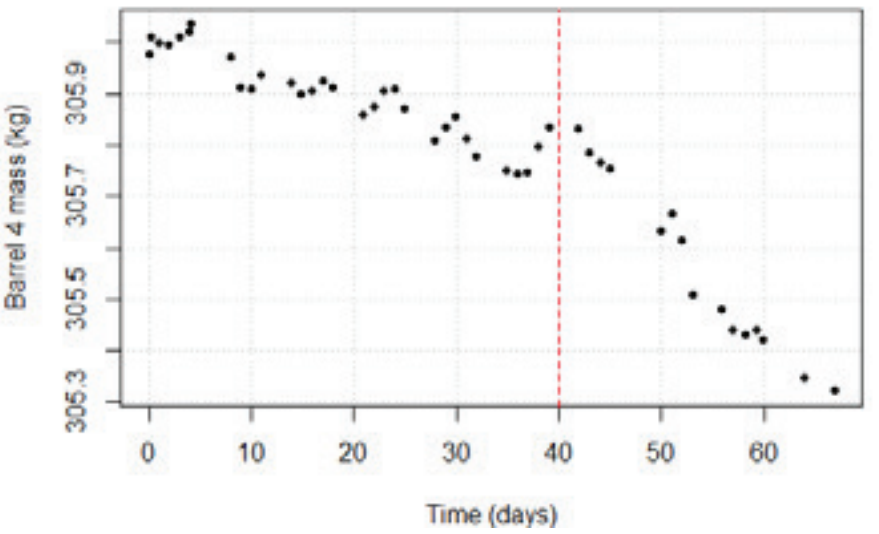


FIGURE 3 Change in mass for barrel-4 from barrelling to the first racking

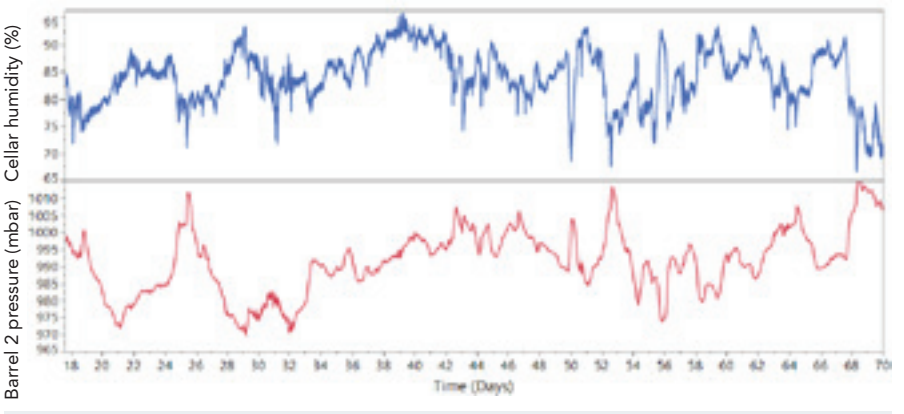


FIGURE 4 Changes in pressure in Barrel 2 (red line) and in the cellar humidity (blue line) between 18 and 70 days of the experiment. Cellar humidity peaks and valleys are observed simultaneously in opposite phase with Barrel 2 pressure valleys and peaks.

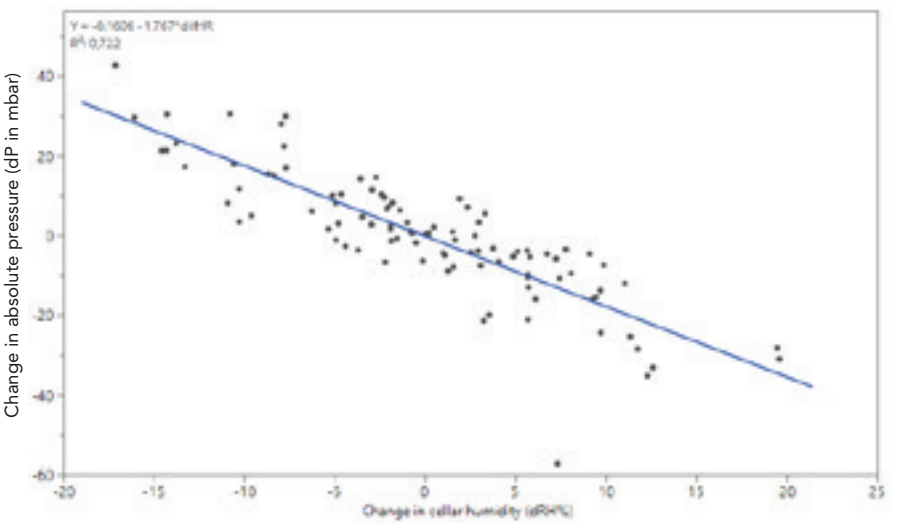


FIGURE 5 Change in the internal average pressure (dP) of the four barrels as a function of the change in humidity in the cellar (dRH%). The blue line represents the correlation of these factors with R^2 = 0.722 and its equation dP=-0.1606 – 1.767*dRH%. An increase of cellar humidity will create a decrease of the pressure in the barrel and vice versa when the cellar humidity decreases.

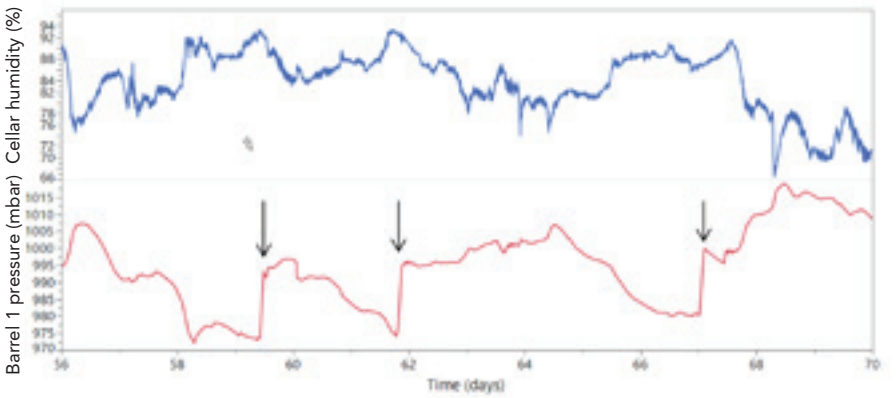


FIGURE 6 The blue line illustrates the evolution of the cellar humidity and in black the internal pressure of Barrel 1. Arrows point out the increase of the pressure in Barrel 1 that are caused by air percolation in the barrel. This happened when the cellar humidity increased or already had a high value.

FIGURE 7 Illustration of air bubbles in a barrel with glass head artificial depression applied with a vacuum pump.

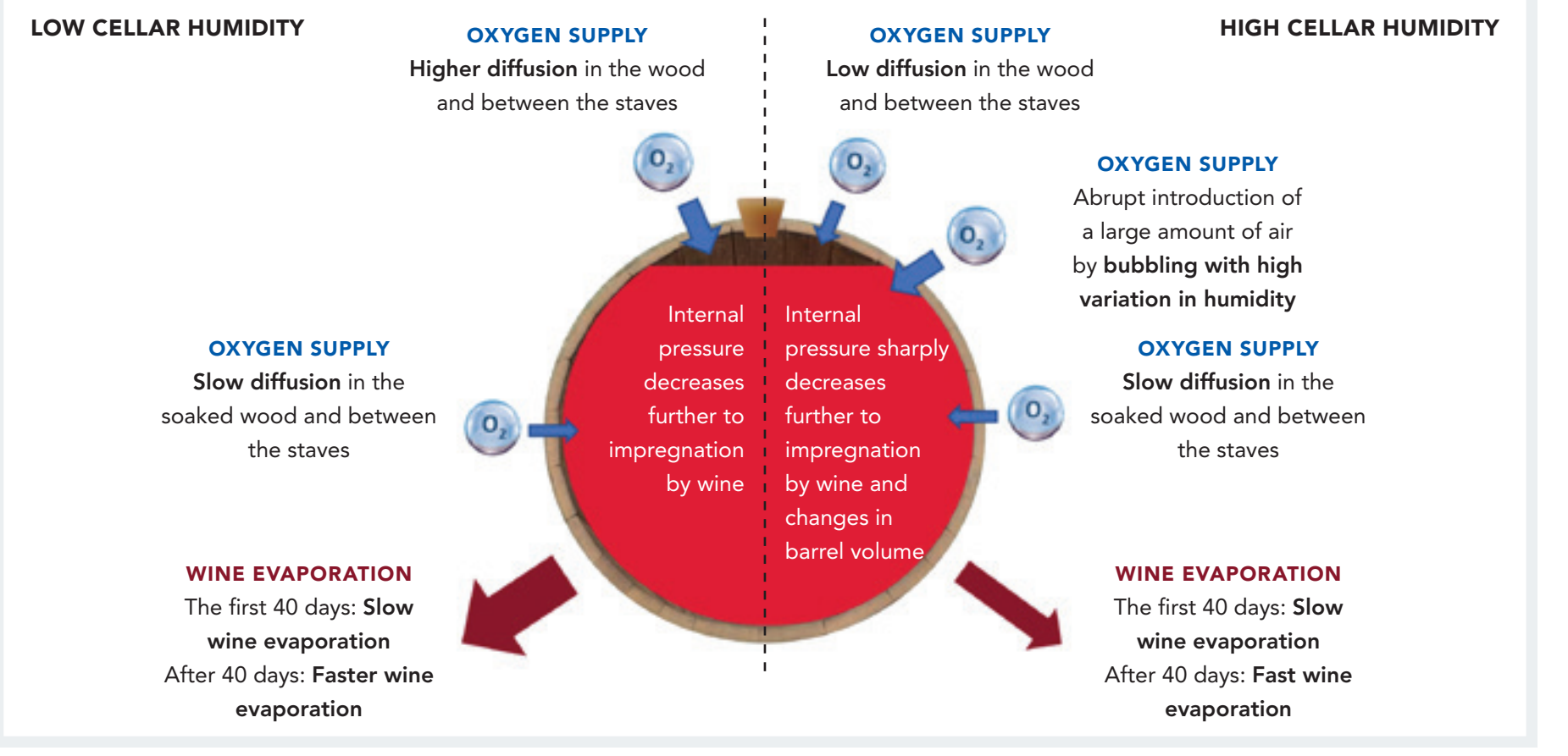
At the interface of liquid and air, there is a meniscus that is formed. When the depression of the liquid drops, it will pull the meniscus toward the liquid in the barrel. Once it has reached the end of the tube, bubbles will form in the barrel. The bubbles will float to the surface distributing the oxygen in the wine during their journey and then through dissolution from the head space. Unlike a glass of champagne, these bubbles are not coming from dissolved carbon dioxide but through the barrel surface from the cellar atmosphere. The bubbling can either come through the stave joint or the wood vessels. Both have been observed. The oxygen brought by percolation varies between few µg/L and 1 mg/L of wine.

Summary

Wine evaporation and the internal pressure of oak barrels are regulated by the cellar humidity. A cellar in which there is fairly high humidity will reduce the angel's share during *élevage*. A sudden increase in cellar humidity causes the barrel to deform slightly, creating an internal pressure lower than the atmospheric pressure. From a certain pressure threshold, air is abruptly introduced into the barrel. This phenomenon occurs several times during *élevage* and therefore is likely not negligible. It would be worthwhile, in a future experiment, to study changes in internal barrel pressure when the relative humidity of the cellar remains constant (regulated cellar) and to study the effects of topping-up.

Looking at these results, a winemaker should be careful with the conditions of the barrel cellar. First, look at the average humidity value, if it is low (under 70 percent) or high (over 80 percent), it will directly affect the angel's share: a high angel's share with low humidity or low angel's share with high humidity. Second, look at the variations of the cellar conditions. Sudden environmental variations such as an open door or damp cellar floor will have a direct impact on the barrel internal pressure. An increase in the cellar humidity may have a secondary effect that will initiate air bubbling inside the barrel and supply additive oxygen to the wine. **WBM**

THIS DIAGRAM SUMMARIZES THE RESULTS OBTAINED FOR BARREL CONDITIONS DURING *ÉLEVAGE*:



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Closure Trends for Sauvignon Blanc

Wine Business Monthly reveals results of Closure Survey specific to Sauvignon Blanc; winemakers discuss their choices

Stacy Briscoe

SINCE 2003 WINE BUSINESS MONTHLY has distributed its Closure Survey annually, measuring the constantly changing trend of closure choices for glass wine bottles. This year marks the first year the survey included questions targeted at specific varieties, which included Sauvignon Blanc.

The risk of using a screw cap, regardless of variety, will always be the potential for reduction when encased within a "perfect seal" as the natural oxygen transfer that takes place through a natural cork (or many of the modern alternative, "cork-like" closures) is non-existent. That being said, that slow micro-oxygenation process that allows a wine to age over time isn't necessarily a requirement for the fresh fruit and herb-filled white wine most often intended to be enjoyed within the first year of bottling. In fact, many winemakers find that reductive quality actually enhances the aromatic compounds they strive for in their Sauvignon Blancs.

Therefore, when choosing a closure for Sauvignon Blanc, one also has to take into consideration the style, purpose and value as perceived by the potential customer.

Survey Results

Respondents chose natural cork as the most popular choice for Sauvignon Blanc: 39 percent of the total respondents who make a Sauvignon Blanc stated they chose a natural cork closure for their most popular Sauvignon Blanc SKU. This was followed closely by screw cap, with a 33 percent response rate. Only 10 percent answered that they utilize a technical cork (1+1, 2+2, Agglo, composite cork, etc.), and just 23 percent utilize a synthetic cork (100 percent plastic, extruded or molded). Fifty-four percent of total respondents indicated they do not produce a Sauvignon Blanc.

Breaking that down to wineries by size, the data from the survey show that small wineries, or those producing less than 50,000 cases annually, prefer a natural cork: 45 percent of the respondents in this category answered they use this closure type whereas only 15 percent of mid- to large-sized wineries, or those producing more than 50,000 cases annually, opt for natural cork. Conversely, the majority of larger wineries (53 percent of respondents) are currently utilizing a screw cap for their Sauvignon Blanc, whereas only 28 percent of small wineries indicated this closure type.

Girgich Hills chose natural cork for its Sauvignon Blanc to reinforce its postition as a premium wine.

Mid- to Large-Sized Wineries

Grgich Hills Estate in Napa, Calif., produces 65,000 cases annually, 18 percent of which is Sauvignon Blanc. This includes two SKUs: Fumé Blanc, Napa Valley, 95 percent of the winery's total Sauvignon Blanc production, retailing for $31; and the Essence Sauvignon Blanc, "Milijenko's Selection," five percent of the winery's total Sauvignon Blanc production, retailing for $55. Grigich utilizes a natural cork for both SKUs.

"We use natural cork because we value natural farming and winemaking," said **Nick Berube**, marketing and public relations manager at Grgich Hills Estate. "Natural cork is also the most widely accepted closure for luxury tier wines."

Berube said that although the winery hasn't conducted any formal surveys among its customers, he and the Grgich team find that natural cork closures are still the best way to market the winery and the wines as luxury tier. When asked if he would ever consider using a different closure, Berube said that alternatives, like **DIAM**, which still has "natural cork properties" and "largely prevent TCA," have been considered in the past. "We recognize the positive attributes alternative closures bring to the market, however—we do not see ourselves using synthetic corks, glass closures or screw caps. Those don't match our brand."

In Woodinville, Wash., **Airfield Estates Winery** produces 60,000 cases annually, 5,000 of which is Sauvignon Blanc retailing for $16.99 and bottled with

a screw cap closure. **Travis Maple**, the winemaker at Airfield, described the Sauvignon Blanc as a "New Zealand-style," fermented and aged in stainless steel, emitting strong aromatics of citrus, lemongrass and wet stone.

"I chose to use screw caps on our Sauvignon Blanc mainly to keep the aromatics as fresh as possible and to keep our costs down," Maple said, specifying the winery uses a **Stelvin** screw cap with **Saranex** liner, supplied by **BT-Watzke**.

Maple feels that screw caps tend to keep the aromatics of his Sauvignon Blanc fresher over time. However, his red wines are bottled using a technical cork. "Technical corks not only offer the peace of mind when it comes to contamination but also give me a great idea of how much oxygen intake the wines will have over the course of time," Maple said. He also noted that technical corks assist in aging his red wines, where screw caps do not. Maple currently uses a variety of DIAM corks sourced from **G3 Enterprises**: the DIAM 10 cork for higher tier wines (those priced at $50 and above) and the DIAM 5 cork for wines priced at $35 or less.

Although he's considered using screw caps in his red wine program—and does for those priced $18 and below—Maple finds that consumers are still wary of purchasing higher tier wines when packaged with a screw cap. "Most think these closures are meant for inexpensive wines," he said. "I believe the consumer still needs more education when it comes to screw caps so this type of packaging doesn't get the 'cheap' label."

However, when it comes to his Sauvignon Blanc, Maple finds no reason to switch closures. "Our (Sauvignon Blanc) program has been very successful and the screw cap packaging has delivered for this product for many years," he said.

Following in popularity with the mid-to-large sized wineries is the technical cork. According to the survey, 20 percent of wineries in this category use technical corks for their most popular Sauvignon Blanc SKUs. **Llano Estacado Winery** in Lubbock, Texas, which produces 170,000 cases annually, about 1,000 of which are Sauvignon Blanc sold at $10.99 per bottle, currently uses DIAM 5 technical corks.

Winemaker **Jason Centanni** said he chose to use the DIAM technical corks because they help maintain the reductive qualities the winemaking hopes to achieve, and because they mimic screw caps with a low oxygen transmission rate. Starting with the 2019 vintage, Centanni said he'll switch to the DIAM 10 technical cork, which he believes will reduce oxygen transfer rates even further.

Centanni said he would actually like to switch to a screw cap with a Saranex liner for better protection against oxidation in the bottle. "We are absolutely considering, when upgrading our bottling line, to add in a roll on pilfer-proof (ROPP) closure option for several of our wines, including Sauvignon Blanc," he said.

Small Wineries

In the small winery category, the story is quite similar, with those branding themselves as a luxury tier winery predominantly opting for natural cork closures for their Sauvignon Blanc.

Aridus Wine Company in Willcox, Ariz. produces 8,500 cases per year with about 750 cases of Sauvignon Blanc: one, a Sauvignon Blanc that retails for $34; the other, a Fume Blanc that retails for $40. "Because our Sauvignon Blanc and Fume Blanc are on the pricier end for this variety, we want to make sure the customer feels that the packaging is more luxe. For us that means natural cork," said **Lisa Strid**, winemaker at Aridus. "I also don't mind that it means less headspace in the bottle itself," she added.

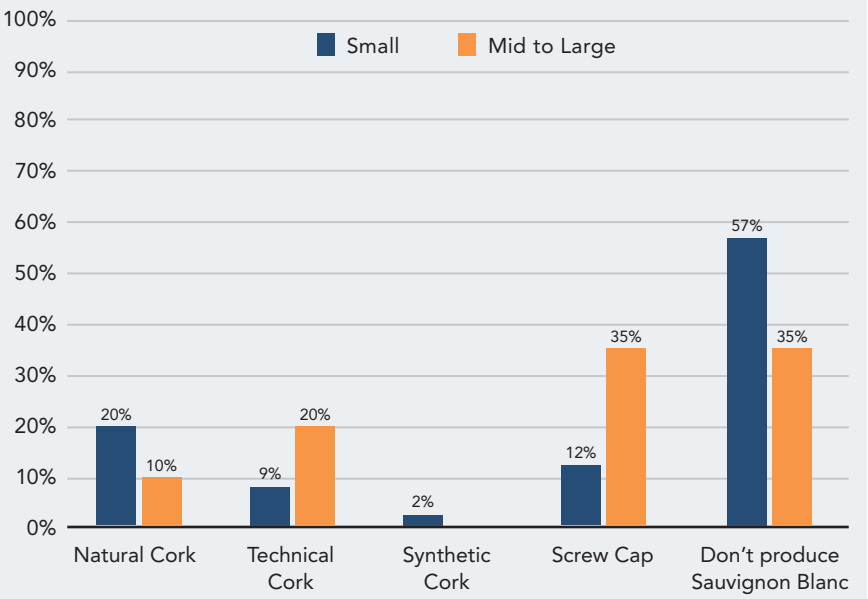
Conversely, Aridus' Rosé, which retails for $30, is the only variety produced by the winery that is packaged with a screw cap. "Again, this has to do with perception," Strid said. "We want people to crack into and drink the Rosé within the year we release it, so we hope the screw cap nudges customers in that direction."

When asked if she would ever opt for a different closure for her Sauvignon Blanc, Strid stated that while she's always willing to entertain closure trials, it's not high on her priority list at the moment.

Cynthia Cosco, owner and winemaker of **Passaggio Wines** in Sonoma, produces just 1,800 cases of wine annually, 100 of which are Sauvignon Blanc that retails for $25. Cosco packages her Sauvignon Blanc with a screw cap—as she does for all her white wines and Rosés.

"The main reason is because they're 'drink now' wines. There ís no need to lay them down for any length of time," Cosco said. Cosco describes her Sauvignon Blanc winemaking as minimal intervention, the resulting wines fruit-forward and friendly. The screw cap, for her, helps maintain the fresh, natural characteristics of the grape variety.

Which closure type do you use for your most popular Sauvignon Blanc SKU? (by winery size)



Source: 2019 WBM Closure Survey

In her red wine program, however, Cosco utilizes natural cork. Although she admits to seeing more red wines under screw cap, Cosco doesn't feel that, in general, the wine-drinking public is "ready for that."

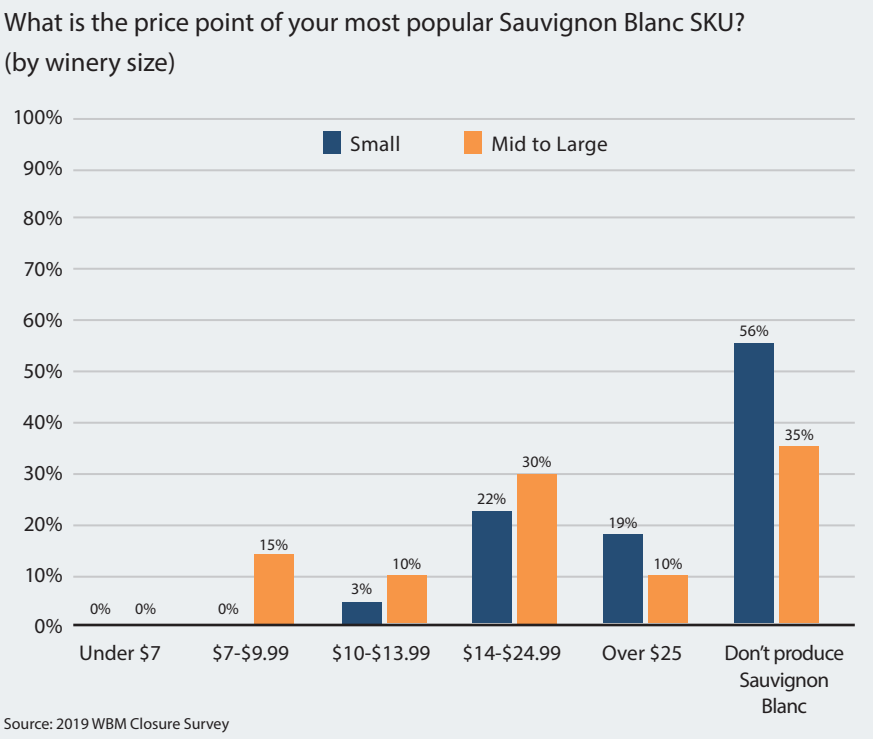
Cosco said she hasn't heard any of her consumers talk or ask about why her Sauvignon Blanc is under screw cap, but she finds her customers are happy both with her packaging and her product. "I think most consumers are used to seeing whites under screw caps," she said.

Only 9 percent of small wineries use technical cork for their Sauvignon Blancs, according to the *WBM* survey. **Billsboro Winery** in Geneva, N.Y., which produces 4,000 cases of wine annually, 500 of which are Sauvignon Blanc retailing for $18, packages its Sauvignon Blanc using a DIAM agglomerated cork.

Kim Aliperti, owner and vice president, said that the choice of cork isn't really indicative of the wine's style although she did describe the cool-climate Sauvignon Blancs of the Finger Lakes more like a Sancerre than a "New World" Sauvignon Blanc. Aliperti said that they use this same cork for all wines at Billsboro: "We had issues with real cork and switched over," she said.

"I think there's still a romance to real cork; but after a bad experience, we're not willing to risk it. This seems to be a good option," Aliperti added. She also said that the Billsboro winemaking team educates their hospitality staff to be able to talk to customers about the closure choice. "I think closures are less of

Closure Trends for Sauvignon Blanc



Source: 2019 WBM Closure Survey

a deal for customers in a tasting room setting where there is an educated staff around to discuss issues like this," she said.

When asked if she'd ever consider changing her Sauvignon Blanc closure choice, Aliperti said that she doesnít have plans to, but if she were, she would opt for screw cap—if they could upgrade their bottling system to accommodate that closure type. "Customers seem very open to that (closure) too," she added.

Deciding Factors

Looking outside the lines of the raw data, it seems the number one factor when deciding the proper closure type for Sauvignon Blanc is consumer perception. Is the wine a "drink now" white wine or is it priced to sell as a luxury item?

