AUGUST 2022 WINE BUSINESS MONTHLY PACKAGING SURVEY WINEMAKING TRIAL: MODERN COOPERAGE

WINE BUSINESS MONTHLY

August 2022 • $5.95 The Industry's Leading Publication for Wineries and Growers www.winebusiness.com

Successful Succession Planning

Plus:

WBM Packaging Survey Report: How wineries are managing supply chain challenges

Winemaking Trial: Examining the Consistency of Modern Cooperage Barrels

Managing S02 in Barrels for Enhanced Wine Quality

VIN GRAND CRU ZEBRA

THE BOLDNESS OF CHIC STRIPES

Designed from a brilliant stylistic experiment, VIN GRAND CRU ZEBRA bursts onto the scene as an elegant contrast to traditional bottles. The bottle has a sturdy body, with a long, elegant neck further elongated by its low shoulders, proving its irresistible boldness through fine vertical engravings. These chic, slim stripes adorn the bottle from the shoulders to the lower neck, transforming the classic container into a truly curious piece. The lower section remains smooth, a canvas for all types of customisation.

SAVERGLASS

Saverglass Inc. | www.saverglass.com | Haute Couture Glass
2950 Cordelia Road, Fairfield (CA) 94534: (707) 259-2930 | East Coast (NJ): (201) 825-7100
Pacific North West (OR): (707) 337-1479 | Mid West (KY): (502) 365-2333

Portocork

” The cork is the final guardian of the wine we have labored hard and long to make as close to perfect as possible.
As such, it is hugely important.
I can tell you from my heart that I have never worked with better corks than the ones from Portocork. The only thing possibly better is the delightful and efficient people we get to deal with there.

We will be with them forever.”

Manfred Krankl

SINE QUA NON

** 22-time recipient of Wine Advocate’s perfect 100 points*

NAPA, CALIFORNIA | 707 258 3930 | PORTOCORK.COM

Planning for the Future

STARTING A WINERY ISN'T easy. Wine is a capital-intensive business. It's physically demanding and requires an extreme commitment. If you've climbed that mountain, keeping a winery in the family isn't always easy either. About a decade ago, I interviewed the president of a highly successful family owned winery about his accomplishments and legacy in terms of family involvement. This was a genuinely visionary family in terms of keeping those with an interest in the business at heart in control of the business. WBM published an article extolling the winery's succession success. Yet a few months later, the winery was sold to a wine company that sells tens of millions of cases.

One of the articles in this issue discusses how family-owned wineries plan for the future. Few wineries in the U.S. make it beyond the second generation – multi-generational wineries are much more common in Europe - but most wineries are family owned, making succession planning a popular topic.

There's quite a bit of information inside this issue on how winemakers work with barrels to improve quality. One article goes into depth on barrel regimens in cool climate areas that are starting to become better known for red wines. Another details how winemakers can improve barrel sulfite management. The trial of the month involves a stainless steel barrel system that supplements oak barrels with staves and a hand crank for lees stirring. These so-called barrels fly under the radar but I was pleased to see them getting attention, as they were a favorite of the late Curtis Phillips, WBM's long time senior technical editor.

Making great wine is one thing but packaging and selling it is another. The packaging survey report details how wineries have adapted to supply chain disruptions and price increases. We also report on alternative packaging sales and the role of alternative packaging in competing for consumer attention.

Richard Smart, the "flying vine doctor" and author of Sunlight into Wine, shares his perspective on the climate crisis and how wineries can approach carbon neutrality. Also on the environmental front, new technology used in plastic shrink wrap allows it to decompose rather than piling up in landfills – that's some guilt free shrink wrap. With an eye toward the future, we also have an update on the fire insurance crisis, possible solutions, and how wineries are protecting themselves.

Cyril Penn – editor

WINE BUSINESS MONTHLY
July 2022 • Volume XXIX No. 7

Editor Cyril Penn
Managing Editor Erin Kirschenmann
PWV Editor Don Neel
Eastern Editor Linda Jones McKee
Copy Editor Paula Whiteside
Contributors L.M. Archer, Bryan Avila, Richard Carey, Christopher Chen, W. Blake Gray, Mark Greenspan, Michael S. Lasky
Design & Production Joan Olson

Director, Analytics Group Alan Talbot
Editor, *Wine Analytics Report* Andrew Adams

Events Director Shelby Paul

Web Developers Burke Pedersen, Peter Scarborough

President & Publisher Eric Jorgensen
Associate Publisher & Vice President of Sales Tamara Leon

ADVERTISING
Account Executives Hooper Jones, Laura Lemos, Ashley Powell, Julia Willmers
Account Support Representative Aidan O'Mara

ADMINISTRATION
Vice President – Data Management Lynne Skinner
Project Manager, Circulation Liesl Stevenson
Financial Controller Katie Kohfeld
Database Manager Leila Bradaran
Research Assistant Sara Jennings
Project Administrator Rachel Jackson
Public Relations Mary Jorgensen