Wine style almost plays a secondary role in closure choice. Those looking to maintain the fresher, fruitier style of Sauvignon Blanc tend toward screw caps or technical corks that have no, or very little, oxygen transfer, enhancing reductive qualities of the wine's aromas and flavors. The deciding factor between the two closure choices often comes down to investment in the proper bottling line. Whether bottling takes place in house or through a mobile bottling service, switching to screw caps means a different piece of equipment. So, while a screw cap may better enhance the desired quality, the technical cork is a bit easier to accommodate logistically. WBM

Stacy Briscoe is the assistant editor of 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.

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Tank Lead Times and Other Considerations

Curtis Phillips

REBECCA ARNN

I CAN'T REALLY SAY just how many times I've seen wineries start a harvest missing at least some of the crush equipment they thought they would have. The global "supply chain" is certainly more robust than it was 50 or 100 years ago. All the same, dock strikes can happen; weather, or even high-seas piracy, can delay or intercept a container ship; the wrong item can be put into the wrong container; contractors can be overbooked, over-committed and understaffed; and inspectors can be slow to inspect or sign-off on any construction. Delays happens so frequently that, these days, I have gotten to the point that I simply don't trust schedules.

Curtis Phillips, an editor for *Wine Business Monthly* since 2000, is a graduate of UC Davis, and has been a winemaker since 1984 and an agricultural consultant since 1979.

Need More Tanks?

Let's assume that one owns a healthy and growing winery that would like to expand capacity a bit. If the winery is primarily producing barrel-aged wines, one could, of course, simply buy more barrels and hold more wine during *élevage* with an expanded barrel program. While this approach may meet the needs of some wineries and wine-styles, barrels are an inefficient means of wine storage, both in terms of cost and floor space. Pretty much any winery expansion is going to require more tanks.

Tanks? What Tanks?

Everyone seems to group tanks according to their function (like fermenter or storage) or their material (stainless steel, plastic, cement, terra cotta, wood). When it comes to purchasing, there are only three types of tanks: A tank is either a stock design that is currently in a vendor's inventory, a stock tank that has sold out or a custom tank that is built to order. No other attribute is important in determining how long it will take to go from, "Hey, we could use more capacity" to "That new tank is ready to use."

Good, Fast, Cheap: Pick Two, You'll Be Lucky to Get One

The old bromide "Good, Fast, Cheap: Pick Two" is probably familiar to just about everyone. The statement is catchy and easy to remember. I also think that it is unrealistically optimistic. In my experience, just getting one desired feature is a win.

WANT IT GOOD?

If we can only rely on getting one attribute, then most of the time we're probably going to want to opt for the "good" and hope that the timing and price won't be outside the realm of reason. In practice this means shopping for a stock tank, or a tank with minimal customization but, unlike the below, one can range further afield. The drawbacks are that the price can climb quite a bit, and the time required for delivery can increase a lot the closer the tank comes to becoming a custom order. Small details like an extra sensor port or standing piping for automated pump-overs shouldn't add too much to the final price tag. Big alterations like a non-standard size, domed rather than sloped tank-bottom, self-emptying (steep slope) tank bottom, extra cooling jacketed area or a dual jacket for heating should be expected to add substantially to the final pricing. Similarly, the more the tank deviates from a stock design, the more one should expect a comparatively delayed delivery.

WANT IT FAST?

If you're channeling Veruca Salt and you "want it now," then the only realistic option is to hope that a pre-built tank is available from a vendor in a size, geometry and price that works. If one is content with the stock designs and options that are available, then I would recommend shopping as early in the year as possible.

> If we can only rely on getting one attribute, then most of the time we're probably going to want to opt for the "good" and hope that the timing and price won't be outside the realm of reason.

WANT IT CHEAP?

Is cheap even a viable option when it comes to wine tanks? Well, yes and no. I would be extremely suspicious of a new tank that was listed at much lower than the current market price per gallon, especially if one is considering buying directly from an overseas fabricator. This doesn't apply if one is going through one of the established winery equipment vendors. They would be putting their own reputation stake when they list a new manufacturer. As long as one is buying from their on-hand stock you don't have to worry about any construction and shipping delays.

ARE THESE REALLY THE ONLY OPTIONS?

I haven't really covered all the available options. In particular, I have barely mentioned high density polyethylene (HDPE) tanks which a lot of smaller wineries use. These are often sold as a *cheaper* option, but I wouldn't call them cheap or buy them simply because of the price. I've made a lot of wine in poly tanks over the years and have been very happy with the results. On a microscopic level, a poly tank is smoother, and more corrosion-resistant,

than 316 grade stainless steel. The one drawback I can think of is that they are only available in what I consider to be fairly small volumes. If I remember correctly, the largest poly tanks are only 4,300 gallons in capacity. If this maximum size meets a winery's need, then they should be pretty high on the list of options.

Tariffs

A 25 percent tariff was imposed in August 2018 on the import of steel, by invoking a Cold War-era relic otherwise known as Section 232 of the Trade Expansion Act of 1962. The increased tariffs include stainless steel of the grades and formats that are used in stainless steel wine tank fabrication. At that time, the NAFTA countries (Canada and Mexico) were declared to be exempt from the tariff, but in our case only Mexico matters since Canada doesn't produce stainless steel. Subsequently, the exemption was also extended to the European Union, South Korea and Brazil (tariff exemptions were also extended to Australia and Agentina but these last two also do not produce stainless steel). China still produces the bulk of the world's stainless steel, but as we see there are a few other alternate sources.

Cost of Materials

As I have noted in earlier articles, when it comes to tracking and predicting the commodity price for stainless steel, I usually keep an eye on the price of nickel. Other elements, notably molybdenum and chromium, contribute to the overall price of 316-grade stainless steel, but the combination of the amount and cost of nickel make it the metal to watch. Note that CF8M is the cast-steel equivalent of wrought AISI 316 stainless steel. The composition of the stainless steel relevant to the wine industry is listed below.

Composition of Stainless Steel (ASTM A420)

Percentage by weight (max unless range is specified)

Element	304	316
Carbon	0.08%	0.08%
Chromium	18% - 20%	16% - 18%
Manganese	2%	2%
Molybdenum	none	2% - 3%
Nickel	8% - 10.5	10% - 14%
Phosphorus	0.45%	0.045%
Silicon	0.75%	0.75%
Sulfer	0.03%	0.03%

Note that iron comprises the balance of both alloys

Nickel

In an age of 25 percent tariffs, it might seem futile to track the price of nickel, but the price of nickel still determines the price of stainless steel before any tariffs are applied.

Nickel spot prices are up over the near-term but remain lower than a year ago and more than $2 per pound off the price nickel we saw five years ago.

Nickel warehouse stocks continue to steadily decline. About 150,000 tons of warehoused nickel should seem like an ample buffer for the foreseeable

future, but it is telling that this is about half the warehouse stock of nickel we had five years ago and just one-third the amount there was four years ago. The nickel warehouse stocks buffer may be large enough to forestall any drastic non-tariff price increases in the cost of rolled stainless steel, but it is also an indication that we shouldn't expect the pre-tariff price for stainless steel to decrease either.

If Not Stainless Steel...

I've discussed some complicating financial factors involving stainless steel tanks above, but I wanted to emphasize the point that those factors do not pertain to tanks made from materials other than stainless steel. Any structural steel used in a concrete tank and in doors, sanitary fittings and valves would still be vulnerable to any increase in the price of nickel, molybdenum and chromium. They would also be subject to any import tariffs if imported from a non-exempt country, but otherwise any non-stainless steel tank should have less uncertainty as to their cost of inputs.

Timing Tanks Purchases

I prefer to buy tanks as early as I can. This means as early as November or, at the latest, January right after the **Unified Wine and Grape Symposium** in January. This is assuming that one is just looking for a stock-designed tank and not a custom one. Very small tanks can be used pretty much the day after delivery, but for anything large enough to need a cooling jacket will need additional time.

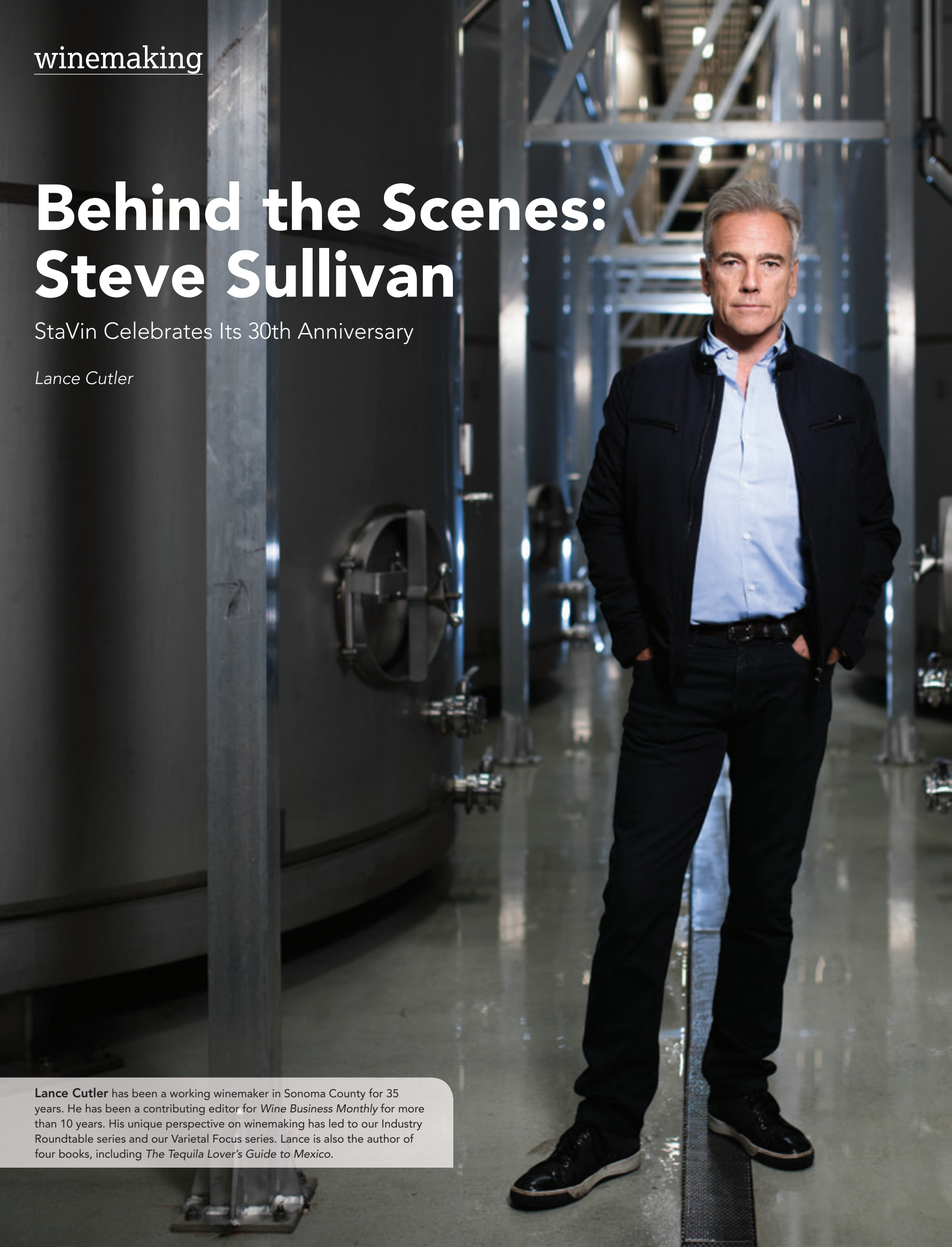
Scheduling for custom-built tanks is much more problematic since the overall demand for tanks in a given year can greatly affect just how quickly a tank can be built. I've rarely been in a position where I needed to, or could afford to, install custom tanks at all. My advice is to take whatever timescale is put forward for custom tanks by the vendor and add a minimum of six months to pad for delays and the unexpected.

Projects have habitually taken a longer time than initially thought due to some, or several, unforeseen circumstances cropping up. Delays are not always due to delivery delays on the part of the vendor. A tank installation can be pushed back for any number of reasons, particularly if tied to any building expansions which must be completed and inspected before anything involving the tanks can be done. **WBM**

Behind the Scenes: Steve Sullivan

StaVin Celebrates Its 30th Anniversary

Lance Cutler



Lance Cutler has been a working winemaker in Sonoma County for 35 years. He has been a contributing editor for *Wine Business Monthly* for more than 10 years. His unique perspective on winemaking has led to our Industry Roundtable series and our Varietal Focus series. Lance is also the author of four books, including *The Tequila Lover's Guide to Mexico*.


STAVIN

"Behind the Scenes" is an occasional feature highlighting people in the wine industry and their accomplishments. These interviews focus on how the individuals came up with their ideas and pursued their solutions, as well as what attracted them to the wine industry. Previous "Behind the Scenes" articles have featured Ray Kaufman and Mel Knox.

THE MOST EXPENSIVE COMPONENT in the production of high-quality wine, after grapes, is oak barrels. Judicious use of oak enhances wine by adding complexity, broadening the range of flavors and softening tannins. Making oak barrels requires experienced coopers and the best aged oak; thus barrels are costly. Though the cost can be absorbed and recouped by increasing wine prices, it cannot always be the case, especially with bargain-priced wines.

The search for something that offers the advantages of oak barrels without the steep expense has gone on for years. Currently, several companies provide a wide range of oak alternatives to flavor wine: staves, beans, chips and more. Thirty years ago, a local cellar rat came up with an idea that revolutionized the oak alternative business. That man was **Steve Sullivan**.

Sullivan's family moved north from San Francisco when he started at **Justin High School**. That's when he was first introduced to the wine industry. It looked extraordinarily romantic to the 15-year-old. That summer, Sullivan landed his first wine-related job on the bottling line at the **Christian Brothers Winery**.

After high school, he went to **San Francisco State University** for film study, but worked at **Buena Vista Winery** during the summer. In time, he dropped out of SF State to work for **Al Brett**, who was the winemaker at Buena Vista. Brett offered Sullivan a bona fide apprenticeship, so he took him up on it, working with Sullivan full-time, like a student. Sullivan worked for three harvests, two and a half years, and advanced to assistant winemaker.

In 1976, Sullivan went to work for **Kenwood Vineyards**' **Mike Lee** as assistant winemaker. He spent 12 years with Lee. Kenwood used oak barrels and some oak chips—nothing in between. They used good barrels for the higher-end wines, but they would buy unfired whiskey barrels from **Bluegrass Cooperage** for the lower end products, like red table wine. Sometimes they needed to bump the oak flavors up a little bit, so they'd buy oak chips as well. "I guess I started working on oak flavoring then," said Sullivan. "I would get blow torches and we'd set up conveyors going down into the tanks, and I'd fire on these chips with a chef's torch just to toast them up a bit. Mind you, in those days, chips were just a by-product of the cooperage business before they became more refined."

In 1989 Sullivan went to Australia to work for **Peter Lehmann**, and that's where the seeds were planted for his oak business. Lehman was getting free containers of oak shavings from Bluegrass Cooperage. All they had to do was pay for delivery. They were hoping to find a cheap way to get oak flavor into their Shiraz—a variety known for handling extra flavors. Sullivan wasn't sure what they hoped to get from those oak shavings, but it carried a bit too much whiskey lactone for his taste. "That's when I started to think of synergistic versus antagonistic flavor profiles from oak. My question was, 'Why use oak at all if it tastes this bad?'"

Sullivan left there thinking they had a good idea, but there had to be a better option. That's when he developed the concept that became **StaVin** (a combination of the word stave and the French word for wine, *vin*). He was determined to make oak adjuncts the way barrel makers produced their barrels. He selected wood from the finest forests in France. He aged that

At first, Sullivan toasted staves in firepots on his driveway—today, StaVin operates a much larger facility.

STAVIN

wood for three years. Then, using specially designed fire pots he invented with a local welder, he fire-roasted the staves just like French barrel makers fire-roasted their barrels.

By Steve Sullivan's own admission people were selling oak chips well before StaVin. For the most part they were raw and untoasted, but people used them. Fire roasted products were a big improvement while adding micro-ox to the equation pushed the popularity of oak alternatives over the top. Another company, **Innerstave,** founded by **Bob Rogers,** claims to have invented the new barrel oak alternatives industry in 1979.

He toured most of the cooperages around California; then he expanded his cooperage tours into Europe. When he returned, his first contact was **Dr. Vernon Singleton**, professor at **UC Davis**. Sullivan wanted to find out the depth that wine penetrated oak in a barrel. Singleton's research determined that wine penetrated oak staves 3/16 of an inch.

Sullivan bought a couple cubic meters of French oak staves that had been shipped to the U.S. He contacted **Mike Butler**, a millwright for a hardwood company in Santa Rosa, and had Butler slice the staves up into 5/8-inch slats. He figured that was the right size because wine was penetrating oak 3/16 of an inch, but he was coming in from both directions.

Will Jamieson was a cooper at **Demptos Napa Cooperage**, and he worked with Sullivan to develop the fire pots. Another friend, **Kenny Morton**, a welder Sullivan worked with at Kenwood, helped him design and build a template that was roughly the bilge diameter of a Bordeaux export barrel. Sullivan had Morton build those oak template fire pots for holding the staves, just like a barrel, and then he sat at home in his driveway fire-toasting the oak in a fire pot that was roughly designed for toasting barrels. He burned white oak for the fire. It was a crude start.

Sullivan had worked with some small lots of Chardonnay in 1989 on an experimental basis at a winery in the Russian River. The same Chardonnay was going into eight different barrels all produced by Burgundian producers. He slipped his StaVin slats into a stainless steel barrel and aged some of this Chardonnay alongside the wine in the French barrels. "I figured we were onto something when I was sitting in a room with one of the French coopers who identified the StaVin-infused wine as coming from his barrel. That's when I knew I had a business," Sullivan said.

Sullivan went all in: He sold his house, the property he had in Marin County, and dipped into his savings. He hired **Rigoberto Ordaz**, who was a cousin to **Chuy Ordaz**, with whom Sullivan had worked for 12 years at Kenwood. Then he rented a barn and the two of them started toasting staves using their oak template fire pots.

"That's when things germinated, and I went after it with Rigo. We worked together making the product. We had six to eight templates toasting our staves and over time we had pretty much toasted the inside of that barn. We hadn't given any thought to an exhaust system at that time. I started looking for property, and I found an industrial spot out in Sebastopol. We moved there and I finally had the space I needed," Sullivan said. At first the two bought French oak by the cubic meter from a local supplier, but it didn't take long to move to the next level and start sourcing oak from France.

After two years Sullivan brought his brother, **Alan Sullivan** into the business. Their father was kind enough to give them a line of credit on a four-plex that he owned. They were able to yield $300,000 per year, as a credit line, but the key was to continue to pay that loan down. They were four years into the project when they realized they needed other products along with StaVin to keep the business afloat. So, they started importing French oak barrels. They brought in **Sansaud** barrels, whose wood was seasoned for three years, thinking it would be good for wine. (It was.) They also brought in **Bardimeu** barrels as well as American oak barrels.

The concept was that if they went into these wineries and could sell barrels, maybe it would open winemakers to the concept of starting trials with StaVin. The strategy worked. They were able to get people to try StaVin on their lower-end product. In the meantime, they were selling barrels, which helped the StaVin business become more financially stable. By 1995 they were in the black, and able to pay themselves a modest salary.

"We'd been around for five years," said Sullivan. "People had heard of us and they knew what we were doing. But back then they didn't want to talk about us. We were kind of the behind-the-scenes, 'little secret' that they didn't want to share, so it was hard for us to get product endorsements from any of our good clients."

Their pitch was that they were processing this material just like a cooperage would. It would fit into certain price points that made using barrels impossible. StaVin products were just 10 percent of the cost of equivalent oak barrels. Coopers get about 11 barrels max out of the big trees in French oak forests. StaVin gets closer to 500-barrel units of extraction. It made oak economically feasible for low-end wines, and it improved the quality of those wines. Back then, the Sullivans had to preach the gospel of StaVin because they were the only ones doing it.

Dr. Jeff McCord was tasked by **E&J Gallo Winery** to see if he could find a less expensive way to produce wine without using oak barrels. "We had just spent $4 million for barrels for the Gallo Sonoma project," said McCord. "We were making a $9 bottle of wine. It did not pencil out, so we were looking for any and all ways to make really good wine without using barrels. That's how I met Steve and Alan, through their StaVin products."

"Steve came up with the whole fire roasting idea and he developed a system that could actually do it," McCord continued. "There was a lot of ingenuity involved, and he came up with a terrific system and set of products." The Sullivans had a firm belief that a research department would prove important to their business, so they hired McCord away from Gallo to run their research and development (R&D) department. Much of their product evolution has come from his R&D.

McCord's first task was to develop a system for replicating the uptake of micro-oxygenation within tanks to mimic that occurring in barrels. Sullivan liked the **Oenodev** system developed in France. They would have been happy to use that system with their StaVin products, except Oenodev couldn't keep up with demand. McCord's research showed that red wine in a stainless-steel tank with StaVin oak needed about 2ml of O_2 per liter per month, because that was what a barrel was doing. It was another part of the equation of replicating what goes on in a barrel. McCord developed a micro-oxygenation system he called the **OxBox**. The OxBox was a micro-metering device that allowed winemakers to bubble small amounts of oxygen into wine during fermentation or aging with a degree of control that never existed before. When combined with a proper level of toasted oak, winemakers could give their wines almost exactly the amount of oxygen it needed in terms of flavor and aging. It proved to be the missing part of the puzzle. Oak adjuncts were getting closer and closer to affecting wines just like oak barrels. Oak adjuncts were getting closer and closer to affecting wines just like oak barrels.

STAVIN

By using toasted staves and micro-oxygenation, a winemaker can mimic barrel maturation.

"Steve could see that adding oxygen was key, but he didn't know how to approach it," McCord said. Once we were able to bring the Oxbox on board, it brought oak alternatives to the mainstream because you could make something that straight up compared to barrels, and sometimes beat a lot of them. Before then, you could take all the oak you wanted, put it in a tank and make oaky wine, but it wasn't the same as putting it into a barrel. Once you started adding small amounts of oxygen to it, we were able to mimic what went on in a barrel and make delicious wine."

When **Jeff Murrell**, another Ph.D. chemist, came on board, his first task was to develop a trichloroanisole protocol. "Steve saw that barrel companies were starting to have issues with TCA, and he wanted to make sure that didn't happen at StaVin," said Murrell. "We were able to develop an anisole protocol that checks every stave using bentonite traps in sealed containers. We circulate the air for five days and then suck it through a bentonite filter. Then we take that filter to **ETS** and analyze it for TCA. It is as clean a test as you can get, and we've never had a problem."

Sullivan confirmed, "When you have two scientists heading up research, you start asking questions a lot sooner to stay ahead of the curve. I sleep well at night because we are doing all the right things to develop the ultimate ingredients for wine."

Full Barrel Replication

Once they sent up the TCA protocol, McCord and Murrell created a book that outlined the technical information, chemistry and sensory results and showed how winemakers could use StaVin products along with

STAVIN

Many winemakers have come to accept chips and staves as an alternative to barrels.

micro-oxygenation to develop programs to replace existing barrel programs while still maintaining quality. "Steve recognized that we needed to teach winemakers how to use these products to produce wine on par with the wines aged in barrels. We showed them how to use oak staves in conjunction with micro-ox in a way that allowed them to take advantage of the economic benefits while maintaining the quality of their brand."

StaVin's primary task is to consistently replicate the same flavors each year. The key, according to Sullivan, is sourcing. StaVin harvests trees from sustainable forests in the center of France in the Loche and Le Mans area. Their wood supplier has never changed. They season the staves for three years. McCord did the analysis between two- and three-year aged stave wood. Three years proved just a bit better, and enough to make a difference.

Their sales growth was booming, but there was still some reticence. Their growth was tempered by copycats entering the business. "We knew we were the benchmark because a lot of these people were going to our clients and telling them they were making their product just like we did. In fact, nobody was doing anything like us," Sullivan said. "That's why it helped having McCord and Murrell on board. Back then, you could get into this business much easier. Today the barrier of entry is higher. Most of our competition just roasted in ovens because that is the least expensive way to do it. You can convection-toast oak all day in an oven. There are some advantages to that kind of toasting for certain flavor profiles, so we do both now, but we are best known for our fire-toasted product. Today, we stand pretty much alone in that category of replicating barrel flavor."

Today, it's more difficult to enter the oak adjunct business—it's a large investment and there are a number of players. StaVin has already made that investment. They believe it is key for business and quality. Currently, they have $8 million of raw material on the yard in France. There's another $1 to $2 million of product at their factory in Cotati. It is all three-year-seasoned product.

Growing Acceptance of Chips

After years of being a bit of a wine industry secret, oak adjuncts, especially StaVin's, were getting noticed. Winemakers loved their products and were willing to talk about them, and the StaVin products became so successful, winemakers wondered if they needed barrels at all. The Sullivans decided to put their money where their mouths were. "If you could do a winery that didn't require any barrels, then StaVin was the company to show how it could be done," said Sullivan." They went to the bank and got financing for their new project, **Safe Harbor One**. It was a massive investment.

They opened Safe Harbor One in 2007. The facility helped wineries age wine in stainless steel tanks using various StaVin products exclusively along with their OxBox micro-oxygenation technology. In effect, they built a winery with no barrels.

Joel Green is general manager/winemaker of Safe Harbor. "Steve told me they wanted to create a winery to make high-quality wine, without barrels, using StaVin staves and micro-ox. He brought me to Safe Harbor and the scale was impressive. I could tell people with winemaking backgrounds had put a lot of thought and effort into making sure it was an efficient and well-run facility."

MARK STUPICH

The European market is Sullivan's "next frontier." He's hired Jerome François to help bring StaVin to the Old World.

Safe Harbor was a success. It has grown in storage capability every year. Currently, it offers 9 million gallons of storage space, and that space turns two or three times per year. Safe Harbor clients started as StaVin customers, and every one of the original clients remains a client now, 12 years later. The wines that are sent to them are generally in that $12 to $25 retail price point.

"We've always called Safe Harbor a 'wine enhancement facility' because that's what we are doing," Sullivan said. "Joel Green is a great winemaker with a professional crew versed in making wine, and tailors our program to the needs of the clients."

Sullivan absolutely believes there is a place for barrels in winemaking. "Don't get me wrong," he exclaimed. "The 4 to 5 percent of wines made on this planet that see the interior of barrels are great. I love to see those wines going into those barrels, and I like drinking them, but at certain price points barrels don't make sense."

Environmental Impact

The green aspect of what they do is another real selling point to the Millennial winemaker. Even though the forests of France are managed very effectively and efficiently, StaVin gets far more barrel flavor units than a barrel company. Not only that, but even the used staves from Safe Harbor are being recycled into furniture by a company called **VinoPlank** in Healdsburg.

"I didn't start this business to be green," Sullivan admitted. "It was more the financial aspect of it. Watching barrel prices go up 6 percent every year was the impetus to start something that would give a flavor profile that would replicate barrels for wines sold at a price that wouldn't allow for the expense of barrels. Today, any wines retailing for under $20 most likely use oak adjuncts. Wineries are not in the business of leaving money on the table, especially at those price points. If a winemaker is standing there telling you that a cheap barrel is better than the best adjunct product, then he is lying to you—because it is not true."

In the last 15 years, oak alternatives have exploded upon the winemaking mainstream. Almost all the major barrel cooperages are also selling oak adjuncts. More than a dozen companies that produce oak adjunct products were listed at this year's **Unified Wine Symposium**. *Wine Business Monthly*'s Annual Barrel and Oak Survey Report shows that 90 percent of mid-size and large wineries use oak alternatives, with 5 percent of the wineries using oak alternatives exclusively.

The use of oak alternatives relates directly to the retail price of each wine. In 2003, wines in the $7 to $10 price range were most likely to use adjuncts. By 2018 that price range had increased to $15 to $25. The use of oak adjuncts has become more specific. Oak powders and small chips are used primarily during fermentation to stabilize color, decrease vegetal character and round out the mid-palate. Chips, blocks and bullets are used by roughly 75 percent of wineries to add flavor and aroma. Tank staves are used by 50 percent of wineries, almost always in conjunction with micro-oxygenation to mimic barrel aging and produce rounded flavors and texture in wines.

When it comes to selling oak alternatives, the European market is the new frontier. StaVin made a few attempts at getting representation. They were able to do some business in the Spanish market, but getting their products into France, as an American replication company, was nearly impossible. They realized they needed a French partner, one with whom they had a synergy. **Jerome François** was that guy. The more they got to know him and his family, their story and the way they did business, the better they felt about one another. The other thing Sullivan liked about François was that he was completely hands-off.

François got involved with StaVin because he liked what they were doing, and he liked the way they were doing it. "When we looked into the various oak adjunct companies, StaVin stood out. They were like coopers. They selected center of France wood and aged it three years. They fire-roasted their staves ,much like we do when we make barrels. They were family owned, dedicated to quality and had a great reputation in the industry," François said.

The potential in Europe is possibly three or four times what it is in North America. The ***Wines Vines Analytics*** database shows more than 10,000 wineries in the United States. In Bordeaux alone there might be 12,000 wineries. Up until recently, it was illegal to sell oak adjuncts in France. Slowly, more appellations are opening up to the concept because it has been so well accepted around the planet. StaVin is doing good business in Spain, has started in France and will begin in Italy soon. They have high hopes.

François has been fully open to their expansion in Europe and so impressed with the StaVin operation that his **Tonnellerie François Frères** purchased the company to add to their TFF Group portfolio. The Sullivan brothers continue to manage day-to-day operation of the company. The Sullivans retain ownership of Safe Harbor and have plans to expand that operation.

Steve Sullivan is changing the wine world. He is doing the best he can to make a product that makes wine taste like it has been aged in some of the world's favorite barrels at a fraction of the cost. He and his team have researched the science, developed state-of-the-art production methods and created techniques that make the products effective. He's shared that information with the wine industry. And though Sullivan knows that things are not going to change overnight, he believes the change is coming—and he continues to be at the forefront of that change. **WBM**

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Winemaker Trials

Using Eclat Barrels to Achieve Varied Phenolic Levels and Sensory Characteristics in Willow Creek Chardonnay

Curious about the phenolic effects of ceramic-toasted barrels and hydro-toasted barrels, winemaker Mark Welch decided to test both on single-vineyard Chardonnay from the Willow Creek AVA.

Stacy Briscoe

IN 2013, CO-OWNER AND winemaker **Mark Welch**, along with co-owner **Greg Jelstrom**, produced **Torch Cellars**' first vintage. Their collaboration is driven by passion and a desire to produce elegant wines. Their logo, a sun, is a beautiful handmade art piece handed down from Mark's grandmother who was an artist living in Santa Cruz, CA during the Roaring '20s and is the cornerstone and symbol of the Torch label. "Torch" was the nickname given to Mark during his early days working at the famous **Wild Horse Winery** in the early 1990s.

Winery: Torch Cellars

Objective: The objective of the trial is to analyze phenolic levels and sensory factors in Chardonnay wine from the Willow Creek District when using ceramic-toasted and hydro-toasted barrels.

Trial Discription: The trial is a barrel aging evaluation that consists of Chardonnay wine made from two distinct vineyards (2017 and 2018 vintages) located in the Willow Creek District: **Township Vineyard** (Teressa Angela block, 4.5 acres) and **Jack Creek Vineyard** (Kruse block, 5 acres). All factors for the 2017 vintage and 2018 vintage are similar (except for harvest dates, Brix and TA) for quantity and production methods. Approximately 1 ton of grapes from each vineyard designation was heat-stabilized, barrel-fermented, and sur lie-aged for four months then blended together prior to bottling. Both vintages exclusively used the **Vinéa** Eclat ceramic barrels.

Lot 1: 2018 Willow Creek District Chardonnay - Bottle Samples
Lot 2: 2017 Willow Creek District Chardonnay - Barrel Samples

Stacy Briscoe is the assistant editor of *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.

Winemaker's Postmortem

Why was it important for you to study the phenolics of Chardonnay? Was there a specific problem you were looking to solve or goal you wanted to achieve in your Chardonnay program?

Welch: I like Chardonnays, and I was impressed with the Chardonnays from the Willow Creek AVA, especially wines made from the **Midnight Cellars** Township vineyard designation. There was no specific problem I wanted to solve; rather it was important for me to study the phenolics. I'd been enjoying the phenolic barrel profiles I was tasting and wanted to dive into the specifics a bit more.

Why were you interested, specifically, in measuring those phenolics after aging the wine in ceramic-toasted and hydro-toasted barrels? What was the question about varying toast processes that you were hoping to answer?

Welch: I was introduced to the hydro-toasted barrels by another respected winemaker, who thought my wines would benefit immensely from them and match well with my winemaking style. I wasn't sure how the hydro barrel

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would perform but was intrigued with the process and curious if one could differentiate between the two barrel types.

Can you briefly describe how you set up the trial?

Welch: My original goal was to analyze the 2018 Chardonnay using the two barrel types. Unfortunately, I had blended the 2018 barrel types just prior to registering for the winemaker's trial. So, I decided to compare and contrast the 2017 and 2018: the 2017 was exclusive Eclat ceramic radiant long (CRL); the 2018 was a blend of both Eclat CRL and Eclat hydro barrels.

Were there any complications during the trial? If so, how did you address any problems that occurred?

Welch: There were no real complications to speak of. One barrel was a tad slower to finish fermentation, but no additional work was required.

What was your team's thought process during the trial? Did they have any specific hypotheses or expectations regarding the experiment?

Welch: Based on the literature, the hydro barrels should express a more prolific fruit expression and less smoky characteristic. I was impressed with the CRL barrel from 2017 and was looking forward to the 2018 hydro barrel style, knowing that, at some point, I would blend the two barrel types.

Can you briefly describe the results of the trial? What winemaking lessons did you learn?

Welch: If you compare the oak volatiles panels from 2017 versus 2018, the 2018 had higher levels (ug/L) in all categories. I would like to correlate the wine analysis with the oak volatiles.

Based on those results, do you intend to make any adjustments to your current Chardonnay program? Did you, personally, prefer one wine over the other? If so, why?

Welch: Chardonnay has the ability to age well: it's a complex wine that can be either buttery or crisp. In this trial I prefer the 2018, but it's still early. If I do incorporate any adjustments, it will be on the winemaking side—specifically monitoring the malolactic fermentation a bit more closely.

What were some of the comments from the team? Which wine did they prefer?

Welch: Initially, I had far more positive compliments for the 2017. However, I just bottled the 2018 last month, and the few winemakers that have tasted it prefer the 2018 over the 2017.

Do you plan to do a follow-up trial to re-test these results?

Welch: Yes, I do plan to follow up and have already ordered my barrels for the 2019 vintage. This coming harvest I plan to keep separate barrel samples and analyze independently. **WBM**

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Is Organic the Most Sustainable Farming?

It's a fair question, don't you think?

Mark Greenspan

IT'S A QUESTION THAT gets brought up in conversations all the time yet rarely gets mentioned in text. I suppose it's always risky to test the dogma of organic farming when there are so many that are passionate about it. I'm going to lump biodynamics into the organic discussion, as I am not about to tackle that paradigm right now. Maybe I'll tackle that when I write my last viticulture column.

So, what can be more sustainable than "farming without chemicals?" We all are exposed to this daily: Organic products flood the grocery stores with alternatives to so-called conventional products. I will agree that much of the organic produce often looks a little bit better than its conventional counterparts, and the ugly blemished fruits and veggies we used to see in the organic bins are not there anymore. That means that there have been strides made in organic farming that have made these products more acceptable to a wider consumer base. It seems that everyone wants organic products now, whether for fresh produce or packaged goods. But grocery store organics are not what I'm here to discuss. Let's discuss organic viticulture, shall we?

Organic farming, despite what I said above, is not farming without chemicals. It is, however, farming without synthetic chemicals. But what really is a synthetic chemical and what is so bad about using one?

I ask again: Is organic the most sustainable form of agriculture? I think it depends on how we define sustainable. Unfortunately, the word has been misused and its meaning diluted. We've fallen on it as a crutch, often when we apparently have decided that some of the other "programs," like organic, are too restrictive. In essence, our sustainable certification programs are statements that we growers do these practices well, these other practices not so well, and we will make efforts to do more practices well and will be evaluated as to our successes in making these changes. Don't get me wrong, I think these are worthwhile certification programs because they define good farming practices and help growers identify and prioritize what practices they need to improve. But they are more about best practices than sustainability in my opinion.

To me, sustainability means that whatever you do, you can do it in perpetuity without degradation of your local environment, the neighboring environment, the planet and humanity, in general. That's a big ask, but don't we all want to leave the earth in the same, if not better, condition than when we arrived? Everything we do as humans impacts all of the above, and some of our impacts can be mitigated and erased by natural processes in our environment. But if our impacts exceed the natural or man-made means of mitigation, our impact is persistent. That is not sustainable. When I think of viticulture, I think of sustainability issues regarding water, chemical and physical impacts to the environment, and carbon footprint. So, I reiterate my question; "Is organic the most sustainable farming?" Let's chop it up into categories that are easier to digest.

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.

Pest and Disease Management

This is the area that gets the most attention with regard to organic farming and, for grapes, fungal diseases require the majority of our pest management time and money. There are numerous products available to us to combat powdery mildew and other fungal pathogens, but organic viticulture allows only a small fraction of those products as organic forbids products not extracted from nature. While sulfur (dusting, wettable, micronized), mineral oils, potassium bicarbonate, hydrogen peroxide and some biologicals are very effective at controlling mildew, they simply lack the longevity of protection provided by many of the available synthetic products. Organic products need to be re-applied at intervals, often as short as seven days, while the synthetic products can remain effective for two or three times longer. That means many more tractor passes, through the vineyard, with a purely organic fungicide program. I don't have numbers available, but considering that minimizing carbon footprint is an essential component of true sustainability, organic appears to be far less sustainable than conventional from that standpoint alone.

Now, if the synthetic fungicides we apply are more toxic than the organic ones, that could undermine the carbon footprint argument partially or completely. Although I aced my university chemistry classes, I am not a chemist, so I cannot say with certainty that the synthetic fungicides are not harmful, and I do know they are toxic because they kill fungi. But are they more toxic than organic chemicals? All these products have **Environmental Protection Agency** (EPA) registrations and, as such, they all have labels and safety data sheets (SDS) that describe their potential hazards, prevention of hazards and treatment of incidents of exposure. This applies both to organic

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and non-organic fungicides. Interestingly, sulfur has a re-entry interval of 24 hours post-application while synthetics like **Quintec**, **Mettle** and **Sovran** (as examples), have shorter re-entry intervals of 12 hours. This may mean that the short-term effects of sulfur are more severe than the synthetics. But, on the other hand, the synthetics I listed have pre-harvest intervals between 14 and 21 days while sulfur's pre-harvest interval is zero days. The general hazard potential of a material is summarized in its signal word, ranging from Caution (mildest) to Warning (moderate) and Danger (most severe). Ironically, the organic product **Oxidate**, which effectively disappears shortly after application and has a one-hour re-entry interval with a zero-day pre-harvest interval, has a Danger signal word because it can cause blindness if it comes into eye contact.

In other words, what does toxic mean? None of these products, organic or synthetic, is safe to use without adequate precautions. In theory, all of these products degrade in sunlight or by microbes in the environment, and we don't find lingering toxic residues of any of the conventional fungicides that we are aware of. If anything, the material with the most impactful residue is elemental sulfur, which oxidizes and acidifies the soil over time. So, I really can't say that organic fungicides are less harmful to the environment than synthetic ones.

Since microbes have the same shikimate pathway that plants have, and that is what glyphosate targets, I can conceive that glyphosate can and probably does cause harm to the soil microorganisms.

Besides fungal diseases, insect pests have a serious economic impact, and organic growers have little in their toolkit for many of these. While pyrethrins (e.g., **PyGanic**) are effective against a pest like leafhoppers, it provides no long-term control like something synthetic and systemic, such as imidacloprid. But take the pest-like spider mite or vine mealybug and what can an organic grower do? There are really no effective mite control products that are organic, and I've seen too many organic growers throw up their hands when mites flare up. And what about vine mealybug? Again, there is little control available because the critters get under the bark, where they are sheltered from contact insecticides. Besides stripping bark from vines and spraying contact insecticides, the organic grower lacks the tools of a conventional grower, so the organic system seems less sustainable in that regard.

Before leaving the pest and disease topic, I should mention resistance. We are seeing resistance to synthetic fungicides and insecticides, and that cannot be denied. Fungi cannot become resistant to the organic materials because they kill the organisms in a more general fashion. Synthetics are very specific in their modes of action, usually targeting a single biochemical process that sustains life. Similarly, with insect resistance to insecticides, organic materials tend to be general biocides while synthetics attack a specific biological process within the target organism. Indeed, glassy-winged sharpshooter (GWSS) has been displaying resistance to imidacloprid in areas being repeatedly treated with the material. Nevertheless, resistance can be managed by rotating modes of action and combining synthetic materials with organic materials. Organic growers will not see resistance, but conventional growers can also avoid resistance with good management. However, when some growers fail to practice rotations in their materials, they can generate resistant populations that become problematic on a larger scale, rendering some materials useless.

My overall assessment is that conventional pest management is more effective and efficient than organic pest management and, as a result, can create a smaller carbon footprint and is potentially more sustainable as a result. There are a lot of caveats to that statement, however, and by no means do I want to encourage "nozzle head" farming.

Weed Management

Technically, weeds are also pests, but I think their management deserves a separate discussion because it also pertains to soil health. Weeds are a constant problem, but we are learning to accept that our vineyards do not need to be completely weed-free. Weeds can compete with our vines for water and nutrients, but they also provide organic matter and help to sustain healthy soil microflora and microfauna. Regardless, they still need to be controlled, especially in the vine row. Excessive weeds under drip emitters will reduce the efficiency of our irrigation applications. Excessive weeds can also harbor rodents, such as voles, that can severely harm our vines.

The popular discussion aimed against glyphosate is fraught with misinformation, half-truths and complete nonsense. Personally, I ain't afraid of no glyphosate. However, I do believe the active ingredient can cause harm to our soil microbiota. Do I know that for fact? No. But since microbes have the same shikimate pathway that plants have, and that is what glyphosate targets, I can conceive that glyphosate can and probably does cause harm to the soil microorganisms. Because of that significant uncertainty, it becomes necessary to side with the throngs of people who believe everything they hear on social media and eschew the use of glyphosate herbicide.

And pre-emergence herbicides? Some of the most toxic materials we use in viticulture are in this category, though let us not forget some of the other nasties that are contact herbicides. Truly, herbicides, in general, are among the most acutely toxic products in our shed, and some of them are persistent by design. So, I must look at these very negatively when it comes to their place in sustainable viticulture.

Of course, organic growers have never used glyphosate or any other synthetic herbicide and have instead relied on materials that didn't work very well, like acetic acid, corn gluten and clove oil (hold on, more on that in a minute). Not having effective herbicides, organic practitioners would use other methods for under-vine weed control, like heat/flaming, under-vine mowing and under-vine tilling. Of those, under-vine tillage is the most common. There are some good tillers available now, and it is becoming more and more common to see them being used in both conventional and organic vineyards. But tillers kill vines, and even the best operators lose a vine now and again to those mechanical beasts. And we must ask whether tillage goes against our movement towards no-till. Personally, I like mechanical tillage, despite its danger to vines (and soil moisture probes), but no one can argue that tillage has a lower carbon footprint than an herbicide application or two. It simply requires more horsepower and, therefore, fuel.

But here is where the trade-off between carbon footprint and environmental toxicity becomes less of a no-brainer than it does for fungicides. Herbicides are toxic, and spraying them under our vines does not seem sustainable. But only if there were organic herbicides that worked. I am not here to endorse any products, but there are some newer organic herbicides that show promise. One of them is clove oil-based and, with additional ingredients that facilitate its entry into the plant, is showing potential as an effective herbicide. So, maybe we're coming upon a solution, combined possibly with tillage, that produces effective weed control without the use of that nasty stuff.

I am encouraged to see more conventional growers become less dependent on harsh herbicides and start turning to softer methods. In this category, I am going to give the nod here to organics regarding sustainability in weed control.

Fertilizers

Nutrient management of vineyards may be less complicated with respect to sustainability than the other categories. The concept of organic came from fertilizers, specifically regarding nitrogen sources of fertilizer. Before the development of the **Haber-Bosch** process in the early 1900s, farmers used manures and other organic sources for their nitrogen needs. But mineral nitrogen fertilizers are much easier to apply and are relatively inexpensive. The Haber-Bosch process provides the ability to extract mineral nitrogen from the ubiquitous nitrogen gas in the atmosphere. This process requires hydrogen, which is taken from natural gas, and hence the process itself is a greenhouse gas producer. Not to mention that mineral nitrogen fertilizers can volatilize (ammonia and urea forms) or leach (nitrate forms), potentially causing environmental problems on their own.

Organic nitrogen fertilizers come from living things, or the waste products of living things, like animal manures, fish entrails or processed legumes, like alfalfa. Nitrogen can also be delivered to a vineyard by leguminous cover crops through the symbiotic relationship between the host plant and nitrogen-fixing bacteria. It's difficult to argue against the beauty of capturing nitrogen naturally and/or recycling formerly living tissue to provide a nutrient source. On the other hand, mineral nitrogen sources are relatively inexpensive and can be applied efficiently and, if done properly, will provide minimal loss and pollution through volatilization and leaching.

Other nutrients are not as clear-cut. Many of them come from mined mineral sources and can be, and are, commonly used for both organic and conventional vineyards. For example, sulfate of potash is a common source of potassium, gypsum is a common source of calcium, and **Epsom** salts is a common source of magnesium. But truly, factory-created fertilizers are difficult to fault. Calcium and potassium thiosulfate are good fertilizers but cannot be considered organic because they are created by a chemical reaction. What's so bad about that?

Phosphorus is even more controversial in my opinion. There are few options for phosphorus fertilizer materials, and most organic sources are mined rock phosphate or mined "soft rock phosphate," the latter of which are fossilized sea creatures. The soft rock phosphate is more effective than rock phosphate because of a finer particle size. But neither of these materials is soluble and can be delivered only in weak suspensions through a drip system. Phosphorus is truly difficult to manage in organic vineyards that require supplementation of it. On the other hand, super phosphate and triple super phosphate are conventional materials prepared by reacting rock phosphate with acids. This increases its solubility and concentration and makes it more available to the plants. Again I ask, what is so bad about that?

So, this one is more difficult to call. Regarding nitrogen, I would have to give the sustainability nod to organic farming. There has been so much misuse of mineral nitrogen fertilizers, creating nitrate-polluted groundwater in agricultural regions, and adding the greenhouse gas aspect of its production, I would say that mineral nitrogen is less sustainable than organic nitrogen. As for the other mineral nutrients, I'm neutral for everything but phosphorus, for which I'd like to see some leeway in material choices.

The Final Verdict

As with most of my discussions in these articles, I can't really proclaim that either organic or conventional methods are more sustainable because, as you can see, it depends on what we are looking at. Both can have non-sustainable impacts, and strict organic practices are not always the best solution. I prefer not to be constrained by the rules of organic, to be free to use soft materials and integrated practices in the main course of activity, but also have the conventional tools available when needed. **WBM**

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Wine Business Monthly is privileged to announce the opening keynote speaker for this year's Wine Industry Financial Symposium: **Jim Clerkin**

Jim Clerkin President and CEO, Moët Hennessy North America

Over his 40-year career, Jim Clerkin has worked for many prominent companies in the wine and spirits industry. In his current role, as President and CEO of Moët Hennessy North America, Jim is part of Moët Hennessy's Global Executive Team, with responsibility for the company's portfolio of global brands such as Hennessy, Moët & Chandon, Dom Pérignon, Veuve Clicquot, and Belvedere, across the USA, Canada and Mexico.

Jim began his career in Ireland, where he rose through the ranks at Guinness, to ultimately become an executive member of the Board of Directors. In 1994, Grand Metropolitan recruited him to head its Irish wines and spirits division. Following his tenure at Grand Metropolitan, Diageo appointed him as EVP and President, assuming responsibility for Diageo's wine and spirits division in the Western region of the United States, and consecutively, he joined Allied Domecq in 2003, to lead their business in the Americas as President for North America and Canada, reporting to the Global CEO. Following the sale of Allied Domecq to a consortium led by Pernod Ricard, Jim was appointed CEO of The Jim Beam Company for USA, Canada and Mexico. In 2008, Jim joined Moët Hennessy, the wine and spirits division of LVMH, as Executive Vice President and Chief Operating Officer of Moët Hennessy USA, where he was appointed to the position of CEO and President of Moët Hennessy USA in 2010. Currently Jim is the President and CEO of Moët Hennessy North America.

Jim is also a Non-Executive Director on the Board of C&C. He is a Board member and former Chairman of the Distilled Spirits Council.

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Procuring Healthy Grapevine Planting Stock

Judit Monis, Ph.D.

A newly planted vineyard block with symptoms of virus infection.

PLANTING A NEW VINEYARD and procuring clean planting stock is an important task for viticulturists and growers. The goal should be to plant healthy vines to avoid the introduction of harmful pathogens and prevent disease development in the vineyard. By far, the most efficient way to introduce disease in a vineyard is to plant material that is already infected. Currently there is no cure for graft-transmissible diseases once established in the vineyard. Therefore, special care should be taken when selecting planting material prior to developing a new block.

Purchasing certified grafted vines may give an extra level of assurance. However, we recently learned that even the most well-maintained and most tested foundation block in California is susceptible to becoming infected with viruses. Here I discuss what we know about the health status of plants in the **California Department of Food & Agriculture's Grapevine Registration & Certification Program** and recommendations for producing and maintaining clean grapevine planting stock.

Judit Monis, Ph.D., provides specialized services to help growers, vineyard managers and nursery personnel avoid the propagation and transmission of disease caused by bacteria, fungi and viruses in their vineyard blocks. Judit (based in California) is fluent in Spanish and is available to consult in all wine grape growing regions of the world. Please visit *juditmonis.com* for information or contact *juditmonis@yahoo.com* to request a consulting session at your vineyard.

Zero Tolerance for Virus Infection in the FPS Mother Blocks

The **University of California Foundation Plant Services** (FPS) administers and maintains the **California Food and Agriculture** (CDFA) Registration and Certification (R&C) mother blocks. At the moment, it is maintaining two blocks: Classic (with older selections) and Russell Ranch. The Russell Ranch foundation block is the newest mother block, planted with material developed using the micro shoot tip culture technique to eliminate viruses. In addition, all selections within the block were initially tested, and they each exclude a long list of viruses known as "Protocol 2010."