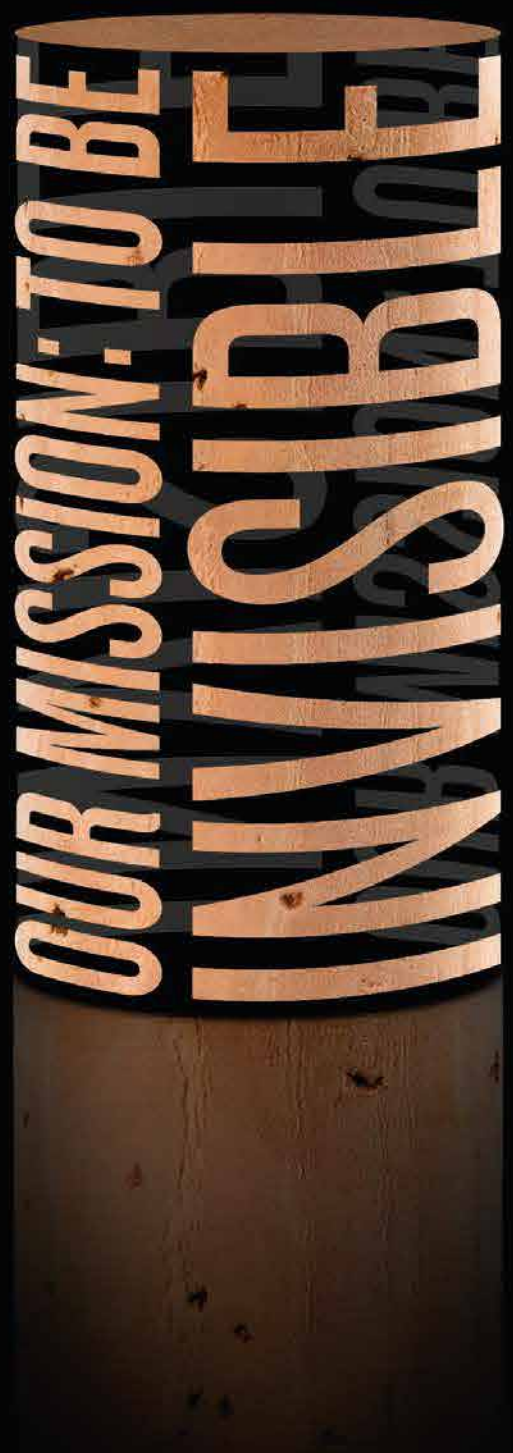
Chairman Hugh Tietjen
Publishing Consultant Ken Koppel

For editorial or advertising inquiries, call 707-940-3920 or email *info@winebusiness.com*

Wine Business Monthly is distributed through an audited circulation. Those interested in subscribing for $39/year, or $58 for 2 years, call 800-895-9463 or subscribe online at *subs.winebusiness.com*. You may also fill out the card in this magazine and send it in.

Cork Supply

corksupply.com



That's why we developed the **Innocork® Circuit**, a two-step extraction process to ensure our corks go completely undetected. Because we know what it means to be a risk-free solution: no TCA, no off-aromas, nothing. It's what keeps us up at night.

TCA TAINT-FREE*

THE INNOCORK® CIRCUIT

*Please see website or technical product specification sheets for details.

Being a leader in glass packaging for food and beverages is useless without strong commitments

Eco1 Conica Baja
Height (mm/in) 298 / 11.73
Weight (g/oz) 420 / 14.81
Diameter (mm/in) 79.6 / 3.11

Engage yourself.
Discover our products.

Verallia's commitments for a sustainable future

- 46 %*
reduction in 2030 for scope 1&2 CO2 emissions vs 2019

< 40 %
Scope 3 emissions below 40 % of total CO2 emissions in 2030

NET ZERO
in 2050 for scope 1&2 CO2 emissions

* Validated by Science Based Targets for scope 1&2 (in absolute value)

verallia

RE-IMAGINE GLASS FOR A SUSTAINABLE FUTURE

P: 707.419.7200 | E: info.usa@verallia.com | www.us.verallia.com | Showroom: Fairfield, CA

winemaking

BUYER'S GUIDE

WINEMAKER TRIAL

PHENOLICS

grape growing

INSIGHT & OPINION

sales & marketing

PACKAGE & DESIGN SPOTLIGHT

RETAIL SALES ANALYSIS

technology & business

Departments

COVER PHOTO: Andréa Johnson Photography
COVER DESIGN: Joan Olson

Wine Business Monthly (ISSN 1075-7058) is published monthly by Wine Communications Group, Inc., 584 First St. E, Sonoma, CA 95476. Subscription rates are $39 for domestic; US$49 for Canadian and US$89 for foreign subscribers. Periodicals Postage Paid at Sonoma, CA, and at additional mailing offices. POSTMASTER: Send address changes to: Wine Business Monthly, 584 First St. E, Sonoma, CA, 95476.

AMORIM CORK

AUGMENTED NEUTRALITY

With a unique CO_2 balance of -393 grams, Neutrocork® Xpür is one of the world's most performing, new generation micro granulated stoppers. Xpür's 21st Century approach to supercritical fluid technology delivers non-detectable TCA, while fully protecting cork's natural, mechanical properties without the need for artificial components.