The vines in the foundation mother blocks are subjected to annual testing (woody and herbaceous index, as well as molecular and serological laboratory assays) with the goal that by the fifth year the entire vineyard block is tested.

The annual testing, completed in 2017, found five vines positive for Grapevine Red Blotch Virus (GRBV) in the Russell Ranch block. Genetic analyses indicated that at least two separate infections occurred, representing the two known GRBV genetic clades. According to **Maher Al Rwahnih**, diagnostic and research director at FPS, these were new infections that likely originated from a neighboring private backyard, a schoolyard and a home improvement center within a 2-mile radius from the Russell Ranch foundation block.

The findings led FPS personnel to test the entire block for GRBV as there is a zero tolerance policy for virus infection in place in their blocks.

Composite Sampling for Detection of GRBV

To streamline the testing, the laboratory developed a sampling technique that involved a composite of 20 vines, consisting of four petioles per vine. If a sample were to test positive, all vines from the composite sample would be tested separately to determine which vine(s) were infected.

In 2018 the annual testing of the Russell Ranch mother block discovered 24 additional infected vines (some of these new positive vines were aggregated near the vines that were found infected the previous year). The increased number of positive samples prompted FPS researchers to question the composite sampling testing method developed the previous year. Potentially compositing many vines in one sample could have yielded false negative results. In other words, some vines that tested negative the previous year may have already been infected but not detected, due to the virus being diluted in the sample. In spite of this possibility, the 24 infected vines found in 2018 are being considered as new infections. The conclusion is based on the fact that earlier tests on these vines yielded negative results and that sibling vines (vines produced from the same mother plants) consistently tested negative. However, it is possible that these vines were infected with a low titer (concentration) of virus; thus, detection was missed when tested earlier. Another reason for the lack of detection could be due to seasonal variation of the titer of virus in infected vines.

The Concentration of GRBV is Seasonal and Fluctuates Based on Sample Type

Until recently, the distribution of GRBV in vines was thought to be uniform. However, research in **Marc Fuchs**' laboratory at **Cornell University** has shown that the titer of GRBV may fluctuate, depending on the season and type of sample collected. The testing of samples of GRBV-infected greenhouse- and field-grown vines collected in June, July and October of 2018 indicated that the virus concentration gradually increased as the season progressed. Furthermore, when testing foliar tissue, results showed that the younger leaves had a reduced concentration or undetectable levels of GRBV compared to the older leaves. Further, the study reported that consistent results are always obtained using dormant canes. Similar research at FPS appears to agree with Cornell University published results. Consequently, FPS has decided to test their material in October 2019 and use lignified canes, rather than petioles, to avoid any potential false negatives.

Disease and Vector Management in Foundation Mother Blocks

In spite of the advances in knowledge since GRBV was discovered in 2012, the epidemiology and disease management of this virus are not completely understood. It is known that red blotch can be transmitted by the three-cornered alfalfa tree hopper (*Spissistilus festinus*); however, other insects may be capable of transmitting the virus as well.

To prevent the introduction and spread of the virus within the foundation blocks, FPS personnel perform frequent monitoring for virus vectors. Preventative treatments are done with systemic and contact insecticides. In addition to insect feeding deterrents, FPS has developed educational material in English and Spanish for workers to recognize virus symptoms and vectors. Additionally, more frequent visual inspections in both blocks are performed with the aim of removing newly discovered infected vines. All confirmed infected vines are to be removed and destroyed to help reduce the inoculum levels in the foundation blocks. FPS plans to survey a 5-mile radius around the area to determine the potential source of infection of their vines.

The Future of Grapevine Clean Planting Stock

This year FPS has implemented a "Test to Order" program that promises to test all orders prior to shipping. Additionally, all vines in the foundation blocks will be tested annually for Grapevine Leafroll-associated Virus 3 and GRBV. We must commend FPS for their increased efforts on testing their blocks. However, it is expected that more GRBV infections will be found in the coming years. We will learn more after the 2019 testing season is completed, but the available data have shown an exponential increase of disease incidence in the Russell Ranch block (i.e., initial infection of five vines has increased to 24).

According to **Dr. Deborah Golino**, FPS director, if the number of infections continues to increase, the administrators will need to decide on selection priorities, as not all selections in the foundation block can be protected in special insect-proof facilities. In my opinion, the recommended strategy would be to perform meristem tissue culture on priority selections to assure the pathogen-free status prior to growing them in isolation. Ideally, the California R&C program would mimic other crop certification programs in which the virus-free tested selections are grown in areas where there is no disease pressure (i.e., areas where grapevines are not grown). Alternatively, these selections could be grown in screen houses that would provide protection from the introduction of insect vectors.

Presently, sophisticated methods are available for the detection of detrimental bacterial and fungal pathogens. It is highly recommended that when starting a new foundation, the new selections of plants be tested for the presence of detrimental bacterial, fungal and viral pathogens. The availability of clean planting stock will allow growers to replace their diseased vineyards with healthy vines. Consequently, this will reduce the disease pressure and subsequent use of harmful pesticides to control insect vectors and/or pathogens. More productive and sustainable vineyards will increase the yield and quality of grapes that will translate into better wines for the consumer. **WBM**

A grapevine infected with red blotch and leafroll

A Tribute to Pierre Galet, Master Ampelographer and Mentor

Lucie Morton

LUCIE MORTON

When Galet visited Texas in 1985, he was intrigued by the *Vitis* diversity and ecological challenges of Texas viticulture – and also appreciated the quality of wines he tasted there.

IT HAS BEEN 40 years since my translation of **Pierre Galet**'s *A Practical Ampelography: Grapevine Identification* was published by **Cornell University Press**. This made our meeting at his home in Montpellier, France in March 2019 all the more celebratory. We were brought together by cinematographer **Clotilde Verriès**, who is filming a documentary on Galet's life and work and wanted to film him together with former students. At 98 years old, Galet is still typing away on his computer, compiling information on world *Vitis* species in Latin, French and English.

To say I was a student of Galet's is an understatement. Yes, he was one of the professors who taught classes at **Ecole Nationale Supérieure Agronomique de Montpellier** (ENSAM, now **Montpellier SupAgro**) while I was in attendance during the 1973-74 academic year and the author of textbooks, such as *Precis de Viticulture and Precis d'Ampelographie Pratique* that I relied on to learn the fundamentals of viticulture. But even greater learning for me came later, during the translation of his book, and our three viticultural journeys in the United States in 1980, 1985 and 1990.

My journeys with Galet began on October 22, 1973 in the viticulture building of ENSAM. I was 22 years old, the only female and the only American in the class—both attributes deemed positive by Dr. Galet. The fact that I had planted a 1.2 hectare vineyard of French-American direct producers on the family farm in Virginia was even more appealing because he knew more about the American *Vitis* species, rootstocks and hybrid varieties than anyone else alive. Truth be known, French grape growers don't give a hoot about American vines except every half century or so when they replant new vineyards and select phylloxera-resistant rootstocks.

Lucie Morton is an independent viticulturist based in Virginia. She is an internationally recognized author, ampelographer, lecturer, and consultant. Her higher education in viticulture occurred in Europe, under the auspices of what is now SupAgro Montpellier. Her practical education began as vineyard manager on the family farm Morland along the banks of the Potomac River.

I, on the other hand, knew absolutely nothing about *Vitis*, beyond scant varietal descriptions in nursery catalogues and the enthusiastic writings of Maryland journalist and grape grower, **Philip Wagner,** about the merits of the genetic marriage of old European *vinifera* "noble" varieties with lowly wild indigenous grapes of North America. It was probably just as well that it would be some months before I learned that **Professor Jean Branas**, director of the international program I was hoping to join, had been instrumental in banning such grapes from French commercial winegrowing.

Galet drove very fast and that was scary. What I most remember about our first field trip, however, was his pointing out the window and saying, "*Voilà, Mlle. Morton, un de vos compatriotes*." I saw no one and asked what he meant. He pointed out naturalized American species all along the road—much *Rupestris du Lot* and some *Riparia Gloire* in the low spots. This drive-by botanical prowess impressed me and I vowed to learn how to recognize grapevines at 100+ km/h.

The *emploi du temps* for the first week of my studies showed that "M. Galet" would be leading classes on *maladies et pratiques culturales*, *anatomie-tige*, *phylloxéra*, *mildou* and *champignons parasites*—no mention yet of ampelography, not that I would have known what that was at the time.

None of my previous studies of French language and literature had prepared me for this situation. Immediately following the first class, I went downtown to the **Poulain** bookstore in search of a new **Petit Larousse** and a book on general viticulture to help me learn the language of viticulture. There were many works on viticulture, but I could only afford one. I chose the book that seemed to be the most comprehensive and best value: *Precis de Viticulture* (1973) by P. Galet. If I had selected another text, I never would have succeeded in my studies. It would be another month before it occurred to me that my teacher "M. Galet" and author "P. Galet" were one and the same.

Without Galet's professorial help in November 1973, our subsequent collaborations would not have been possible. I began as a student on trial—an

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A Tribute to Pierre Galet, Master Ampelographer and Mentor

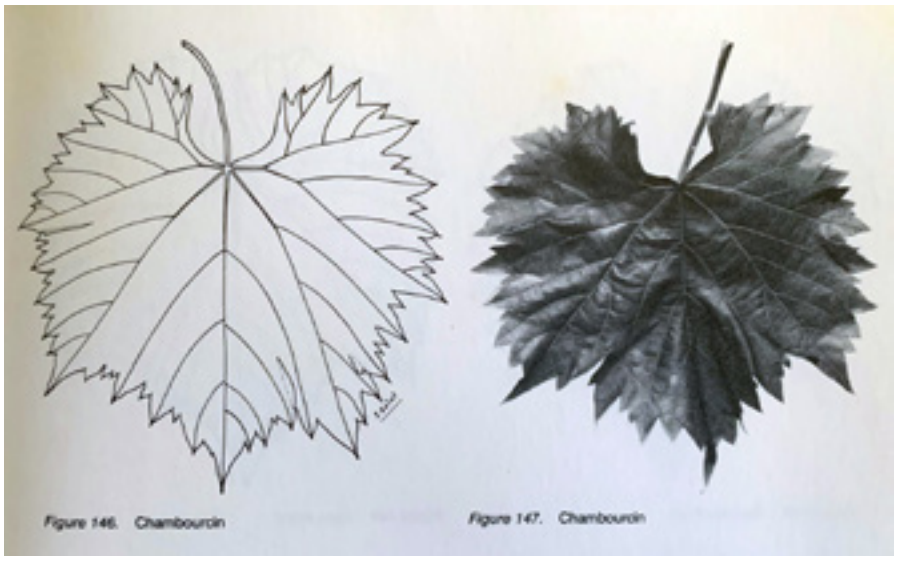
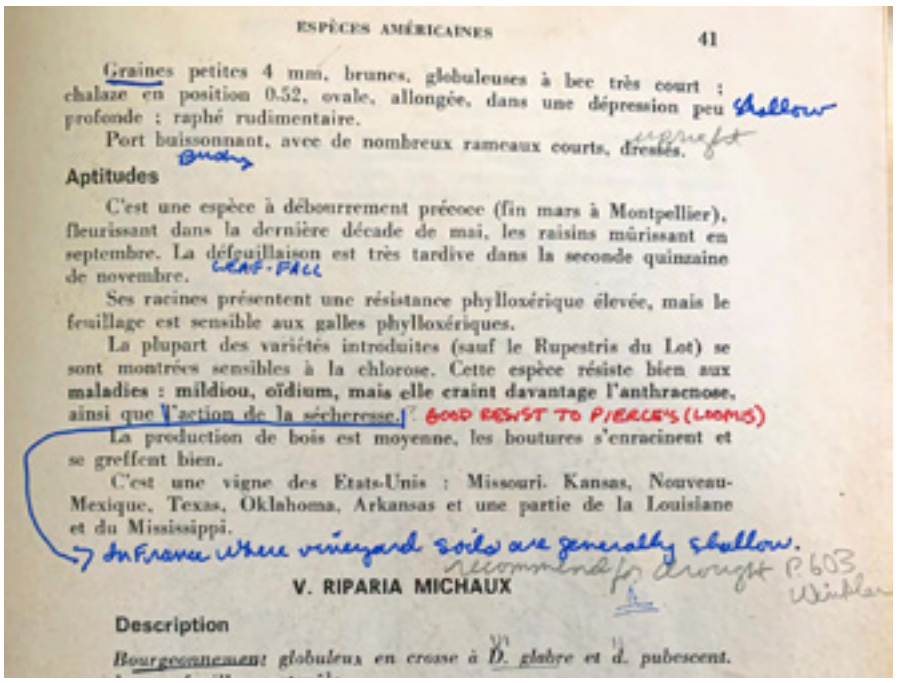


Figure 146. Chambourcin

Figure 147. Chambourcin

PIERRE GALET



ESPÈCES AMÉRICAINES 41

Graines petites 4 mm, brunes, globuleuses à bec très court ; chalaze en position 0.52, ovale, allongée, dans une dépression peu profonde ; raphé rudimentaire.

Port buissonnant, avec de nombreux rameaux courts, dressés.

Aptitudes

C'est une espèce à débourrement précoce (fin mars à Montpellier), fleurissant dans la dernière décade de mai, les raisins mûrissant en septembre. La défeuillaison est très tardive dans la seconde quinzaine de novembre.

Ses racines présentent une résistance phylloxérique élevée, mais le feuillage est sensible aux galles phylloxériques.

La plupart des variétés introduites (sauf le Rupestris du Lot) se sont montrées sensibles à la chlorose. Cette espèce résiste bien aux maladies : mildiou, oïdium, mais elle craint davantage l'anthracnose, ainsi que l'action de la sécheresse.

La production de bois est moyenne, les boutures s'enracinent et se greffent bien.

C'est une vigne des Etats-Unis : Missouri. Kansas, Nouveau-Mexique, Texas, Oklahoma, Arkansas et une partie de la Louisiane et du Mississippi.

V. RIPARIA MICHAUX

Description

Bourgeonnement globuleux en crosse à D. glabre et d. pubescent.

LUCIE MORTON

WILLIAM SMITH

Top: This drawing of a Chambourcin leaf accompanied by a black and white photo of the same kind of leaf was typical of Galet's grape leaf "portraits" that he created to show students what signature leaves looked like.

Middle: Top: A page from the translation in progress shows how Morton annotated Galet's French edition during her translation process in the pre-computer era of 1979.

Bottom: In 1985, Lucie Morton returned to the ENSAM collection with Bill Smith of Minnesota to work on digitizing ampelographic information and sorting out the mixed-up nomenclature in the Kuhlmann hybrids that had been "suitcased" to the United States from France.

auditeur libre whose future status rested solely in the hands of Professor Branas, who was as formidable and distant as Drs. Galet, Boubals, **Bernon** and **Champagnol** were approachable and enthusiastic. Branas had made it very clear that my history degree from the **University of Pennsylvania** in no way qualified me for inclusion in the 1974 international viticulture program that the French students were preparing for in the 1973 fall trimester.

Along with attending every class and field trip and turning in every assignment, I had to prepare an oral final for which Branas gave me the topic "The importance of American *Vitis*" to present in a two-hour seminar with students and faculty on December 17. Only after that would he let me know if I could continue my studies in 1974 in the international program under the auspices of ENSAM.

The very idea of preparing and delivering a lecture in French to an all-male, all-French audience seemed so daunting, I considered leaving early to avoid embarrassment. Galet came to my rescue in two ways. First, he said he believed I would do fine. Next, he gave me some guidelines for organizing the talk: Discuss the geographic location and give a description of the main *Vitis* species; compare the climate to France; describe vineyard layouts and training systems; describe controls for insects and diseases; and discuss the importance of grape growing where non-*vinifera* vines are grown.

He also gave me a copy of the 1955 *Cadastre Viticole* (varietal vine census) and cautioned that I should not dwell on the nearly 1 million acres of American and *vinifera*-American hybrids that existed in France at the end of WWII. It would not be politically correct in this situation where I wanted to gain favor with Professor Branas, who wholeheartedly supported the banishment of those grapes from French soil. I survived the ordeal and received a special exception to join our class in the **Cours Superieur International de Viticulture**. That class began with a three-month stint at the **Instituto Agrario** in Saragossa, Spain. For the next seven months, all our seminars and lab sessions were in French, regardless of the country we were in.

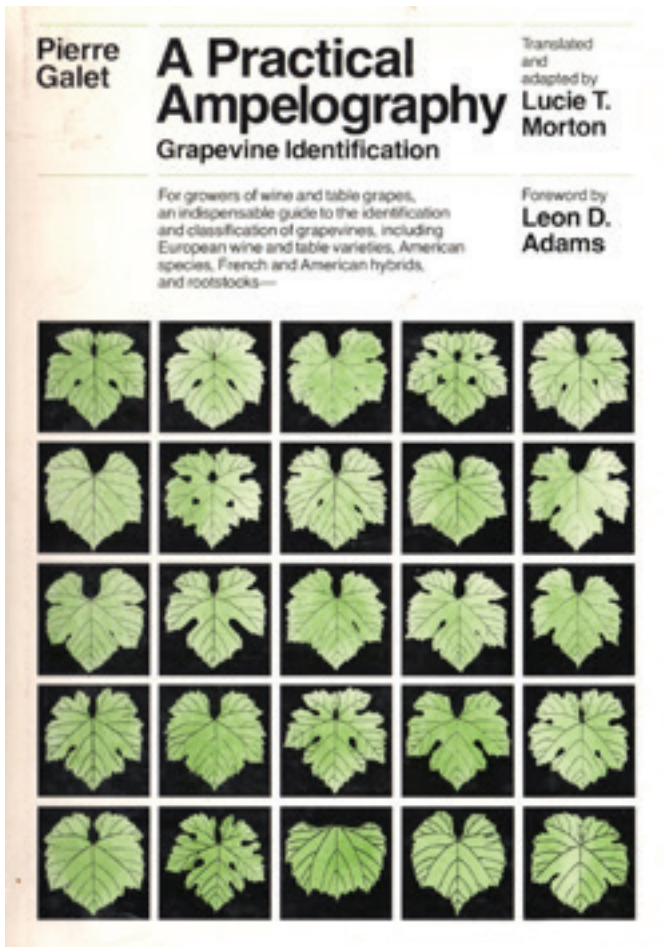
I returned home to tend our small family vineyard on Morland Farm in King George, Virginia, and plans to travel to as many vineyards as possible in the United States and Canada. Becoming a correspondent for *Wines & Vines* magazine was very helpful for this project, as was driving **Leon D. Adams** on his research trips for his multiple editions of **Wines of America**. Like Pierre, but with the U.S. wine industry, Leon had a lifetime of knowledge. It was he who suggested I translate Pierre's book.

1977: Returning to France to Work on the Translation

In January 1977, with my manual typewriter and an offer of lodging from the **Elie Portal** family in St. Jean de Vedas, I flew to France for a six month visit to Montpellier. I worked five full days a week at a little table in Galet's office and tried to figure out how to translate words like *villosité, duvetueux, bullé, gaufré.*

It was important to work directly with Galet on reorganizing the book into alphabetical order. I explained that even I could not find varieties organized according to the hairiness of their growing tips. In addition, because I wanted the book to be particularly useful for growers in the U.S., there was the diplomatic problem of reconciling some of Galet's observations with those found in the American viticultural textbook, *Winkler's General Viticulture* (1974).

Thankfully, while he possesses an encyclopedic knowledge of everything to do with grapevines, Galet is not dogmatic or inflexible. He allowed me to work around potential controversy. For example, for *Gamay noir à jus blanc* I wrote: "In France there were 45,000 ha/111,200 acres (estimated 1971). In the United States, there were 2,450 ha/6,049 acres in California in 1976 of 'Gamay' and 1,770 ha/4,366 acres of 'Gamay Beaujolais;' an ampelographic



Lucie Morton translated Pierre Galet's *A Practical Ampelography* into English.

investigation will determine if either of these is the Gamay noir à jus blanc grown in Europe." By including Gamay Noir, Pinot Noir and Valdigué, we figured that readers could use the book to sort it out for themselves.

1980: Texas to Florida to Ontario

In 1980, Pierre came to the U.S. for the first time and began the trip in California. On July 27, I joined him in Dallas, Texas. For the next month, we zoomed past a multitude of *Vitis* species growing along thousands of miles of the highways and byways of the Gulf Coast and the Atlantic seaboard into Canada. Sporadically, Pierre would see vines worth stopping for in order to take a closer look, and to photograph and collect leaves to dry in newspaper for his herbarium collection. Pierre wrote about this journey in several editions of his *France Viticole* 1980 and 1981.

Each day at 4 p.m., Pierre would look for a place to buy a cold beer. This was much easier than finding a place for dinner that had dry red table wine, particularly in the South. On more than one occasion, the local "Burgundy" was, in fact, Concord grape juice. We discovered that the safest bet was to eat at restaurants associated with **Holiday Inn**, which had liquor licenses, even in "dry" counties.

To this day, I still keep an eye open for native grapes growing along the roadside. Sometimes they are smothered by non-native plants, like kudzu, or deformed by 2,4-D drift. Still, they remain an important part of our native landscape and a potential source for new locally-adapted grape varieties through breeding. The grapes I have growing in my backyard were bred in Virginia by **Dr. Clifford Ambers**, who crosses local wild vines with existing cultivars. Because of its lighter color and body, he calls one of his *V. aestivalis* varieties, named Haxall, "the Pinot of Norton," an inky classic American winegrape that originated in Richmond, Virginia.

1985: Vitis Research Tour with Galet

In 1985, I organized a Galet-Morton Vitis Research tour. The goals for this trip were to meet some *Vitis* enthusiasts in Minnesota, drive through the heart of the Midwest in search of the increasingly endangered *Vitis rupestris*, seek out *V. Berlandieri* in the Davis Mountains, and travel to California to examine some varietal nomenclature issues.

On the East Coast, we visited the herbarium at **Cornell University** in New York and the U.S. **National Arboretum** in Washington, D.C. It was impressive to witness the utter familiarity that Galet had with these antique leaves collected and catalogued so carefully by botanists over more than a century. They reminded me of Egyptian mummies in their preservation of the past into the present. The herbarium at **ENSA Montpellier** was also a treasure of grape botanical record. When I found a "Riparia Gloire" in California that was clearly off type, I was able to go there with Galet and find a match for the mix in dried leaves of 1616E from Alsace. There is no need for a computer when one was with Pierre.

1990: Seminars and Lectures Across the U.S.

Our last trip together in the U.S. was in 1990. I was able to finance this trip fully with industry support in the form of lectures and seminars. For the latter, I had T-shirts made with a big phylloxera bug—*Daktulosphaira viticola*—surrounded by a do-not-enter symbol made of grape roots for those seminar attendees whose fees made the trip possible. Pierre prefers a shirt, tie and vest, but he did put on the shirt once to be a good sport.

While in California, we dined with winemakers, including **Zelma Long**, then at **Simi Winery**, and viticulturist **Diane Kenworthy**, who spoke fluent

JEAN-CLAUDE DAVIDIAN

This stone monument at Montpellier SupAgro commemorates Galet's work with *Vitis* from around the globe.

French. We lectured to the "Vit Tech Group," vineyard managers who represented most of the larger North Coast wineries and also to clients of **Lisa Van de Water**'s **Wine Lab**. We gave a small ampelography presentation at **UC Davis** hosted by **Dr. Carole Meredith**, who was pioneering DNA fingerprinting. It became clear that genetic sequencing would be a great confirmation tool for the identification questions left unanswered by classical ampelography, with the added bonus of determining parentage now found in consumer form in the **Robinson, Harding, Vouillamoz** (2012) tome, *Wine Grapes*. A trained eye is, of course, more efficient and economical than a DNA probe for detection of routine field mixes.

We took some time to address the nomenclature confusion in U.S. rootstock plant material, including the SO4/5C mix up. This was the time period when the *vinifera-rupestris* rootstock AXR1, very widely planted in the North Coast, was beginning to fail. Thus, interest was very high in what Galet had to say about both phylloxera and alternative rootstocks to AXR1. There was a charged atmosphere to be sure, and I emphasized to Pierre to stick very closely to the science. He explained that in 1897 **Louis Ravaz** had shown the critical difference between phylloxera feeding that resulted in tuberosities on structural roots (as happens with AXR1) and nodosities on feeder roots as is common on resistant varieties, like Rupestris St. George and 3309.

In Bordeaux in 2013, Pierre was awarded the **Commandeur de l'Ordre du Mérite Agricole.** At a dinner sponsored by the vignerons of Savoie from the **Centre d'Ampélographie Alpine Pierre Galet**, I presented a vintage 1990 Galet-Morton tour T-shirt to the **Regional Museum of the Vine and Wine** in Montmélian-la-Solaire. Galet has left all his files and papers to this museum.

LUCIE MORTON

Galet received the *Commandeur de l'Ordre du Mérite Agricole* at Vinitech in 2013 in Bordeaux.

What is Ampelography?

AMPELOGRAPHY IS GRAPEVINE BOTANY. AMPELOS IS THE GREEK WORD FOR "VINE."

It is extremely rare to meet a person who has any idea what the term ampelography means. Even Siri comes up with some shady sounding definitions, such as "Ampullae graffiti, a pellagra fee, ample agra fee." In contrast, "botany" is defined as "the scientific study of plants, including their physiology, structure, genetics, ecology, distribution, classification and economic importance."

In the introduction to Galet's 1979 book, I wrote: "As a student of Professor Galet in the *Cours International Superieur de Viticulture*, I became aware that the emphasis on the term 'grapevine' need not be on the grape. Walking with his students through the vineyard, Galet introduces them to the vines in a unique and personal way—not to the fruit, but to the growing tips, shoots and leaves. For me, it was like entering a room full of authors whose names and works I knew, but whom I had never actually met. *Rupestris du Lot* (St. George) suddenly had a sex, a nationality, a history, a function and, above all, a distinct physical appearance that is recognizable in any crowd. And St. George, being a male rootstock, has no grapes. It will never be represented at a wine tasting."

Ampelography Today

Thanks to the steadfast and prodigious work of Pierre Galet, ampelography will live on in perpetuity. His black and white illustrations look simple, but they are genius. There are many different leaf shapes on the same vine; the key is to know which leaf has to be there if that vine is the right variety. These drawings, along with black and white and color photos, may be found in the *Dictionnaire-encyclopédique-des-cepages* published by **Libre & Solidaire** (April 1, 2015). In my own research (and the subject of a future *Wine Business Monthly* article), I now use classic ampelography to distinguish between clones of the same variety, something that is not always possible to do with DNA sequencing.

All of Galet's research, books and files are preserved in the library of the Pierre Galet **Center for Alpine Ampelography** inside the **Musée Régional de la Vigne et du Vin**, located at 46 Rue du Dr Veyrat, 73800 Montmélian, France. The museum has been under renovation, and those interested in the Galet collection should find out if it has reopened before planning a visit. In addition to ampelography materials, the museum has regional displays and also offers wine tastings from around Savoie.

For a more academic experience, the world's greatest ampelographic research center for vine preservation, both living and historic, is now located in Marseillan, France. **The Center of Biological Resources of the Vine Vassal-Montellier** is under the direction of **Jean-Michel Boursiquot**, a student of Galet's who carries ampelography into the 21st century with his ability to go beyond visual identification and into advanced techniques of genetic analysis. Boursiquot continues Galet's advocacy for preserving all *Vitis* species, both wild and hybridized, historic and newly created, in order to maintain biodiversity for future generations. I believe Boursiquot's leadership in vine genetics at Montpellier to be as significant for 21st century viticulture as Galet's was to the 20th century. To back up this belief, I encourage others to support, as I do, the digitization of an almost 700,000 page ampelographic database of *Vitis* information that is of enduring value to our industry. For more information, go to: *www6.montpellier.inra.fr/vassal or* contact *karima.hirech@supagro.fr.* **WBM**

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Farmers Use Lasers To Protect Vineyards From Birds

Kerana Todorov

PHOTO BY KERANA TODOROV

Ana Keller, estate manager at her family's Keller Estate Winery in Petaluma Gap, checks a laser that is being installed this summer on the Sonoma County property. The winery purchased three lasers last year and three this year. The lasers replace the need to net vines to protect the crop from bird damage.

CALIFORNIA'S WINE COUNTRY WELCOMES tourists from all over the world, particularly during the harvest season. But one group that's not welcome are the flocks of birds determined to eat the near-perfectly ripened grapes.

In south Sonoma County, **Keller Estate**'s vineyard workers have been using nets to protect vines from hungry, pesky birds attracted to the fruit for years. Now, six lasers have been installed, tasked with protecting most of the 92 acres planted to Chardonnay within the Petaluma Gap American Viticultural Area (AVA).

According to estate manager **Ana Keller**, her family installed the first three lasers in 2018 as part of an effort to mechanize the vineyard and save on labor costs. She estimated that installing and removing nets represented about 2,000 hours of labor—or about one year-long full-time job. Keller estimates the estate will recoup its investment in lasers in four years. In the meantime, this frees up time for staff to work on other projects, including converting the estate into an organic operation, she said.

Last year, Keller Estate continued to use nets to protect the vines lying beyond the initial three laser beams' path, and the vineyards sustained no bird damage in 2018. Now that all six lasers are in place, 80 percent of the farmland is protected by the new technology.

Kerana Todorov is a staff writer/news editor at Wine Business Monthly. She can be reached at *ktodorov@winebusiness.com.*

Keller Estate is among a growing number of companies that have adopted lasers from **Bird Control Group** to protect vineyards from bird damage during harvest instead of netting the blocks. **Wayne Ackermann**, director of business development at the company, said the laser technology was developed in Delft in the Netherlands, and has been used in dairies, solar farms, electrical power companies, landfill sites, commercial fish farms and oil refineries.

Keller explained that the lasers are programmed to shoot beams, as the programmed laser moves up and down to create a net of lights above the vineyard that birds learn to avoid. The units, which were set up before veraison, are powered by solar panels. The beams run during the day but not at night when birds are not active. They are also turned off when vineyard crews enter the fields.

Another 10 to 12 acres on the Keller Estate lie on the fringes of the property and cannot be reached with laser beams—they are still netted—but the installment has piqued the interest of other growers in the area. "I've gotten a lot of calls," Keller said. "I think people are curious."

Vineyard Managers Test Effectiveness

In 2018, **Bastoni Vineyards'** co-owner **Russ Messana** set up a $10,000 laser as an experiment, to see if he could save on labor costs for his 19-acre, three-vineyard family estate in the Fountaingrove AVA in Santa Rosa, Calif. He had been netting the entire property for years—the 48 nets he used to

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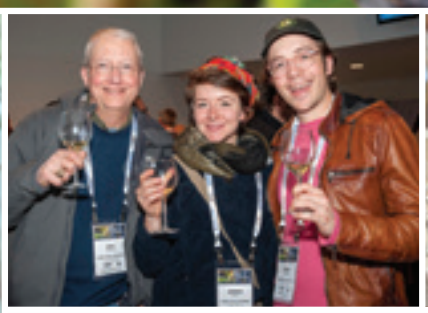

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WINES VINES ANALYTICS

cover the vines cost about $650 each and took four people on a tractor to install and three to take them all down. As Messana noted, his employees were not getting any younger.

To alleviate some of the labor cost, last year Messana installed a laser to aim downward on sloped areas, covering about 5 acres. Bastoni Vineyards lost little fruit last year in the vineyard are where the laser was installed and programmed, only suffering bird damage on a few rows behind a barn where the laser did not reach. That fruit was not picked, he said.

For now, Messana does not plan to buy more lasers. The topography and location of the two other vineyards require at least two lasers, a proposition Messana found expensive. He also did not want the risk of unintentionally aiming the laser at a plane, a car traveling on nearby Riebli Road or risking having visible lasers stolen. He'll continue to net these blocks.

Know Your Birds

Sara Kross, director of the master's program at the **Department of Ecology, Evolution and Environmental Biology** at **Columbia University**, has advised the wine industry on how to control birds. According to Kross, starlings, brewer's blackbirds and house finches are the most likely to cause damage in California. Wild turkeys and cedar waxwings are much less abundant but may also cause damage.

At the same time, hundreds of species of birds in the state do not damage grapes, said Kross. Thus, spending time in the vineyard to identify which birds cause damage is an important step in the development of an effective bird-deterrent strategy.

Bird damage is most common late in the growing season. "Throughout the spring and summer, they are more likely to provide insect and pest control services for growers, lessening the potential need for insecticides," Kross said.

But, she noted birds habituate, or get used to the deterrents and adjust. Generally speaking, there are few independent trials to test the effectiveness of most bird deterrents on the market. "I've heard manufacturers talk about 100 percent effectiveness and have had stories from growers about different products working very well, then heard stories from the same growers in a different year that the product didn't work at all," Kross said.

Napa Valley Grapegrowers (NVG) and other groups also stress that birds are "farmers' friends." Studies show that the presence of birds that eat insects and other pests, but not berries, results in less pest-related damage, greater yields and higher quality fruit, according to **Molly Williams**, industry and community relations director for NVG. "So, many growers go to lengths to attract and protect beneficial birds," Williams said. Beneficial birds found in Napa County include the western bluebird, house wren, western kingbird, black phoebe, barn owls, red-tailed hawks and other raptors.

Both California state and **U.S. Fish and Wildlife Service** regulations prohibit killing or hurting protected birds. The list of federally protected birds alone fills 53 pages. Officials urge caution when growers discuss how to protect crops from bird damage.

As a faculty member at **California State University, Sacramento**, Kross has spoken to various industry groups about birds. She urges growers to observe birds in their vineyards. According to Kross, he **Cornell Lab of Ornithology** has a free smartphone app called "Merlin" that any beginner can use.

Other Tools of the Bird-Deterrant Trade

Other bird deterrents include hawks and falcons, kites shaped like falcons, as well as polyester tape, eye-spot balloons, bird cannons or plain-old scarecrows.

Bruce Cakebread, co-owner of **Cakebread Cellars**, said that the winery has for many years employed a falconer to protect its vineyards in Carneros and its Suscol Springs vineyard east of Napa. Overall, falcons are more effective and less intrusive than other devices, such as noise makers, Cakebread said. The winery only nets blocks near trees, under power lines and other high-pressure areas.

Kross said falconers, who are specially trained and licensed to fly birds of prey, can be very effective in protecting vineyards from bird damage, particularly in areas where flocks of starlings and blackbirds are a problem.

Rebecca Rosen, owner of **Authentic Abatement**, works with falcons, hawks and traps. The falcons and hawks behave like wild birds that are hunting. Hawks are trained to chase birds but learn quickly to return to the trainer for food. Falcons are trained to hunt for a lure the falconer swings.

The abatement starts about two weeks before veraison, Rosen said. This alerts birds to stay away from the location, she said. The season ends at the conclusion of the harvest.

Another tool on the market is **Falcon Crop Protection**'s FrightKite—a tethered kite in the shape of a falcon that flutters in the air to scare birds away from vineyards.

Fawnridge Winery owners **Stewart** and **Stephanie Perry** said the FrightKite they installed last year protected their Barbera and Syrah.

Roger Snow, president of Falcon Crop Protection, said FrightKite can be launched in as little as 2 MPH winds. The device, created about five years ago, also deters seagulls from seaside facilities, such as restaurants, he said. One unit covers about 1.25 acres. The devices, which cost between $299 and $499 depending on the model, are packed away after harvest and last for years.

Noise devices include propane cannons to keep birds from flying into vineyards. Napa County recently approved rules to regulate bird cannons which have proven to be controversial in south Napa County, where neighbors heard the boom after veraison. As a response, the **Napa County Board of Supervisors** approved new operational rules, including limiting the hours the noise devices can be used. The cannons can go off 30 minutes before sunrise and stay on for no more than three hours after that; they can go off for three hours before sunset but have to be turned off 30 minutes after dark. Farmers can only install one cannon for every 5 acres and no less than 500 feet from a neighbor.

The Future of Bird Control

New technologies are in development to protect crops from birds. **Washington State University** associate professor **Manoj Karkee** and his team are developing an automated drone to chase birds from vineyards. The research is in its early stages. Still, there are promising test results from the past two harvests. The goal is to fully automate the drones, Karkee said.

According to Kross, the next "big trend" is having neighboring vineyards collaborate to deter birds. "Birds are mobile and can move quickly across a landscape," she said. "Neighbors could also think about working together to hire a falconer for an entire region, which farmers in Arizona are trialling as a way to work together to keep birds out of fields of leafy greens." **WBM**

Tariffs on Chinese Goods Continue to Disrupt Winery Glass Supply

Jim Gordon

SAVERGLASS GROUP

THE WINE INDUSTRY IS directly feeling the effects of **President Donald Trump**'s trade policies, leaving wineries on one or the other side of a divide. Those sourcing bottles from major North American glass plants have seen prices go up at about the rate of inflation, while those sourcing glass from Chinese factories have faced double-digit increases in price and spotty or delayed availability.

Glass vendors advise winery purchasing managers to order as early as possible—as much as six months—and be ready for surprises related to the two-step 25-percent tariff that the federal government tacked onto Chinese glass imports arriving by sea since June 1.

Modesto, Calif.'s **Gallo Glass** produces all of its bottles domestically and sells all of them to North American wineries. The company has a positive view of the tariff situation, according to **John Gallo**, vice president.

"We look at tariffs as an opportunity to discuss the benefits of locally made glass with our customers. Our direct-to-winery strategy provides premium quality wine bottles just in time for winery filling. With greater demand, we have increased training opportunities and hiring for our skilled glass manufacturing jobs," Gallo stated in an email to ***Wine Business Monthly***.

In terms of availability, Gallo Glass has recently added 20 percent capacity and plans to add more. "Gallo Glass can typically supply glass within two weeks of order placement," Gallo said. "By being located central to the California wine industry and by operating a flexible bottle change process, Gallo Glass is able to achieve this two-week window more than 90 percent of the time."

Jim Gordon, editor at large for *Wine Business Monthly*, writes and edits articles on grape growing, winemaking and wine marketing. He has been covering wine and the wine business for more than 35 years, notably as the editor of *Wines & Vines* from 2006 through 2018. A role as contributing editor for *Wine Enthusiast* magazine began in 2014, in which he reviews California wines and reports on various California wine regions. He was executive director of the annual Symposium for Professional Wine Writers at Meadowood Napa Valley from 2008 to 2015. Dorling Kindersley (DK Books) of London published his first book as editor-in-chief, *Opus Vino*, in 2010, which was chosen as a finalist in the James Beard Awards. In 2002 he was co-creator and managing editor of the long-running Wine Country Living TV series for NBC station KNTV in San Jose/San Francisco.

Domestic Glass Shipments Up

Recent data indicates the tariff is affecting the imported versus domestic glass supply balance in favor of domestic. According to the ***Wine Analytics Report's*** July 15 issue, U.S. trade statistics show that glass imports from China were down about 5 percent in the first five months of this year, while the **U.S. Glass Packaging Institute** noted that domestic shipments to wineries increased 5 percent during the same period.

"That is absolutely a result of a shift in some of that demand for glass that was coming in from China that we're making in the U.S.," **John Shaddox**, chief commercial officer with **Ardagh Group**, told the *Wine Analytics Report*. Ardagh's Oklahoma plant switched from producing beer bottles to producing wine bottles in April.

Another major player, **Saverglass Group**, recently opened a new glass plant in Jalisco, Mexico. Director of marketing **Regis Maillet** said, "We are facing more and more scarcity as the wine industry is booming in the United States, and the glass industry is becoming more concentrated among the key players."

While he didn't say the Chinese tariff has hurt Saverglass' business, he told *Wine Business Monthly* that a threatened tariff on Mexican goods got the company's attention. "We were slightly concerned about the Trump

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administration announcement on Mexico, but that would have impacted all of the U.S. economy and across several industries. The U.S. and Mexico have such close economic and business ties that we cannot imagine the imposing of taxes."

Maillet said Saverglass' price increases have been below the level of inflation in California for the past three years. Similarly, John Gallo said his company's price adjustments over the past five years have been maintained below inflation.

Chinese Complications

Napa-based **Global Package** sources about half its dollar value of wine bottle glass from China, and also is a vendor of European (35 percent) and domestic glass from **O-I** (15 percent). Company president **Erica Harrop** said the tariff on Chinese goods has made her business and those of her customers more difficult to manage and more expensive.

"We found out at the end of May that we were going to have to pay not just the first round of a 10 percent tariff, but now a total of 25 percent," she said. Harrop said Global Package had an order from China on the water, arriving June 15—and since the tariff is paid upon arrival at U.S. ports, the price of her shipment went up in the middle of the Pacific Ocean.

"How do you run a budget? How do you run a business?" Harrop asked. "The hard part for us was that everybody's supply was landing in June. It happened at the very busiest time of year for us."

Global Package is adding 18 percent to the winery price of glass for orders that arrived post-tariff. This boosts what used to be $6.50 per case for a good-quality bottle to $7.67. More luxurious glass at $10 to $15 per case went up by the same percentage. The tariff is only on the export price, not on the price a winery pays.

She said the root issue is that the U.S. doesn't have enough glass-making capacity to make up for the amount that's been coming from China. "In the glass industry right now, there's not enough supply, and the demand doesn't quite understand that."

The tariffs have brought Chinese glass to about the same price levels as domestic, Harrop said, adding: "Now it's more difficult to deal with China because we're not a preferential market anymore. It's more difficult to schedule shipments, to get the quantities we want and the prices we want. In terms of collaboration, that has definitely changed."

Her advice to wineries? "Have a real conversation with your glass company. We are looking for solutions. We're looking to do the right thing for you, but it's a very disruptive situation right now for glass suppliers. Many have become dependent on Asian glass, but that price has ratcheted up, and it is the new reality. People feel a little upset about it; they feel a bit threatened. But we're really in the same boat."

Wineries should give their glass vendors more lead time, she said. "Most think that 30- to 60-day lead times are enough, but they need to forecast longer ahead to get a more stable supply."

The good news regarding glass importation is that European glass, always relatively more expensive than domestic, has been stable in price for about six years largely due to the lower value of the euro versus the dollar, Harrop said. But the cost to truck glass landing on the East Coast to wineries on the West Coast is $4,000 or more per truckload, she estimated.

Other Issues Slow Glass

Importing Chinese glass was already problematic before the tariffs, according to **Glopak USA**, based in Hicksville, N.Y.—for which China is the primary glass source.

"There has definitely been an increase in lead time for glass out of China," said **Toni McLain**, a Glopak sales manager. "The situation has changed a lot in two years. So many competitors are fighting for capacity with Chinese suppliers, and it's the same with U.S. factories."

Her fellow sales manager, **Robbie Whitham**, said that about 20 months ago the Chinese government cracked down on glass factories because of smog issues, and some factories had to close until they met government anti-pollution demands. This meant that the factories couldn't always supply the right bottles at the times needed. For example, flint-colored bottles for light whites and Rosés need to be at wineries for winter bottling, but they came later in May when dead leaf green bottles for Chardonnay were needed.

To address the tariff, Glopak adds a line item to winery orders, stating how much of a price hike comes from the tariff. The line item will be modified when the tariff changes, McLain said, so the customer knows it's not a permanent price bump.

The company currently is absorbing half the tariff and passing on half to its customers. The tariff alone has added 25 to 80 cents per case on orders from U.S. wineries.

"Everyone wants to push back, but we have to recoup our own losses," Whitham said. "They all hate it, but they all know it. They're saying, 'I guess we have to suck it up because everyone else is in the same boat.'"

SAVERGLASS GROUP

Stock bottles will likely be easier, and faster, to come by. Suppliers are warning wineries that they're doing their best, but the uncertain regulatory environment is slowing delivery and raising their costs.

McLain added that Glopak is looking into other Asian/Pacific glass manufacturers, but that comes with questions about quality and living up to expectations. The company continues to sell European glass at stable prices that are 30 to 40 percent higher than Chinese.

Glopak's bottom line for winery customers is to forecast their needs and order glass as early as possible. "In a perfect world it is six months, when previously in a perfect world it would have been one month," McLain said. **WBM**

PAMELA REED

The Art and Science of Capsules: From Design to Bottling Line

Any operator of a mobile bottling line can attest, it's what's on top of the bottle that counts: the capsule's material determines either a successful run or a work-stoppage problem.

Michael S. Lasky

THE ORIGINAL PURPOSE OF a wine capsule was to keep critters from boring into the corks, to keep external moisture away from the cork or even to prevent pilfering or reveal evidence of attempted pilfering. While those are still very valid reasons to apply capsules, their primary purpose today is aesthetic. A broad palette of colors, textures and printed designs helps differentiate one brand from the next on crowded retail shelves. Furthermore, when racked at bars and restaurants, the capsule's embossed button can be a resourceful brand identifier.

Wine Business Monthly reached out to veteran wine package designers, a leading, long-time mobile bottler and some capsule vendors to better understand not only the design and production process, but to discover any potential pitfalls along the way.

Capsule Material Determines Designs

Ed Rice, managing director of **Affinity Creative Group** in Vallejo, Calif., emphatically stated, "Consumers notice capsules. That has become clear to me after many research groups in which the participants will point out how their eyes first gravitate to the capsule before the label.

"When we work with clients, we not only focus a lot on the main label, but we have another phase that focuses on the capsule design for both the (side) skirt, as well as the top button. We'll give clients a range of options for designing the top button or the top circle on the capsule. Consumers notice it. Think about it, when you open a bottle of wine, you look down on the capsule, right? You look at the top of the bottle."

While the button of the capsule offers limited real estate, it still remains another opportunity for branding, Rice explained. "A lot of artwork for our clients is designed to help them stand out and raise their hand and say 'pick me.' Even just that diminutive capsule can make or break a consumer connection when they gaze over the thousands of options in your local **Safeway** or **Kroger** store."

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What drives up the cost of capsules beyond the artwork they sport? Design firms, such as Affinity Creative, charge relative to the price of capsule material. While the priciest tin is the easiest to deal with and fits a bottle like a glove, the frequently used substitute for tin is polylaminate (polylam), a moderately priced hybrid comprised of a three-layer aluminum-polyethylene-aluminum seamed skirt and aluminum top disc. At the low-price end is PVC, short for a heat shrinkable polyvinyl chloride capsule topped with an aluminum or clear top disc.

Some perspective may be needed here relative to actual pricing. As of July 22, 2019, aluminum was $1,781.26 per metric ton. Compare that to tin the same day: $19,523.90 per metric ton. These costs explain why it's usually only luxury wine brands that choose to incorporate the expensive tin capsules. Although relatively inexpensive compared to tin, aluminum, while malleable, is currently used mainly for screw caps, as the sharp edges of the metal fray when applied to a non-screw topper. (See sidebar "When Capsules are Also Closures.")

Because polylam technology has improved over the years, some of it almost feels, acts and looks like tin and is a great canvas for printing. But, according to Ricec polylam does have one "gotcha" to be aware of. "Polylam capsules have a seam; and when the capsule's spun down, the spin-down is performed in a random fashion. So, you could have that seam actually facing the front of the bottle, which could appear unsightly," he said.

But as **David Schuemann**, owner and creative principal at **CF Napa Brand Design,** explained, "Polylam manufacturers now offer a thicker version that kind of mimics the much more expensive tin, mitigating some of the concerns designers had to watch out for in the past."

Melanie Thomas, sales and business development lead at **Janson Capsules** in Napa said that PVC capsules also have seams on the side, but that the difference comes from a visual perspective—PVC looks cheaper. "It depends on the design used by the customer, and the random alignment of the seam can appear unsightly with some customer designs. So not all customers can apply PVC capsules, for instance," she said.

"For your mid-range wines, like in the current sweet spot between $10 and $20, we see plenty of polylaminate in the market just because it's versatile. Most capsule vendors can reproduce graphics precisely, they've got sufficient colors, and most polylams can feel pretty good. You don't get as much warping at the bottom edge as you can with PVC down there," designer Rice said.

"Of course, with tin capsules and aluminum screw caps you can achieve some amazing colors and a variety of finishes, which add luster and eye appeal," said Schuemann. "Print fidelity on capsules has improved greatly over the years. We do a lot of very detailed printing and embossing, particularly with tin and polylam. With PVC we don't have that opportunity."

Plan Packaging Production Lead Times Based on Capsules First

Rice advised wineries that no matter what design firm they use, they should be cognizant that capsule lead times are extremely long, and packaging production planning needs to start there. "While the capsule needs to be in harmony with the main label and the main brand, you need to make sure that you're starting your project early enough so that when you deliver for printing production the whole set of art—the front label, the back label, the cork art, the capsule art, the shipper carton art—the first item that gets teed up in the supply chain is the capsule. Yes, it's this weird thing where capsules and shippers have a longer lead time than label printing," he said.

For most capsule suppliers, one to two months (or somewhere in between) is the average lead time once an order has been placed. Thomas, for instance, said her company's lead time for first-time orders averages eight to 10 weeks, with less time required for stock colors. Minimum orders start at 2,500 capsules. But, Thomas added, "The way the supply chain works and the way we operate, screw caps now have a better turnaround time than polylam and PVC."

Schuemann explained that from his designer viewpoint, capsules tend to need three months from start to finish to get delivery just on a manufacturing timetable and are dependent on whether they are produced domestically or overseas.

The Art and Science of Capsule Application

The art and science of capsules apply to more than just the designs on the top of a bottle. **Thomas Jordan**, CEO of the decade-plus-old **Peregrine Mobile Bottlers**, is quick to point that out. "We call it the art and the science of capsule application because you can set up the capsule machine today with whatever situation you are in and note all the set-ups required, then come back two weeks later and make the same set-up and—believe me—it's not going to work the same. So, there's definitely an art in that application because there are so many varying factors that affect a successful run, such as temperature variance, capsule expansion or color inconsistency—all which need adjusting.

"For instance, the water-based colors do not appear as strong as the solvent-based colors, so there's shine coming up all of a sudden. There's the wear and tear of the rollers that have to be watched. And there is dealing with how the box of capsules has been stored at the winery just before they are delivered for bottling day," Jordan cautioned.

He gave a checklist of some scenarios. "Have they been in the cold area or have they been in a warm area? This could mean the capsules can shrink from their original size, which means we can assume with a 50/50 chance the capsules don't separate well."

When capsules, be they polylam or PVC, are sized wrong for whatever reason, the result, according to Jordan, is: "Stop and go, stop and go bottling

line issues, sometimes to the point at which we say to the winery that we can't use them."

"There's really not much you can do," Jordan continued. "If they're stuck, you don't know if they are going to shrink, are they going to expand, are they loose or not? When we put them into our feeding magazine, sometimes we

Screwcaps: When Capsules are Also Closures

Screw caps do double duty on wine bottles—as a closure and as the de facto capsule choice as well. While the properties of aluminum do not necessarily make the ideal material for capsules, it is the primary material for screw caps. Consumers appreciate screw caps for their ease of opening and closing the bottle and their lack of TCA contamination. Wineries that have adopted screw caps appreciate the no-TCA issues and the proven trouble-free storage.

If the rise of screw cap orders is any indication, traditionalists of cork closures are gradually seeing the benefits of screw caps as well. As Affinity Creative's Ed Rice noted, "With the advent of consumers getting more comfortable with screw caps, we are seeing more and more of them on wines than in the past. Millennials are looking at different usage occasions where they are wanting a chilled Sauvignon Blanc and a Pinot Noir or Rosé. They want the convenience of the screw cap and no need for a tool to open a wine."

Thomas Jordan at Peregrine Mobile Bottlers reported that his business has seen a 30 percent increase in screw cap bottling orders in the past year. "The people who are more cost conscious have switched to screw caps or use polylam. With the uptick in screw cap jobs, a bottler needs to have a good technical person on the line who understands setting up a screw capper, so we pride ourselves on having technicians on the machine," Jordan said.

CF Napa's Schuemann predicts, based on the design jobs he has been getting, that the trend is for more screw caps on higher tier wines. "As consumers are more accepting of screw caps, I don't think they will be relegated to lower-priced wines or just the usual screw cap suspects, Sauvignon Blanc, Rosé and Chardonnay," he said.

"We see the market changing as people who buy wine are not as traditional as they used to be and are instead looking for more value and ease of use," said **John Cunningham**, director of innovation at **G3 Enterprises**. "A screw cap from a technical perspective is a really good closure. I can tell you that we are seeing increased interest for screw caps and continue to explore innovations in this area."

The latest innovation from G3 is the **RoboBottle**™. It's a sensing device that looks like a bottle and uses advanced sensors to help mechanics confirm capper head set-ups are proper. RoboBottle sensors that detect top-load, thread roller position and force, and pilfer roller position and force are designed to wirelessly send data from commercial bottling lines running at full speed. Data from these sensors are then displayed wirelessly on G3's dashboard app, **BottGuide**, to winery customers for review. If adjustments to the capper heads are necessary, BottGuide alerts customers to what needs changing. This smart technology, combined with advanced analytics, provides critical information and insights to increase productivity, improve quality and reduce waste. RoboBottle is currently in Beta test with G3's Open Innovation Lab partners. G3 expects to offer this product to customers in the second half of 2020.

tell the workers on the line to shake them before, twist them, or do something. Don't damage them but move them around so that they loosen up a little bit. There's all kinds of basic things that you try to apply to do it. That's the part which we call the art of applying a capsule."

This is the main reason that Jordan, like all other mobile bottlers, recommends wineries provide samples of capsules and all other materials a few weeks ahead of bottling day. "Some don't get their materials to us until just one or two days before the bottling. Once the samples arrive at the winery, we go there and pick the first set-up and look at all the labels, the bottles, the capsules, or screw caps, and the corks. That way we can inspect these components to avoid any problems on bottling day," he said, noting that the ideal time to do an initial set-up is three or four weeks before bottling.

But problems still occur: "The bottle and the capsule have to be sized correctly. That's first and foremost. The neck and the capsule have to match, and we have had too many cases where people will tell us, 'Oh, we have the same capsule.'

"But then we ask if the bottle has the same neck. So it's not until bottling day that we discover that the bead is longer, or it's 2 millimeters bigger in diameter. The capsule moves on the neck, and you have way too much material, too big of a capsule, or it's too tight. This becomes an application issue, so we can't even feed the capsule on the bottle correctly," Jordan said.

Capsules: Three Takeaways

1. If the vendor listings at the **Unified Wine and Grape Symposium** are any indication, there are a number of capsule suppliers to choose from. Listed as a subgroup under "Closures," there are about two dozen. In their efforts to handle all components of wine packages, nearly all bottle suppliers and manufacturers offer a wide array of closures. Third-party equipment companies will inventory the various types of capsules. In other words, wineries can shop for the best prices with these competing suppliers. Most often, to consolidate the number of vendors, many wineries find it more economical and vastly more logistical to order from one or two companies that handle the various parts of the bottle package.

2. Allow for long lead times. Designers, capsule suppliers and mobile bottlers all advise wineries to plan backwards in time to allow for the various parts of the wine package (bottles, labels, capsules, closures and shippers) to be created. Surprisingly, the capsule design, matching with bottle measurements, needs the longest lead times—sometimes capsules need to be ordered before the grapes come in.

3. Wineries need to be aware that the capsule material (tin, PVC, polylam, etc.) can determine the type of artwork that can be applied (number of colors, embossing, etc.). Also, each type of capsule material presents varied issues on the bottling line. Accordingly, samples of each need to be offered in advance to the mobile bottler. **WBM**

Storytelling: Authenticity is Key

A Good Story Makes Wine Taste Better

Kerana Todorov

Kerana Todorov is a staff writer/news editor at Wine Business Monthly. She can be reached at *ktodorov@winebusiness.com.*

RAVENSWOOD FOUNDER JOEL PETERSON began to tell stories about wine early in his career when he started selling his Zinfandel to restaurants and retailers—and there was plenty to tell.

Peterson, a clinical laboratory scientist who released his first vintage in 1979 (for a then "outrageous" $7.50 a bottle), made wine with fruit from various historic vineyards; and he did so in a former toilet-seat factory in Sonoma. When wine critic Robert Parker visited, he was not put off by Peterson's presentation of wine glasses on the backside of a toilet seat. Parker was interested in the wine—and the story behind it.

Back then, the Ravenswood business was small and had no leverage with distributors, so Peterson developed a mailing list, reached out to wine tasting clubs and entered tasting competitions.

Restaurants and retailers wanted to know more about the wine, and they wanted a story they could tell their customers.

"I had to sell everything myself," Peterson said. "I had to make it interesting and authentic for people. Just saying, 'well here is this wine….drink it,' didn't cut it."

As it turned out, Peterson enjoyed telling stories and watching people's eyes light up. Decades later, he still does. "For me it's fun," he said. "Wine is complicated. It's a way of helping people understand the world of wine in a way that's not so complicated and a way that makes sense."

"A story is important because wine is not just like soda pop. You want people to know that they can have a sense of place with the wine that they drink and that there is something authentic, honest about that wine," Peterson said. "It makes the beverage taste better."

"Storytelling is a gateway drug to wine," he continued. "It's a gateway into the mysteries of wine. It's like a doorway that can open up this whole amazing world of wine that we live in."

The now-famous slogan "No Wimpy Wines" was coined after Peterson told business partner **Reed Foster** he would not produce a white Zinfandel for cash flow. "I said 'I don't do pink, sweet and wimpy,'" Peterson said. Peterson purchased his first vineyard after selling the Ravenswood business to **Constellation Brands** in 2001. By then, Ravenswood was producing 400,000 cases a year.

Peterson remained connected to his winery as a senior vice president for Constellation and later as a consultant. (Constellation closed the tasting room this summer after agreeing to sell the Ravenswood brand and nearly three-dozen other labels to **E&J Gallo**. As of this writing, the billion-dollar deal is pending.)

Having worked in the corporate world, Peterson cautioned against telling unauthentic stories, calling it a misuse of the storytelling phenomenon. "It becomes pseudo-content," he said. "It makes it much harder for the customer to sort out what is real and what isn't."

At 72, Peterson's journey into the wine world continues with a project called "**Once & Future**," a wine he produces at **Bedrock Wine Co.**, the winery owned by his eldest son, **Morgan Twain-Peterson**. Peterson currently produces 2,000 cases a year and does not plan to go past 4,000, only making "as much wine as he physically can."

Joel Peterson

Colin MacPhail

Sam Schmitt

Chris Puppione

Taking the Story to Market

"Marketers have long appreciated the power of storytelling," **Jill Avery**, senior lecturer in the marketing unit at **Harvard Business School**, wrote in a technical note published in January titled "Brand Storytelling." "Stories fill brands with meaning. Brands with powerful stories are partners to consumers attempting to navigate a particular moment in cultural space and time, making brands an essential tool to have along life's journey."

Colin MacPhail, partner at **Vinfabula**, a wine industry consulting company, moderated a panel in January at the **Direct to Consumer Wine Symposium** in Concord, Calif., on "Storyselling: Capturing Customers and Sales Through Narrative."

"In recent decades we have taken a *foie gras* approach. We have traditionally tried to cram as much data as possible down the throats of our customers," MacPhail later told *Wine Business Monthly*. But, he added, that's not what customers are looking for. "More savvy wine customers are now demanding more emotional engagement, more empathy, more relevance and connectivity."

"The reason storytelling skills are now so necessary is because we need to communicate stories and ideas more powerfully," MacPhail said. "Our brains have been designed to deliver and accept useful information since we all sat around in firelight at the mouths of caves."

Tracy Thornsberry, senior brand manager at **Sonoma-Cutrer Vineyards**, told attendees of the panel in January that storytelling is an important tool in any communication plan. Thornsberry divides her time between the winery's corporate headquarters in Louisville, K.Y., and its Sonoma County location.

"Great stories will allow consumers to connect with your brand in a way that will make you memorable, build loyalty and drive sales," Thornsberry said in a recent interview. "Brand storytelling has become a business necessity and strong, brand narratives can be the directional guidance for your overall marketing strategy."

Sam Schmitt, director of operations at **Lingua Franca** in the Eola-Amity Hills of the Willamette Valley, connects with his customers by storytelling. Schmitt was vice president of trade and consumer education at **Adelsheim Vineyard** when he participated in the panel in Concord.

The wine flights at Adelsheim are designed around a story arc, Schmitt said. There is a link between these wines and that creates compelling conversation between the staff and the guests, he said. There is no set script. "Hopefully, that leads to the 'Aha' moment, with customers saying 'Wow! Your wines are really good!'" Schmitt said.

Another panelist, **Chris Puppione**, director of sales and hospitality at **Passalacqua Winery** in Healdsburg, Calif., has learned to connect with customers via storytelling. Puppione was a coach and high school and college teacher for 15 years before he entered the wine industry. Along the way, he learned how to be a guide and help others discover new passions.

"If I can get 15-year-old boys to think Shakespeare is cool, getting people to like wines is a hell of a lot easier," Puppione joked.

His father, a retired educator, advised Puppione when he started teaching at age 23 to be the guide instead of the "sage on the stage."

"If you can, be the guide on the side of your customer," Puppione said. "If you can be the Obi-Wan Kenobi to their Skywalker or the Yoda to their Skywalker, you're going to win."

What Should a Good Story Be?

According to MacPhail, a good story for a winery should be "true, simple, and interesting."

TYPES OF STORIES

Storytelling includes "general" stories that engage customers emotionally while "persuasive" stories may, for instance, lead to a wine purchase.

1. "Why" stories give wineries and the wines a reason to exist in the customer's mind and life.
2. "Parable and Analogy" stories help customers understand concepts and ideas.
3. "Did You Know" stories give visitors "a sense of value."
4. "Core Identity" stories make the winery's brand memorable.
5. "Host Identity" stories, such as a story about a host working a winery before joining the tasting room staff, which lends personal credibility and likeability to the host.
6. "Micro Stories" distill a brand story and make the wine easily memorable.

Paso Robles Wine Country Alliance's executive director **Joel Peterson** (no relation to Ravenswood founder Joel Peterson) said storytelling elicits emotions. "I think we're getting better," he said. He pointed to wineries like **Tablas Creek Vineyard** whose **Instagram** feed shows what is happening at the winery and vineyard.

Cater to Clients

In Sonoma, Ravenswood founder Joel Peterson, said he tells stories about the wine in a different way depending on the audience so that no one feels intimidated. The back of label of his 2017 Once & Future Sonoma Zinfandel list the wine's technical notes, including its pH, TA and bottling date.

"I can talk about pH but I don't just recite randomly pH without giving it context," Peterson said. "You have to give these things context and they have to be meaningful," he added. "Don't be boring."

What would he say to someone embarking on a wine marketing journey? Spend time with people who produce the wine and be honest and accurate in telling the story.

"Know your product. Know the people who make it, how it is made. Know where it comes from. Know all the details of it. Don't think you can make things up," Peterson said. "Keep it real and communicate your own joy in what you're producing. If you're selling Richards Wild Irish Rose I suppose that's a bit of a problem, but there is a story there too."

"Stick to the story." **WBM**

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Insight from the Wine Analytics Report

Wine Sales Flat but Smaller Formats Show Growth

Produced by Wines Vines Analytics, the *Wine Analytics Report* is the wine industry's most accurate and objective source of market insights, analysis and data.

Sales Value Flat in June

THE VALUE OF OFF-PREMISE table wine sales was flat versus a year ago, at just over $1 billion in the four weeks ended June 15, according to scan data tracked by **Nielsen**. Sales rose more than 1 percent in the 52 weeks ended June 15 versus a year earlier, totaling nearly $14.4 billion.

Sales Volume Down 3 Percent

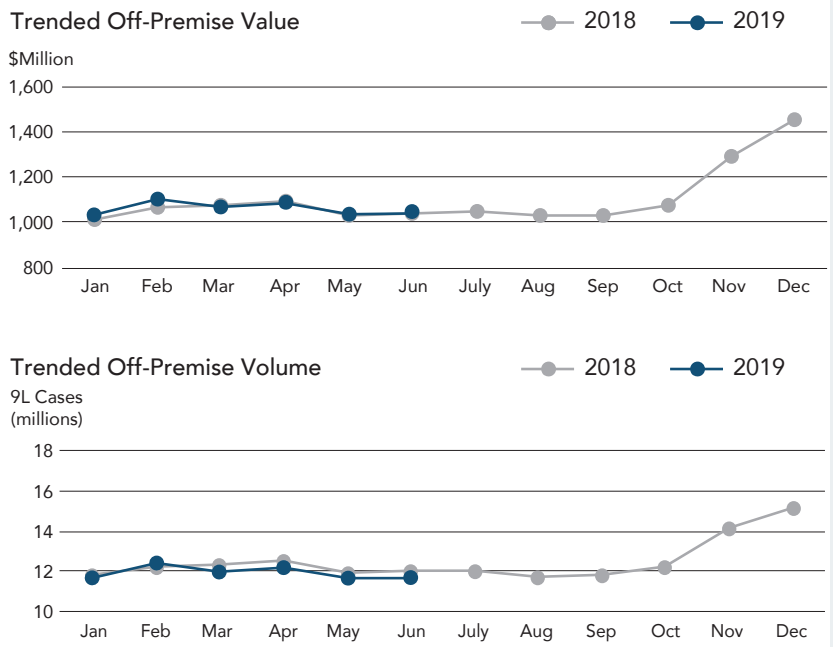
Off-premise volumes of table wines sold in the four weeks ended June 15 exceeded 11.7 million 9L cases, down nearly 3 percent from a year earlier. The latest 52 weeks saw volumes drop more than 1 percent from a year earlier to nearly 161 million 9L cases.

Smaller Formats Fetch Higher Prices

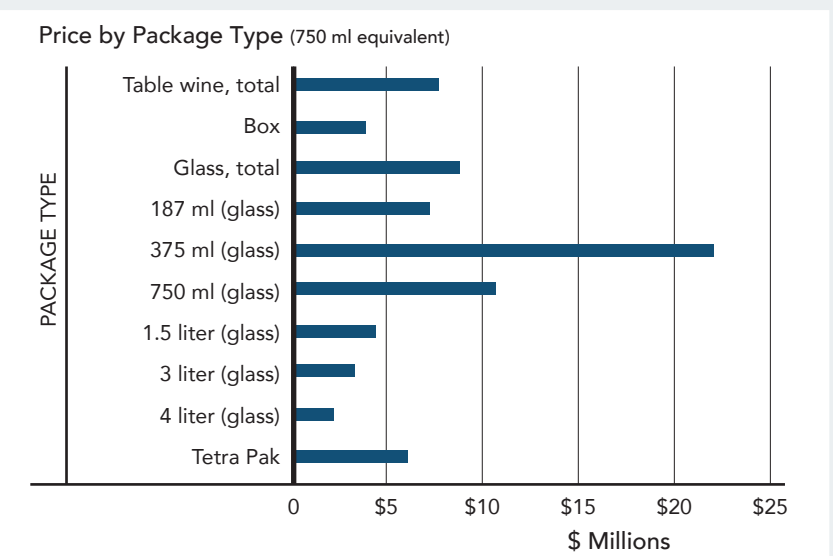
Packaging is a key decision for wineries. While the 750ml bottle is a time-honored vessel, a host of new packaging materials, not to mention closures, raise a whole new set of questions. Knowing what consumers are willing to spend on wine packaged a particular way can help guide the decision.

Nielsen data for the 52 weeks ended June 15 indicates that consumers are spending more on wine when it comes in smaller formats than the standard 750ml bottle or 3L box. Splits, or 375ml bottles, garner the highest price at $22.25 per 750ml. The standard 750ml bottle averages less than half that, at $10.47. The third most-expensive format is the 187ml bottle, a single-serve option typically under screw cap; it sold for an average of $6.80 per 750ml in the latest 52 weeks. This was a notch above Tetra Paks, at $6.15 per 750 ml.

The least expensive wines are those in large glass bottles, which saw sales fall an average of 9 percent in the latest 52 weeks. A 4L bottle averaged $2.62 per 750ml, according to scan data, while 3L bottles sold for an average of $3.21 per 750ml. Both sizes sold for less than box wines, regardless of package size. Box wines of all sizes averaged $3.43 per 750ml in the 52 weeks ended June 15. **WBM**



SOURCE: Nielsen. Latest 4 Wks - W/E 05/18/19



SOURCE: Nielsen; table wine sales in the 52 weeks ended June 15, 2019.

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 **June 15, 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 06/15/19	Latest 4 Wks - W/E 06/15/19	Latest 52 Wks - W/E 06/15/19	Latest 4 Wks - W/E 06/15/19	Latest 52 Wks - W/E 06/15/19	Latest 4 Wks - W/E 06/15/19	Latest 52 Wks - W/E 06/15/19	Latest 4 Wks - W/E 06/15/19	Latest 52 Wks - W/E 06/15/19	Latest 4 Wks - W/E 06/15/19
	TOTAL TABLE WINE	**14,371,165,216**	**1,044,462,163**	**1.2**	**0.1**	**160,869,474**	**11,725,518**	**-1.4**	**-2.6**	**7.44**	**7.42**
PRICE TIERS BY CONTAINERS	BOX	1,395,447,052	108,184,986	5.1	6.4	33,951,626	2,592,033	2.3	2.6	3.43	3.48
	$0-$3.99	581,222,759	43,880,135	-1.4	-0.8	20,258,512	1,515,667	-2.0	-2.7	2.39	2.41
	$4+	813,410,762	63,896,890	10.2	11.3	13,677,763	1,068,078	9.4	10.3	4.96	4.99
	Total Table Wine Glass	12,716,047,166	913,900,425	0.6	-0.9	123,647,327	8,865,559	-2.6	-4.1	8.57	8.59
	Value Glass $0-$3.99	661,062,174	47,657,385	-5.7	-6.8	16,520,077	1,174,810	-7.5	-9.6	3.34	3.38
	Popular Glass $4-$7.99	3,189,698,426	230,002,540	-5.3	-5.6	48,469,793	3,477,486	-5.9	-6.9	5.48	5.51
	Premium Glass $8-$10.99	3,351,519,200	236,430,209	-1.4	-3.0	29,603,524	2,078,077	-2.0	-3.8	9.43	9.48
	Super Premium Glass $11-$14.99	2,795,351,302	207,354,523	7.0	4.4	18,490,739	1,368,307	6.4	3.8	12.59	12.62
	Ultra Premium Glass $15-$19.99	1,388,523,942	99,951,122	7.0	4.8	6,770,820	491,387	6.1	4.8	17.08	16.94
	Luxury Glass $20-$24.99	570,114,091	42,887,797	6.5	2.7	2,183,102	165,151	5.0	1.8	21.75	21.63
	Super Luxury Glass $25+	753,357,931	48,066,740	4.1	0.4	1,579,385	102,697	1.2	-1.5	39.73	38.99
IMPORTED	IMPORTED	3,791,383,705	281,955,516	1.1	-1.2	40,023,966	2,952,988	-1.1	-3.1	7.89	7.96
	ITALY	1,195,539,363	84,820,214	1.8	0.6	10,475,786	746,824	-1.0	-2.2	9.51	9.46
	AUSTRALIA	724,545,845	51,944,505	0.2	-2.6	11,923,471	874,703	-1.2	-2.7	5.06	4.95
	FRANCE	461,192,142	40,423,600	6.2	-3.7	2,944,575	249,098	4.2	-10.5	13.05	13.52
	CHILE	255,571,831	18,859,758	-3.6	3.0	3,839,318	285,734	-2.4	3.6	5.55	5.50
	SPAIN	161,250,417	10,901,074	-4.1	-8.7	2,044,226	142,330	-3.2	-6.5	6.57	6.38
	GERMANY	82,010,002	5,716,554	-4.6	-6.1	814,395	56,899	-1.7	-5.6	8.39	8.37
	NEW ZEALAND	483,848,429	40,362,866	8.7	4.9	3,487,886	290,973	8.3	3.4	11.56	11.56
	ARGENTINA	335,630,101	22,398,609	-7.3	-6.1	3,668,694	248,468	-9.4	-8.3	7.62	7.51
	SOUTH AFRICA	23,746,925	1,693,487	-8.1	-11.9	204,900	14,548	-8.8	-12.8	9.66	9.70
	PORTUGAL	40,786,608	3,009,126	6.5	-9.7	438,770	31,411	0.6	-14.9	7.74	7.98
DOMESTIC	DOMESTIC	10,579,781,512	762,506,647	1.3	0.5	120,845,508	8,772,529	-1.5	-2.4	7.30	7.24
	CALIFORNIA	9,526,702,557	687,096,809	1.1	0.5	112,150,936	8,159,843	-1.7	-2.4	7.08	7.02
	WASHINGTON	618,361,164	43,053,244	1.6	-2.9	5,158,699	356,288	0.7	-4.6	9.99	10.07
	OREGON	204,212,408	15,645,465	13.9	12.2	1,042,203	82,461	12.9	11.4	16.32	15.81
	TEXAS	32,456,507	2,344,681	0.2	2.2	393,722	27,998	-2.0	-2.1	6.87	6.98
	NEW YORK	36,133,384	3,267,583	-3.6	11.1	488,112	35,126	-6.8	-1.4	6.17	7.75
	NORTH CAROLINA	40,767,290	2,808,572	1.9	0.0	423,563	29,931	0.4	-0.1	8.02	7.82
	INDIANA	23,622,075	1,634,074	-0.4	-0.1	260,798	17,903	-1.2	-1.9	7.55	7.60
	MICHIGAN	22,031,135	1,466,116	-2.9	-3.1	240,114	15,356	-2.5	-4.4	7.64	7.95
TYPES	RED	7,410,820,584	494,341,855	0.6	-0.1	73,963,113	5,015,860	-2.2	-2.8	8.35	8.21
	WHITE	5,859,098,786	452,216,382	0.7	0.2	70,525,126	5,395,867	-1.3	-2.0	6.92	6.98
	PINK	1,099,870,885	97,893,876	9.0	0.4	16,367,838	1,313,674	1.8	-3.9	5.60	6.21
VARIETALS	CHARDONNAY	2,548,007,622	194,307,577	0.1	-0.5	29,985,839	2,273,140	-2.0	-2.7	7.08	7.12
	CABERNET SAUVIGNON	2,658,631,065	180,005,774	3.3	2.8	24,770,345	1,712,280	0.5	0.9	8.94	8.76
	PINOT GRIGIO/PINOT GRIS	1,323,286,688	104,609,657	2.3	2.5	17,219,086	1,352,940	1.4	1.0	6.40	6.44
	PINOT NOIR	1,091,363,807	73,078,121	2.9	2.7	8,454,257	568,283	0.1	-0.8	10.76	10.71
	MERLOT	727,860,138	48,995,071	-6.3	-6.5	10,090,691	683,538	-8.0	-9.3	6.01	5.97
	SAUV BLANC/FUME	964,230,620	78,955,527	6.6	4.1	8,471,782	689,190	4.9	2.9	9.48	9.54
	MUSCAT/MOSCATO	644,576,722	46,136,019	-2.3	-3.1	9,805,860	703,394	-3.9	-5.4	5.48	5.47
	WHITE ZINFANDEL	278,718,203	20,170,148	-8.2	-8.1	5,634,532	405,716	-9.1	-9.8	4.12	4.14
	MALBEC	259,366,244	16,691,533	-7.2	-5.8	2,429,056	157,114	-8.9	-7.3	8.90	8.85
	RIESLING	240,347,946	16,823,904	-6.0	-6.6	2,658,600	183,452	-6.7	-9.3	7.53	7.64
	ZINFANDEL	226,234,032	15,061,837	-1.9	-2.8	1,607,480	107,111	-5.3	-5.0	11.72	11.71
	SHIRAZ/SYRAH	148,769,683	9,752,161	-7.3	-7.5	1,696,789	111,976	-10.7	-10.3	7.31	7.26
	WHITE BLENDS (ex. 4/5L)	223,251,764	16,864,814	-5.3	-6.1	2,723,020	206,731	-4.9	-5.0	6.83	6.80
	RED BLENDS (ex. 4/5L + CHIANTI)	1,860,951,199	121,718,002	1.7	-0.3	17,139,304	1,131,378	0.0	-2.1	9.05	8.96
	ROSE BLEND	534,465,014	56,815,491	29.6	5.4	4,607,808	459,430	31.7	2.9	9.66	10.30
GLASS SIZES	750ML	10,371,456,177	743,248,054	1.9	0.1	82,553,926	5,907,039	-0.6	-2.5	10.47	10.48
	1.5L	2,068,814,903	150,492,093	-4.8	-4.9	35,573,248	2,562,222	-5.9	-6.7	4.85	4.90
	3L	61,606,237	4,394,861	-8.7	-7.9	1,601,384	109,939	-10.9	-13.4	3.21	3.33
	4L	78,177,919	5,729,337	-9.3	-8.5	2,484,880	180,495	-12.2	-10.5	2.62	2.65
	187ML	105,023,623	7,926,156	-3.2	-7.1	1,286,921	95,711	-4.8	-9.0	6.80	6.90
	375ML	18,076,759	1,297,038	8.0	-0.2	67,744	4,829	3.8	-8.2	22.25	22.40
BOX SIZES	ex. 4/5L	907,858,620	71,091,938	9.0	10.6	16,236,354	1,259,811	7.9	9.1	4.66	4.70
	1L	30,467,483	2,353,849	12.9	7.9	458,879	35,297	10.2	5.8	5.53	5.56
	1.5L	26,921,949	2,002,108	5.5	1.0	534,044	39,601	6.9	1.4	4.20	4.21
	3L	653,427,966	50,842,493	8.0	10.5	12,617,577	978,085	7.4	9.9	4.32	4.33
	5L	487,585,390	37,092,941	-1.5	-0.8	17,715,191	1,332,219	-2.3	-2.8	2.29	2.32
	TETRA	227,927,317	18,286,988	12.8	12.0	3,088,809	242,532	10.3	7.2	6.15	6.29

Source: Nielsen

2019 Winery Economics Report

Slowdown Continues as Winery Buyers and Sellers Evaluate Shifting Market Conditions

Some major mergers and acquisitions in the wine industry may continue to draw headlines, but they cannot hide the palpable pause in winery and vineyard real estate transactions. In our annual report, bankers report to WBM there's still a lot of investment capital available. But buyers have stopped purchasing to reconsider the current economic headwinds that could affect their potential investments.

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.

THE CURRENT ECONOMIC CONDITIONS in the wine industry read like a weather forecast—cloudy and windy.

Potential real estate transactions face mounting headwinds:

- Oversupply of fruit is a boon for négociants but not for winery or vineyard sales.
- The possibility of a large harvest is fueling the oversupply, creating a wait-and-see sales slump.
- Trade tariffs are creating uncertainty, cooling the sales climate.
- The older generation's desire for retirement opens up prime property inventory.
- Millennials favor sobriety and are reducing a variety of alcohol sales.

Balancing these headwinds are calming tailwinds, which could encourage sales investments:

- Low interest rates and the possibility of further reductions are acting as market boosters.
- Increase in consumer demand for premium wines is fostering potential M&A growth.
- Investor acknowledgement of the cyclical nature of the wine industry transactions is prompting wait-and-see decision making before finalizing eventual transactions.
- The Baby Boomer generation's desire for retirement is opening prime property inventory in coveted AVAs and previously overlooked growth areas, but at premium price tags.

Exceptions Can't Hide Softer Market, Harder Decisions

Rob McMillan, executive vice president and founder of **Silicon Valley Bank**'s Wine Division, best summed up a banking consensus viewpoint about what's happening with wine industry transactions: "I think there's a little bit of a re-evaluation of where we are right now by buyers. So far it hasn't impacted anything, but I think in the boardrooms and on the tables where people shake hands, there's some hard conversations that are starting; and because of that, you are probably going to have a disconnect between what buyers expect and what sellers are interested in paying." He expects this modest slowdown to continue throughout the year in tandem with a deceleration of demand.

Of course, there are exceptions to the overall forecast. Case in point: **E&J Gallo** purchased more than 30 wine and spirits brands from **Constellation Brands**, along with six winemaking facilities located in California, Washington and New York, for a reported $1.7 billion.

McMillan said the sale could be beneficial, not just for E&J Gallo but the entire wine industry. "**Joe Gallo** is quoted in his company's press release as saying something like, they're looking at trying to grow the lower end category. So, their reason for purchasing those lesser-priced bottles is to try to lure that young consumer, who we desperately need to bring into the wine community—and price is a component of that. Gallo's got a long history with low-price wines like **Thunderbird** or **Bartles & Jaymes**, or **Apothic Red**. Over time they've been very good at finding products that do bring in these consumers," McMillan explained.

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Mario Zepponi, principal with M&A advisory firm **Zepponi and Company**, noted that despite this newsworthy transaction, we are still in the slowdown portion of this natural cycle as buyers, sellers and bankers "deliberate." Zepponi's assessment of M&A transactions, or even single sales of individual wineries, is now concerned with the effects of the combination of overabundance of fruit in the market and the hesitant caution about how the size of the current harvest will mitigate or conflagrate this extended fruit inventory.

"The grape market has been a little bit on the slow side when it comes to seeing contracts signed, and there's a resulting trickle-down for real estate transactions. When there's an overabundance of fruit, people don't feel rushed to go ahead and purchase wineries and/or vineyards or to sign contracts because there's an overabundance of fruit. Buyers feel like, 'if we're going to lock in now, we may be locking in at a price that a year from now might be 20 to 25 percent less.' The result of this justified caution is slow or no transactions," Zepponi said.

Charles Day, regional manager of **RaboBank**, agreed. "Between the current grape oversupply and the ramifications of the Gallo-Constellation deal, I would say our clients have less urgency in purchasing winery and vineyard property. The Gallo-Constellation deal is affecting quite a few existing vineyard contracts, so there's a prevailing wait-and-see environment now."

Another reason for the banking transaction cool down is the illusory appearance of low availability of properties for sale. Day confirmed that there are numerous estates and other properties available, but they are not always publicly listed. "These properties are shopped as quietly as possible. Sometimes the clientele and their customers are not thrilled about them being sold, particularly if it's a small family winery and the likelihood is that they'll be sold to a larger wine company," Day said.

Adding to this point, **Jason Hinde**, vice president at **Exchange Bank,** said, "I can tell you from just attending wine industry conferences and just word on the street, there are tons of wineries for sale, but everybody is trying to make the transactions very quietly."

So, while sellers remain quiet, the buyers have mostly held off on making any moves to wait for the right property at the right price. "For your typical estate property, I would say that the likely buyers are probably in a bit of a wait-and-see mode right now," Day said. "There's still growth, and there's still optimism with our clients. But just the expectation of a slowing market suggests that the rest of the year will probably remain a little tepid."

After years of a very active, volatile market, Hinde said there has been a natural pullback. "I think people are much more cautious, and I think the latter half of 2019 is going to look fairly similar to the first half. I think the growers are having a harder time, mostly because of the oversupply. I've heard this throughout the industry. Contracts for fruit are getting canceled outright or vastly reduced—that sets up an environment where caution reigns," Hinde said. (See sidebar: "Are There Any Winners and Losers with the Bulk Fruit Oversupply.")

In the Northwest market it's the same story. **Erik McLaughlin**, CEO and managing partner at the Walla Walla, Washington-based M&A firm, **Metis**, equated the wine industry's dilemma to a childhood game. "There are a lot of people looking to buy and a lot of people looking to sell, but the musical chairs game just keeps going. So, I'm a little surprised to not see more transactions actually just getting done. It's not that buyers aren't interested, they're just taking more time, being more careful and definitely being pickier," he said.

Real Estate Hot Spots: It's Not Just Napa and Sonoma Anymore

"What we see and predict is more of a bifurcation of the market. Buyers are either interested in a really good deal on a distress situation or wanting to stay at the high-end by purchasing the very best, highest-performing winery or vineyard in the best-performing sub-AVAs," McLaughlin said.

Which AVAs and sub-AVAs are the exceptions in the otherwise wait-and-see seller's market?

In California, Napa and its 16 nested AVAs remain the tightest in available properties. Sonoma has more acreage, yet it too is a tight market for its coveted fruit and available estates. In both counties, the prices of wineries and vineyards are not affected by grape oversupply.

Lodi remains one of the bright spots and is producing wine for both price and quality, a standpoint that holds up well for the younger consumer. But real estate transactions remain a seller's market.

The Central Coast, an amalgam of highly regarded AVAs from Santa Barbara in the south to Monterey in the north, has been challenged by an excess of fruit, which it's trying to digest, especially before the current harvest. The hottest spot in the Central Coast is Paso Robles, whose reputation for excellent fruit and lifestyle is shaded only by the specter of lingering availability of water.

Mendocino, particularly Anderson Valley, would be a desired area, but available properties are limited, as is prime acreage.

Oregon is characterized as a little bit long in fruit but probably the most balanced of the markets. The Willamette Valley is crowded with in-demand sub-AVAs, the most popular (and expensive) being Dundee Hills. Ribbon Ridge and Eola-Amity AVA are also cited as active with potential real estate transactions.

Washington state ranks toward the worst of all the markets. **Chateau Ste. Michelle** had reduced sales, which left extra fruit in the market. "The saying goes, when Ste. Michelle gets a cold, the Washington wine industry catches pneumonia, and that is playing itself out right now. On

Are There Any Winners and Losers in the Bulk Fruit Oversupply?

Jeff Clark, domain specialist at Live Oak Bank has a savvy handle on the bulk wine oversupply and finds both good and bad. "Fruit will become bulk wine before it becomes wine. There is some high-quality bulk wine out there. When people hear bulk wine, they tend to think that must be a low-quality varietal or appellation, and that is not the case at all. There is some high-quality bulk wine out there in that popular $15 to $25 or $30 range. There is less, though, when you get above that $30 bottle range."

Those who process and store bulk wine are reporting their facilities as maxed out, but there is some relief on its way.

"Swooping in to the rescue are the négociants," Clark noted. "If you are a négociant, and prices are coming down and there is a lot of product, then that's a good time for you. Historically, négociants have been the ones who have come up and mopped up the excess supply. They create a brand, they create a cash flow, then they turn around and start to invest in assets. It is a really good timing for that model right now. Hello, **Trader Joe**'s!"

the bright side, there is high interest from international wineries and companies, although this is not necessarily fully playing out in closed transaction, but there is still a lot of activity," explained Mario Zepponi.

> "I can tell you from just attending wine industry conferences and just word on the street, there are tons of wineries for sale, but everybody is trying to make the transactions very quietly."
>
> — **Jason Hinde, vice president at Exchange Bank**

The regulations in both eastern Washington and Oregon are not under the same sort of planning commission restrictions or regional restrictions placed on wine companies in California's North Coast, which makes it possible to put together wineries and vineyards in those regions. In Washington, the Red Mountain and Walla Walla AVAs are the in-demand areas and have been more protected from the otherwise downward pressure in the market.

The Ultimate Resilience of the Wine Industry

Despite the headwinds, there is a justifiably positive spin on the cycle the wine industry is currently experiencing. "I think with all the competition the wine industry has experienced, from other beverages and demographic forces, such as sober Millennials, I'm impressed with the resilience of the industry," **Live Oak Bank's** domain specialist, **Jeff Clark**, stated. "There are a lot of changes going on right now. The Baby Boomers are aging. We Baby Boomers created the wine industry as we know it today. As we age, and our health and our incomes are compromised, we tend to drink less and drink cheaper. The resilience in the face of the consumer demographics, along with the supply and the competition of the wine industry, I find it all pretty impressive.

"Right now, at this point in the year with the wine industry, I'm just holding my breath to see what the 2019 crop looks like. Is it going to be a big crop? Is it going to be a quality crop? Did the spring's weather, with all the rain, compromise it a little bit with quantity or quality?"

Clark is just one in a large crowd, holding its collective breath. **WBM**

Finance Directory

Select Wine Industry Focused Financial Institutions

American AgCredit	Santa Rosa, CA	800-800-4865	*www.agloan.com*

Founded in 1916, American AgCredit is part of the nationwide Farm Credit System, and is the nation's fifth largest Farm Credit cooperative. American AgCredit specializes in providing financial services to agricultural and rural customers throughout California, Nevada, Kansas, Oklahoma, Colorado, and New Mexico – as well as to capital markets customers throughout the country. We offer a broad range of agricultural loan, leasing and insurance services from orchard, timber, row crops, winery and livestock financing to equipment leasing and construction financing.

see the American AgCredit ad on page 89

Bacchus Capital Management	San Francisco, CA	(866) 750-WINE	*www.bacchuswinefund.com*
Baker Boyer Bank	Walla Walla, WA	(509) 525-2000	*www.bakerboyer.com*
Bank of America Merrill Lynch	Santa Rosa, CA	(707) 293-2553	*www.baml.com*
Bank of Marin	Napa, CA	(707) 265-2022	*www.bankofmarin.com*

Energized by the great work of our wine customers and committed to doing our part to help them grow, we have just the right tools and expertise to deliver creative and flexible solutions that address your unique and often complex business challenges. With assets of $2.5 billion and 23 offices in Napa, Sonoma, Marin, San Francisco and Alameda counties, Bank of Marin remains deeply committed to investing in Bay Area businesses. To discuss our many customized financial products for wine-related businesses, contact anyone on our wine industry team today.

see the Bank of Marin ad on page 94

Bank of Stockton	Stockton, CA	(209) 929-1600	*www.bankofstockton.com*
Bank of the West Wine & Beverage Group	Napa, CA	(707) 501-5150	*www.bankofthewest.com*
Banner Bank	Walla Walla, WA	509-527-3636	*www.bannerbank.com*
BMO Harris Bank	San Francisco, CA	415-354-7510	*www.bmoharris.com/wine*

Whatever your size, product portfolio or geographic coverage, every Wine Producer, Wholesaler and Distributor needs a financial partner that understands the factors that can impact their business. From emerging consumer trends and industry consolidation, to commodity fluctuations and economic cyclicality, our experienced team of specialists understands how these factors affect your business and are ready to help. With over 30 years of sector focus and a national presence, we have a track record of bringing proven solutions across a wide range of capital structures and economic cycles.

see the BMO Harris Bank ad on page 95

Citibank	Napa, CA	707-253-9973	*www.citi.com*
CoBank	Denver, CO	800-542-8072	*www.cobank.com*
Comerica Bank	San Francisco, CA	(916) 491-1304	*www.comerica.com*
Exchange Bank	Santa Rosa, CA	(707) 524-3102	*www.exchangebank.com*
F&M Bank	Napa, CA	(707) 757-8501	*www.fmbonline.com*
Farm Credit West	Roseville, CA	(800) 909-5050	*www.farmcreditwest.com*
First Republic Bank	San Francisco, CA	(707) 251-4114	*www.firstrepublic.com*
Fresno Madera Farm Credit	Fresno, CA	559-277-7000	*www.fmfarmcredit.com*
Global Wine Partners	St Helena, CA	(707) 967-5315	*www.globalwinebank.com*
Live Oak Bank - Wine & Craft Beverage Lending	Wilmington, NC	(707) 921-1102	*www.liveoakbank.com/wcb*
Mechanics Bank	Napa, CA	(707) 256-4349	*www.mechanicsbank.com*
MetLife's Agricultural Finance Group	Fresno, CA	559-435-0206	*www.metlife.com/ag*

MetLife's Agricultural Finance Group offers custom structured and competitive mortgages to meet your needs, available on a variety of property types, including irrigated field crops, vegetable crops, permanent plantings, dairies and rangeland. Whether you are looking to purchase new property, expand your operation or refinance an existing property, MetLife offers a consistent and dependable source of credit backed by the resources of MetLife.

see the MetLife ad on page 91

Napa Valley Financial	Napa, CA	(707) 603-2663	*www.napavalleyfinancial.com*
Northland Capital Equipment Finance	St Cloud, MN	(320) 252-2122	*www.northlandcapital.com*

Founded with roots spanning over 100 years in agriculture, Northland Capital provides lending solutions for the latest field, harvest, inventory and production equipment and technology. Our foundation is built upon the partnership with Farmward Cooperative in serving agribusiness and those who work in it, giving us an edge in winery and vineyard equipment financing that's dependable and financially strong. As a direct lender, we are a trusted team that goes beyond the bank to provide lease and finance options to preserve lines of credit, improve cash flow and increase working capital.

see the Northland Capital ad on page 100

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PGIM Real Estate Finance, Agricultural Finance	Roseville, CA	(916) 789-4071	*www.pgimref.com/agloans*

Our Agricultural Finance team has been lending to the vineyard and wine industry since the 1950's and continues to provide long term real estate secured loans to vineyard and winery owners for acquisitions, expansion, and refinancing.

see the PGIM ad on page 103

Rabobank, NA	Santa Rosa, CA Napa, CA	(707) 591-8020	*www.rabobankamerica.com*

Rabobank, N A is a full-service community bank and a leading provider of agricultural financing and banking products to California's wine industry. Rabobank, N A is the US retail banking division of the Rabobank Group, the premier lender to the global food and agricultural industry. The Rabobank Group is rated one of the world's safest banks by Global Finance magazine.

see the Rabobank ad on page 93

Redwood Credit Union	Santa Rosa, CA	707-545-4000	*www.redwoodcu.org*
Silicon Valley Bank Wine Division	Napa, CA	707-967-1367	*www.svb.com*
Summit State Bank	Santa Rosa, CA	707-568-6100	*www.summitstatebank.com*
Tri Counties Bank	Santa Rosa, CA	707-522-5480	*www.tricountiesbank.com*
Umpqua Bank	Santa Rosa, CA	(707) 636-3409	*www.umpquabank.com*
Union Bank	Santa Rosa, CA	(707) 540-9596	*www.unionbank.com/wine*

Union Bank offers a complete set of financial services to the wine industry including working capital lines of credit, term loans, crop production and vineyard development loans, commercial real estate loans, cash management and deposit services, trust services, international trade services, interest rate hedging solutions, and foreign exchange products.

see the Union Bank ad on page 85

US Bank	Walnut Creek, CA	925-256-3870	*www.usbank.com*
Wells Fargo Commercial Banking Office	Santa Rosa, CA	(707) 584-3150	*www.wellsfargo.com*
The Winery Exchange	Napa, CA	(707) 853-5747	*www.thewineryexchange.com*
Yosemite Farm Credit	Sutter Creek, CA	(209) 383-1116	*www.yosemitefarmcredit.com*

Bank descriptions are from the 2019 Financial Resource Directory. The descriptions are provided by the banks.

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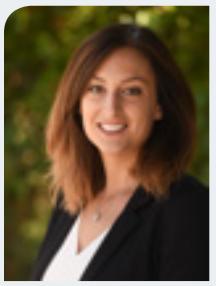
Eleven DTC Technologies that Save Time and Money

Erin Kirschenmann



Erin Kirschenmann is managing editor for *Wine Business Monthly* and has been with the magazine since 2012. In addition to production responsibilities for the monthly trade magazine, she writes about wine industry trends, including business, technology and sales and marketing topics for *WBM* and *Winebusiness.com*. She graduated from Sonoma State University with a bachelor's degree in communications with a journalism emphasis. She can be reached at *erin@winebusiness.com*.

THE OLD ADAGE "YOU have to spend money to make money," is a universally accepted truth; but the amount of money spent doesn't need to result in bankruptcy.

When it comes to technology, there are certainly platforms and software that are worthy of a deep-pocket investment: I'd be the first to tell you not to skimp on something as vitally important to your DTC efforts as a point-of-sale system or CRM platform. In these cases, you need to determine the key functions and operations your company needs and find the software that best delivers; no amount of money saved is worth the headache and hassle of finding out that after installation, implementation and training you're not any better off.

On the other hand, there are many ways you can spend a small amount of cash on systems that deliver truly beautiful and effective marketing collateral, provide the right information and help distribute content.

Some of the tools mentioned in this article are going to seem obvious. Some of the suggestions might feel a bit elementary for those with extensive marketing, design or technology backgrounds. But in the end, these are all suggestions and platforms used by wineries across the country, each with different limitations, such as budget, manpower, etc.

From tasting room collateral to SEO tracking, each of these products represents a new way to think about DTC technology, particularly in the tasting room. It's time to take advantage of the software and solutions out there and use them in creative ways to market your brand and your wine.

Building Informative Collateral

Whether in the tasting room or online, visuals are key to building consumer engagement and understanding. A well put together concept can generate and maintain interest.

Outshinery

www.outshinery.com

Brands of all sizes, from **8th Generation Winery** to **Joseph Phelps** and **Kendall Jackson**, are taking advantage of this image service in order to generate better, more inviting bottle shots.

Before After

How the service works: From any computer, you select your bottle shape, glass color, wine color, closure type, and paper stock used for the label. Then, upload the capsule and label designs and note any special finishes (gold foiling, etc.). An **Outshinery** designer will then create an intriguing bottle image, send it off for approval and provide a downloadable image usable for tech sheets, websites, social media and more.

Tanya Zumach, digital strategy manager for **Argyle Winery**, uses Outshinery not just for bottle shots, but other lifestyle photos as well. During a panel at the **Unified Wine & Grape Symposium** in January, she pointed out the benefits of the service, particularly in creating an engaging and consumer-friendly website. Case in point: A **National Retail Federation** report found that 67 percent of consumers agree that the quality of a product photo is 'very important' in selection and purchase.

Snappa or Piktochart

www.snappa.com or ww.piktochart.com

An infographic is a notable tool to convey a lot of information (usually dull or statistic-heavy information) in an engaging and easy to understand

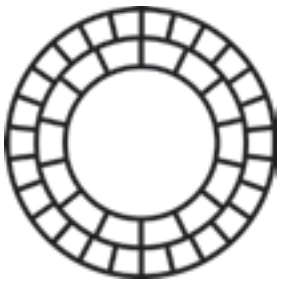
way. Wine Folly has made a name for itself with this same model, putting together fun graphics to convey either difficult winemaking concepts or to display the incredible variety of wine styles, regions and more. Though Wine Folly produces its own designs, Snappa and Piktochart offer an easy solution to those without knowledge or software to do it on their own.

The way the two services work is much the same: Start with an image dimension, create or choose a template, upload an image or choose from more than 1 million stock photos, add text, icons, graphics or animation effects (for use online) and download the completed file—all ready to print and hang in a tasting room, post to a websites and/or social media channel, use in an email blast or send in press releases. Piktograph can also create other types of presentation and reports.

Snappa is free for up to five downloads per month and pro plans range from $10 to $20 per month. Piktograph starts at $25 per month.

VSCO or Edit Lab

Both available for download from app stores



Adobe Photoshop is one of the most extensive photo editing tools around and offers the greatest number of options to make changes to a photo—but for mobile photos meant for social media, **VSCO** and **Edit Lab** do a great job of adjusting poorly lit or fuzzy photos easily. Each offers a number of pre-set templates or edits that help create a "house style" or cohesive group of images. Saturation, hue, contrast, exposure, clarity and more can all be adjusted manually. Each app has a free version, with the option to purchase packages and presets.

99designs

www.99designs.com

If graphic design is out of your wheelhouse, then utilize the services of a freelancer. **99designs** is a global platform that allows you to collaborate with designers from all over the world. You can either work directly with a specific designer with a desired skillset (99designs will help you find the right one), or you can start a contest, sourcing a number of designs from any interested freelancer, then choose the winning concept. Prices vary based on the project but can run from $100 to $1,000.

Rev

www.rev.com

Every reporter's dream app, this service lets you record audio and have it transcribed within 48 hours for just $1 per minute. (If you've ever had to transcribe an interview or video, you know how valuable this is.) More than just a recording/transcription service, **Rev** offers two other key features that could be useful to a winery: Captioning and Foreign Subtitles. For $1 per minute, have captioning put onto your marketing videos, making the content not just accessible for those of us secretly scrolling through **Facebook** or **Instagram** at work, but also for those with hearing impairments.

At $3 to $7 per minute based on the language, you can have your videos captioned in Spanish, French, Mandarin and more, making your content more approachable to potential tourists and more welcome to buyers from across the globe. This is especially important for those brands exporting wine.

Organizing Visitors

Booking tasting or experience appointments and selling tickets to events is pretty easy these days. A number of e-commerce, POS and CRM providers include proprietary reservation software within their suites, but for those that don't, **CellarPass**, **Tock** and **Eventbrite** offer an easy and potentially more affordable alternative.

CellarPass

www.cellarpass.com

CellarPass is a guest management platform that allows craft beverage producers to sell tickets to events and book reservations for tasting room or tour appointments. Recently, it launched a table management function, one that operates similarly to a restaurant table management software but tailored to the needs of wineries and breweries, which have more complex scheduling and tableside service. In addition, you get some targeted local advertising. Plans for more

extensive advertising are also available. A number of wineries use the service, including **Adelaida Vineyards & Winery**, **Boisset Collection** and **Jessup Cellars**. Plans start at $34 per month with a one-time $199 start-up fee.

Tock

www.exploretock.com

Tock works in much the same way as CellarPass, though it started out as a restaurant reservation-minded company. It also offers plans for reservations, tasting room appointments and event ticket sales. Winery users include **Duckhorn Vineyards**, **Adelsheim**, **Flowers** and **Clos du Val**. Plans for tasting room appointments and event creation start at $199 per month; event-only options run from 2.5 percent to 3 percent per transaction with an additional per-ticket fee.

Eventbrite

www.eventbrite.com

Eventbrite is not new. It has been around for more than a decade, but it still serves as one of the easiest and most useful tools in selling tickets. Within minutes, you can create an event listing, complete with payment processing, analytics and support included. Eventbrite is free for free events, but for those tickets that come with a price tag, options start at 2 percent plus $0.79 per ticket, with those costs passed on to the attendees.

Who Are Your Customers and What Do They Think of You?

Understanding your customer provides you the tools to market and converse with them effectively.

SurveyMonkey

www.surveymonkey.com

The website of choice for college students looking to survey their peers in order to provide quantifiable data within their term papers, **SurveyMonkey** is more than just informal polling. ***Wine Business Monthly*** uses it regularly to administer its barrel, closure, equipment and vineyard surveys (among others), as well as collect feedback on conferences and tradeshows. A number of enterprising wineries are using it to retrieve customer feedback; asking recent tasting room visitors what they thought (Were the employees knowledgeable and friendly? What did they enjoy?), or even to ask wine club drop-outs why they left.

Short and simple questionnaires can serve two purposes: The first, to collect data on the effectiveness of DTC outreach and gain real information on the status of their practices. (It's a much more useful tool than making educated

guesses and hoping the changes made will stick.) The second is to reward those guests who took the survey by enticing a purchase, often with the inclusion of a discount code in the "Thank you for taking our survey" email.

The basic plan is free, but more advanced options start at $37 a month.

Lucky Orange

www.luckyorange.com

Lucky Orange is one of the most dynamic tools available (aside from **Google Analytics**) to track how someone moves throughout your page and to collect data on those visitors. It's so dynamic, in fact, that **Ingrid Cheng**, senior marketing manager at **Treasury Wine Estates**, once claimed at the **Wine Industry Technology Symposium** to have stared at it for a whole day, watching her visitors move around the site. Admittedly, that sounds creepy, she said, but no less creepy than watching a guest move around a tasting room—you're just doing it online. Lucky Orange is a useful tool in tracking engagement, finding flaws in a website and more. (For more information, read "Understanding Digital Advertising and Its Applications for the Modern Winery," *WBM* January 2019.) Pricing runs from $100 per month to $1,000 per month.

Union Metrics

www.unionmetrics.com

Analyzing your engagement and performance on social media can seem daunting, but a number of tools do the analytics and provide the insight for you. **Union Metrics** is just one of those applications. With an enhanced listing, you can monitor movement in real-time, do research on trending topics, read reports on the best times to post, which hashtags are high-performers and see which pictures, tags and links are recruiting the most engagement. Union Metrics pricing starts at $49 per month and runs up to $199 per month.

These are just a few of the services, software and tools available. As always, the more features you want or need, the more you will likely need to pay. Before using any of the tools mentioned, make sure that they provide a solution to the needs of your specific business—whether it's increasing purchases, maintaining consumer engagement or simplifying daily tasks. **WBM**

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Highlights of the Price Service data that helps subscribers identify industry trends and market shifts by region and wine variety.

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Winemaking & Wineries

Covert Estate hired **Rachelle Mudaliar** as its new estate director and **Emily Floyd** as its new director of hospitality and sales. According to the company, the new hires support Covert's growth trajectory since its founding in 2012 and its goals for continuing to elevate the estate's hospitality offerings.

Lieb Cellars appointed **Aimée Lasseigne New** as their New York City brand ambassador, focusing on elevating Lieb's awareness and credibility through sampling and selling efforts within key trade circles. Lasseigne New comes with 18 years of wine and hospitality experience, most recently serving as the assistant manager at **Bottlerocket Wine & Spirit** in NYC.

Marc Perrin of **Famille Perrin**, has been appointed for one year (July 2019 to June 2020) as the new president of **Primium Familiae Vini**, which consists of 12 separate labels, including **Antinori**, **Joseph Drouhin**, and **Baron Philippe de Rothschild**, among others.

L'Ecole N° 41 hired **Marta Timoteo** as its first marketing manager. Timoteo joins L'Ecole from a confectionary company in the UK, where she served as a brand and category manager. Prior to that, she worked as a food and beverage buyer for an importer in Portugal. Her appointment at L'Ecole represents her first wine industry management position.

Martha Rueca-Gustafsson recently joined **Safe Harbor Wine Storage** in Napa as production manager and winemaker, overseeing daily operations and bottling. Rueca-Gustafsson brings over 10 years of experience in production winemaking from a wide variety of premium wineries in the East Bay and in Napa.

Katrina Van Allen, Ehlers Estate

Ehlers Estate announced **Katrina Van Aller** as its new California direct-to-trade manager. Van Aller comes to Ehlers with over 20 years of experience in luxury wine and spirits sales for California-based wineries. She joins Ehlers from **Silver Oak** and **Twomey Cellars**, where she was regional sales manager from 2011 through 2019.

Terlato Wine Group appointmented **Trey Fletcher** as winemaker, **Sanford Winery & Vineyards**. In his role, Fletcher will be responsible for Sanford's day to day vineyard and winery operations, working closely with the Terlato Family. Fletcher spent the last eight years at **Bien Nacido Vineyards** in Santa Maria, as winemaker and general manager.

Cristom Vineyards unveiled an expansions to their hospitality program, which launched July 2019. Leading guest experiences is Cristom's new director of estate sales, **Didier Porteaud**, former general manager and wine director of Portland, Oregon's **RingSide Steakhouse**. Working in tandem with Porteaud is Cristom's director of membership and education, **Gaironn Poole**, formerly of **Goodfellow Family Cellars**. Together, Porteaud and Poole will oversee the development and launch of the company's hospitality expansion, which the winery estimates will more than double its current hosting capacity.

Rob Davis and Maggie Kruse, winemakers, Jordan Winery

Jordan Winery announced a change to its winemaking staff. **Rob Davis**, who has worked at Jordan since the inaugural 1976 harvest and is considered the longest-tenured winemaker in Sonoma County, is transitioning into the newly created role of winegrower at Jordan, effective July 1, 2019. He has turned over lead winemaking and management responsibilities to **Maggie Kruse**, who has worked alongside Davis for the last 13 harvests.

Wente Family Estates announced **Aly Wente** will be returning to the family-owned as its senior brand manager of **Wente Vineyards**. In so doing, she joins **Christine** and **Karl Wente**, as well as her sisters **Jordan** and **Niki Wente**, as another member of the fifth-generation of the family-owned and operated winery. In her new role, Wente will developeand execute strategic marketing plans and activities to support both long-term and short-term goals for the Wente Vineyards brand. She brings with her four years of marketing experience at **Constellation Brands**, where she most recently managed a portfolio of luxury and super-luxury wines.

Larkmead Vineyards hired **Avery Heelan** to join the winemaking team as assistant winemaker. Heelan will be working alongside winemaker **Dan Petroski**. In her new position, Heelan will not only be managing the cellar and day-to-day wine production, but will also explore the data and trends in Larkmead's history, examining grape growing, fermentation management, élevage, and bottle aging over time.

Alpha Omega promoted **Jeff Knowles** to chief operations officer. Knowles is the first-ever COO at the winery. In his new role, he oversees all areas of hospitality, sales, IT, shipping and logistics, maintenance and housekeeping and team services while collaborating with chief of production Josh Baker, CFO **Chelsea Cameron** and Alpha Omega vintner **Michelle Baggett**, who heads the marketing division.

Distinguished Vineyards & Wine Partners appointed Kate McManus to the newly created position of vice president of marketing. In this role, McManus will be responsible for oversight of marketing, direct-to-consumer sales

and hospitality for both **Markham Vineyards** and **TEXTBOOK**, both of which were acquired this year by Distinguished Vineyards & Wine Partners. McManus will also work closely with the in-house marketing teams at both **Argyle Winery** in Oregon's Willamette Valley, and **MacRostie Winery and Vineyards** in Sonoma County.

Alma Rosa Winery & Vineyards welcomed **Samra Morris** to the team as assistant winemaker. Born and raised in Bosnia, Morris holds both her bachelors and masters degrees in food sciences from the **University of Sarajevo, College of Agricultural and Food Sciences**. Moriss' most recent position was at Free Flow Wines, where she started as a as a lab assistant in 2017. She was promoted to lab supervisor the following year and then to QC manager in 2019, where she was responsible for managing wine and product quality for canning and kegging.

Distributors, Importers & Retailers

Sunshine Wine Distribution, LLC appointed **Michael Dennehy** as general sales manager. His primary focus will be to expand the current team structure, account base and portfolio offerings as well as manage the day-to-day market operations. Dennehy brings more than 20 years of senior level distribution management experience.

Danni Lynn Simross

Quintessential has announced four new wine professionals joining the company's salesforce in New England, Texas and Illinois. **Brian Kelley** has been appointed New England regional sales manager for Quintessential, taking over for **Barry Ibbotson**, who is retiring. In Texas, **Danni Lynn Simross** has rejoined Quintessential as Texas state sales manager, a position she held with the company from 2008 until 2014. Reporting to Simross is **Danielle Clark**, who will be responsible for sales and promotional efforts as a Quintessential sales representative. Lastly, **Jules Symon** joins Quintessential as district manager for Illinois.

Winesellers, Ltd. appointed **Diana Farber** to vice president, national accounts. In this newly created role, she will be responsible for managing national account programs and initiatives with a focus on expansion in the on-premise channel. Previous to this position, Farber was most recently the national accounts strategic manager at **VINTUS** and prior to that vice president of national accounts at **Vineyard Brands**.

Motion Industries, Inc., a wholly owned subsidiary of **Genuine Parts Company**, has named **Jeremy Barton** to vice president of the vompany's West Group, effective August 1, 2019. Barton has over 20 years of experience, including as an industry sales manager, branch manager, as well as providing technical, sales, and operations guidance for the Motion Industries growing industrial services platform in the West.

people

In Memoriam

Stefano Giuseppe—a founding member of the historic **San Antonio Winery** in downtown Los Angeles, Calif., passed away at the age of 97 on July 3. Giuseppe made his mark in the industry by establishing Los Angeles' first urban winery, the San Antonio Winery and is known for being the driving force behind the family and winery's standout brand, **Stella Rosa**. He is survived by his three children: **Santo** (Joan), **Cathy** (Nino), and **Steve** (Sindee), who run the winery today. And he is also survived by his many grandchildren and seven great-grandchildren.

Jay Heminway

Jay Heminway, a Napa Valley winemaker and viticulturist known for his estate Zinfandels, died June 5 at **St. Helena Hospita**l from complications following coronary-bypass surgery. He was 79. Heminway is known as an early Napa pioneer and Zinfandel expert. During his life he garnered much acclaim for the wines produced from his **Green & Red Vineyard,** located on the slopes of **Chiles Canyon** on the eastern edge of the valley. Heminway left Green & Red in the hands of his daughter, **Tobin Heminway.** She will be aided by Pam, Jay's wife of 34 years, winemaker **Mike Penn** and vineyard manager **Salvador**. Heminway is also survived by his sister, **Hilary;** a brother, **John;** and a granddaughter, **Arden.**

Industry Services & Suppliers

Rabo AgriFinance named **Jill Jelacich** general manager of the company's new fourth territory, which focuses only on California's food, agriculture, renewable energy and wine sectors. Jelacich was formerly the director of food and agribusiness at Rabobank, N.A. Her transition to her new role accompanied the transfer of approximately 170 employees who supported the food, agriculture and renewable energy loan portfolio at Rabobank, N.A. to Rabo AgriFinance as of July 1.

Oenofrance USA hired **Carmen Giuffré** as a part of the technical advisory and consulting winemaking team. Her career includes extensive laboratory work as an enologist at **Joel Gott Wines** and as a lab technician at **E&J Gallo**. Most recently, Carmen was a harvest assistant winemaker at **Simi Winery** in Healdsburg, California.

Dave Whitmer joined **Allied Propane Service** in the newly created role of corporate development and public affairs executive. Whitmer will work out of Allied's Napa office and will be responsible for leading corporate development and public affairs for **Allied Propane Service** and **Allied Clean Fuels Plaza**.

Gaspar Roby is the new chief operating officer of **Advanced Beverage Technologies**. Gaspar, a graduate of **Universidad Nacional de Cuyo** in

Mendoza, Argentina, a Fulbright scholar and a graduate of the **UC Davis** Master of Science in horticulture and agronomy program, joined the company in early 2018 as vice president of operations. In his new role, Gaspar's responsibilities will cover multiple lines of businesses, including all services, products and equipment offered by the company.

Christian Gourdin has transitioned from sales manager of **Epic Wine & Spirits** to district manager of **Winebow**. Gourdin has worked at New York City's **Knickerbocker Club** as a sommelier and beverage director. He worked for the fine wine division of **Empire Merchants** in NYC before taking a role in San Francisco with Epic Wines & Spirits as the strategic account manager, where he was promoted to area manager—a position he's held for the last three years.

Oak Solutions Group hired **Derek Sanchez** as its new **tru/tan** technical sales manager and wine chemist. Sanchez will provide support for tru/tan enological tannins to the global team of Oak Solutions Group specialists. Sanchez will also work with the Oak Solutions Group research and development director to ensure their research is available to winemaking customers around the world.

Associations & Education

Kristen Barnhisel, winemaker for white wines at **J. Lohr Vineyards & Wines**, has been named 2019-2020 president of the **American Society for Enology and Viticulture** (ASEV). She succeeds **John Thorngate**, vice president of operations technical services at **Constellation Brands**. In her new role, Barnhisel will lead ASEV's 12-member board. Barnhisel joined J. Lohr Vineyards & Wines as winemaker, white wines in 2015 and has been an ASEV member since 2005.

Julie Payette, Governor General of Canada, announced 83 new appointments to the Order of Canada. This year, **Vanessa Vineyard** master winemaker **Howard Soon** has been honoured with The Order of Canada, for his leading role in shaping, expanding and elevating British Columbia's wine industry.

The **Napa Valley Film Festival** (NVFF) hired **Tom Tardio** as their new chief executive officer (CEO). Tardio assumes the role immediately and is responsible for overseeing all aspects of the annual film festival including managing the current staff, fundraising, and developing new and existing programming. Tardio comes to NVFF after serving 28 years as CEO at **Rogers & Cowan**, an entertainment, technology and consumer communications firm and recently as CEO of Socialtext, a communication software provider.

Wine Institute announced that **Rick Slomka**, director of California wines Canada will be retiring on June 30, 2020. In the coming months, Wine Institute will conduct a search to fill the position by Dec. 1, 2019, with Slomka supporting the transition during the first half of 2020. Slomka joined Wine Institute in 1992 and, during his tenure, U.S. wine exports to Canada, 95 percent from California, have grown from 4.1 million cases to more than 8.3 million cases of bulk and bottled wine annually in 2018 with a retail value of more than $1 billion.

Following the annual general meeting held on July 9, 2019 at the Manteo Resort in Kelowna, British Columbia, the **BC Wine Institute** (BCWI) is named its new Board of Directors. Nine voting BCWI Directors represent all British Columbia wineries. Newly elected or re-elected members of the Board of Directors are: **Dapinder Gill**, **Kismet Estate Winery**; **Leo Gebert**, **St. Hubertus & Oak Bay Estate Winery**; and **David Wilson**, **Mark Anthony Group**. WBM

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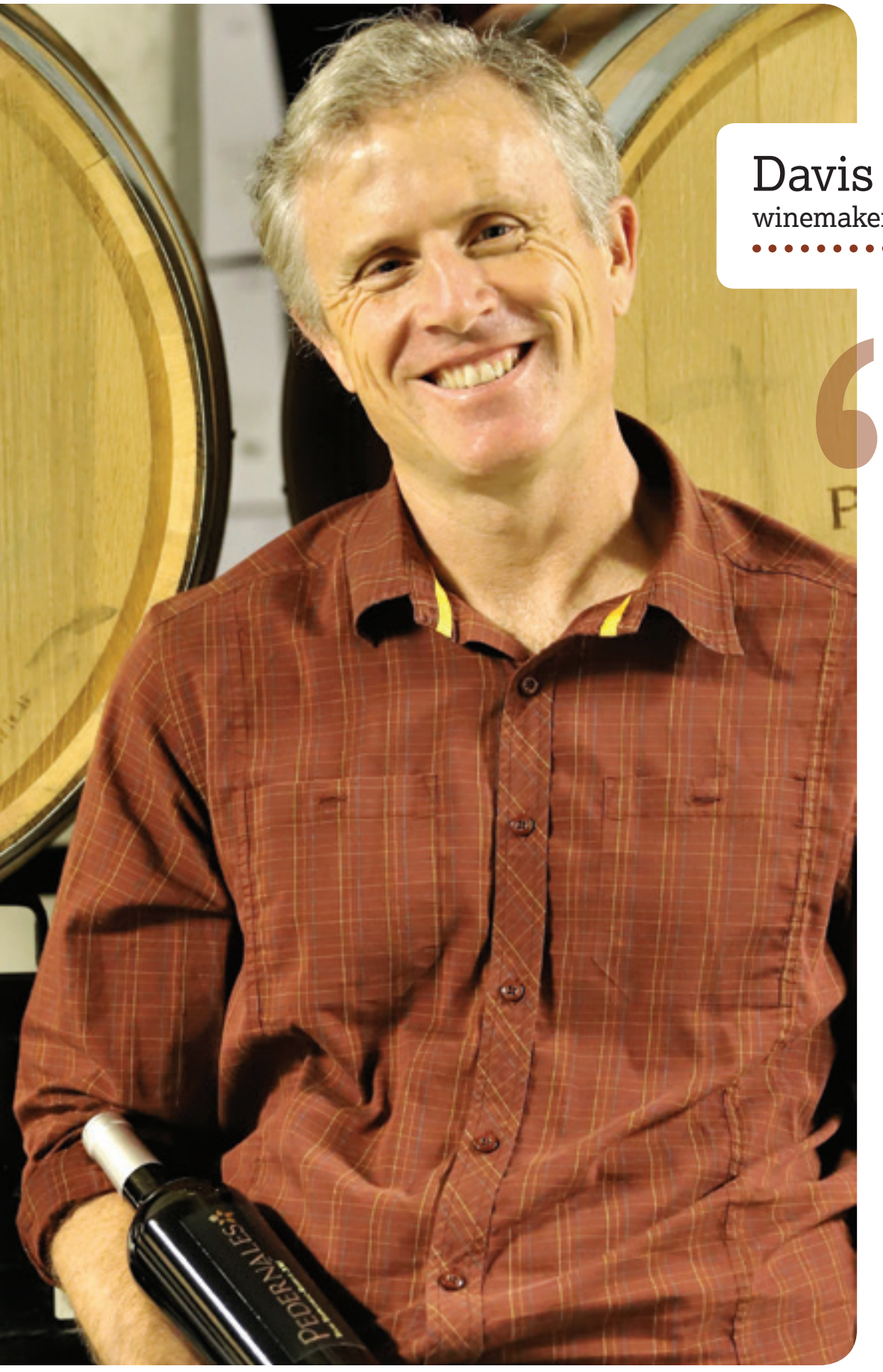

Davis Kuhlken, president and executive winemaker, Pedernales Cellars, TX

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NAME AND TITLE: David Kuhlken, president and executive winemaker

WINERY NAME AND LOCATION: Pedernales Cellars. We are a sixth-generation Texas family growing grapes in the Texas Hill Country since 1995. We are one of the early winemaking families to help shift the Texas wine industry into hot climate varietals such as Tempranillo, Viognier, and Mourvèdre. We are located in the Texas Hill Country about 15 miles east of historic Fredericksburg.

ANNUAL CASE PRODUCTION: 15,000 cases and 250 tons of grapes annually

PLANTED ACRES: 17 acres at family estate

CAREER BACKGROUND: Rice undergrad, University of Texas MBA, and UC Davis winemaking certificate. Past and current VP of the Texas Hill Country Wineries Association, and past treasurer of Texas Wine and Grape Growers Association (TWGGA).

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It's All Relative

ILLUSTRATION BY BOB JOHNSON

CHUY PALACIOS IS MAKING hot sauce. A new creation, he invented it working with the bags of jalapeño chiles Jake Lorenzo brought him. This detective's garden is cranking with tomatoes, eggplant, cucumbers, squash and peppers. I've got shishitos, poblanos, chiles de arbol, serranos and enough jalapeños to burn the taste buds off the entire North American Sommelier Association.

I've been bringing chiles and tomatoes to Chuy, so he experimented and came up with this detective's favorite new salsa. Chuy roasts about 16 jalapeños, along with four tomatoes, eight tomatillos and four cloves of garlic on his comal. Once they are toasted, he tosses them into his blender along with a tablespoon of chicken bouillon and just a bit of water. (The bouillon is the secret, and this detective has no idea how Chuy came upa with it.) He grinds all the toasted ingredients into a purée and then adds freshly chopped green onion and cilantro. The finished salsa is incredibly delicious and enhances any food with which it comes into contact. Is it hot? Well that's all relative. It's just right for Jake Lorenzo.

It's something Jake Lorenzo has been thinking about a lot lately. Not Chuy's hot sauce, but my theory of relativity. I know people who view hot sauce as a macho challenge. They will eat whole habaneros, seek out chicken wings slathered in sauce made with Naga Viper chiles and then try goat meat covered in Trinidad Scorpion chile slush. When it comes to hot sauce, I like enough burn to slap my taste buds awake to get their attention while still allowing me to appreciate the intricate flavors of the salsa and enhance the food to which I've added it. I'm not looking for a salsa to prove my manhood, give me heartburn and require that I keep my toilet paper in the freezer.

Wine is the same way for this detective. There are plenty of wineries consistently producing scrumptious wines that will delight any palate and enrich any meal. In my experience, Chateau d'Yquem with its Sauternes most consistently produces the best wine of its type in every vintage. The current vintage, if you can find it, starts at over $300 per bottle. For California Cabernet I would suggest Spottswoode ($200+), which unfailingly delivers delicious, well-structured wines that age beautifully for many years. Corison ($100+) is another producer you can count on for luscious wines representing a sense of place and a definitive personal style. I've never tasted a Littorai Pinot Noir (+/- $150) that didn't push every Pinot button this detective has. The same is true for the Peay Vineyard Syrahs ($55.) Do these wines provide excellent value for the price? Absolutely.

Are they affordable? Well, that's relative.

Jake Lorenzo has learned that there are many things in this life that are consistently excellent. I have also learned that as much as I appreciate them, I can't afford them. Friends have told me that they only fly Business Class when they go to Europe now, because Coach has simply become unbearable. Well, that may be, but the difference in cost between Coach and Business Class is a whole extra ticket to Europe. Jake Lorenzo knows it is in his best interest to use that money to buy another Coach ticket for Jakelyn's mother, because she sure as hell won't let me go to Europe while luxuriating in Business Class by myself.

Last month we purchased Coach tickets and went to San Sebastian, Spain which has the most Michelin star restaurants per capita in the world. I am sure we would have appreciated meals at any of those restaurants. When you consider the superiority of ingredients, the creativity of the chefs, the excellence of service and the quality of glassware, linen and the like, it is probably well worth the money, but it is all relative. Their $300 to $600 per person price tags persuaded us to seek alternatives.

Jakelyn's mother and I have had the great good fortune to dine at some of the most famous restaurants, eat incredible food prepared by gifted chefs and sample some of the world's finest wines. We have learned that high prices often bring a certain level of formality, but they don't necessarily deliver better experiences. At this point in our lives, we are more comfortable seeking out our pleasures at affordable prices and spending our time in the company of other people who like to eat and drink.

So, we chose to try every pintxo in every bar we passed in San Sebastian, along with multiple bottles of local Joven, Crianza and Reserva wines at every meal. We learned to differentiate the various levels of jamon and to appreciate the regional differences in tripe. We delighted in white asparagus, foraged mushrooms with *foie gras,* and hake fish in a myriad of preparations. We educated our palates while in the jubilant company of locals for an entire week for about what it would have cost us to dine in *one* Michelin-starred restaurant. This detective is not asserting that our experience in San Sebastian was better than that of someone who chose to visit Michelin starred restaurants, but it wasn't inferior either. It was just different

If you have enough money to always eat and drink the best of everything, then you don't learn anything about food or wine. Knowledge comes when you have to make choices between things you want, because you can't afford it all.

A.J. Liebling, one of Jake Lorenzo's favorite writers, propositioned that if you have enough money to always eat and drink the best of everything, then you don't learn anything about food or wine. Knowledge comes when you have to make choices between things you want, because you can't afford it all. Liebling says that making those choices can sometimes even allow for a bit of luxury.

As an example, if you choose the incredibly delicious 2017 Domaine du Trembley Quincy, a white Loire that can be had for $15, then you can easily splurge on a big filet of fresh, line-caught salmon and enjoy a pairing made in heaven. If you find the 2015 Domaine de la Janasse Côtes du Rhône Reserve ($15), then a well-aged ribeye steak becomes very affordable. If you are jonesing for a single-vineyard Pinot Noir from Brewer-Clifton (+/- $75), then balance that binge by grilling up some of the inexpensive, but delicious marinated chicken from La Favorita Mercado and make tacos. Use the recipe to whip up some of Chuy's hot sauce for those tacos and you will have a sublime dining experience at a very reasonable price.

Of course, it is all relative, but any of those choices would make this detective happy. **WBM**

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