Powered by Xpür

amorimcorkamerica

NEUTROCORK XPÜR

AMORIM CORK AMERICA | 360 Devlin Road, Napa, California 94558 | Tel: 707.224.6000 | info.acam@amorim.com | amorimcork.com

WHO'S TALKING IN THIS ISSUE

Adam Campbell

Winemaker, Elk Cove Vineyards, "Oregon Family Wineries: Planning for the Future," page 74.

"Wine is, of course, a very traditional business, but we've had to adapt to new technologies, new trends in American wine consumption, and certainly, in the past two years, we've had to adapt in how we get our bottles in front of wine lovers during a pandemic."

Stephanie Honig

Director of Communication, National Sales and Exports, Honig Vineyard & Winery, "Winery Logistics Maintain Resilience Despite Continuing Supply Constrictions and Price Increases," page 50

"We have to order even before we know what our grape yields will be, so we don't know how much of a glass order will be required."

Sean O'Keefe

Winemaker, Mari Vineyards, "Oak Aging Cool-Climate Red Wines," page 14.

"Teroldego and Refosco go very well with Merlot: they are just meant for each other."

Alison Sokol Blosser

CEO, Sokol Blosser Winery, "Market Divergence Seen in Sales by Packaging," page 52.

"Chain stores—which are essential in order to attain scale—were not receptive to boxed wines at the super-premium level."

Jon Moramarco

Editor, Gomberg, Fredrikson Report, "Market Divergence Seen in Sales by Packaging," page 58.

"I see people doing cans, I see people doing other things, but I don't think they're totally looking at all the other factors of what the consumer, the retailer, the marketplace are demanding of beverages today."

David Torgerson

CEO, Wildfire Defense Systems, "Wineries Struggle to Find Fire Insurance," page 68.

"If you can just keep the embers out of the structure, it's a little harder for that structure to ignite in the two to 10 minutes that the fire is present on the property. We prepare properties to survive, and then we secure them after the fire front comes through."







Quality is everything.

What's inside the package should be properly represented by what's on the outside. You've spent countless hours, days, and years perfecting your craft. So have we.

BERGIN

SCREEN PRINTING & ETCHING

www.berginglass.com | 707-224-0111 | 451 Technology Way, Napa, CA 94558 | @berginspe

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

E. & J. Gallo Winery Announced As Official NFL Wine Sponsor

The National Football League and E. & J. Gallo Winery announced Gallo will be the Official Wine Sponsor of the NFL as part of a multi-branded, multi-year agreement. The partnership is uniquely structured to engage NFL fans and will include opportunities for local team activation, player imagery and appearances, on-site presence at premiere events, and broadcast, digital, and social content from NFL Kickoff through the Super Bowl. The Barefoot brand will kick-off the partnership. "Gallo is thrilled to be uniting America's most loved winery with America's most popular sport," E. & J. Gallo Chief Marketing Officer Stephanie Gallo said in a press release. She added, "As an industry leader our role is to welcome new consumers to the wine category in unique and relevant ways. This partnership will do just that by bringing our avid fan bases together."

Collective Napa Valley Comes Together for Children's Mental Health

The Collective Napa Valley community came together in person for the first time to raise funds for the important cause of children's mental health in early June. Under a new model, bidders broke records at a barrel auction that raised $1.5 million with average lot and case prices selling higher than ever before. Of the 75 lots up for auction, the average price per case was $1,873, 9% higher than 2019, with a highest ever average lot price of $18,683. The Barrel Auction is one component of new, year-round efforts to raise funds seasonally for pressing community issues. The Napa Valley Vintners association has replaced the landmark Auction Napa Valley charity auction with a series of community-oriented events and fundraisers under the Collective Napa Valley umbrella.

Foley Buys Napa's Silverado Vineyards

Bill Foley, owner of Foley Family Wines, has purchased Silverado Vineyards from the Disney Miller family, reportedly for more than $150 million. Founded by Ron Miller and his wife, Diane Disney Miller, Silverado last year marked its 40th anniversary. The deal includes 300 acres of vineyards, including 100 acres in the Stags Leap District, 100 acres in Coombsville, and 100 acres in Yountville. It marks the latest in long a series of acquisitions for Foley, most recently including Ferrari-Carano and Chateau St. Jean.

Ste Michelle Might Sell Flagship Property in Woodinville WA

Chateau Ste Michelle, the Pacific Northwest's largest winery, put its Woodinville property up for sale. According to published reports, the 118 acre site was listed by CBRE Inc., a commercial real estate company in Dallas, Texas. The winery will move all of its white wine production, which has previously been taking place in Woodinville, to eastern Washington. The company is evaluating how to best utilize the facility going forward, including a potential sale, but a sale is not a foregone conclusion, according to a statement sent to the media. The listing includes Ste Michelle's chateau, tasting rooms, a banquet facility, office space, a theatre, warehouse, and 50,000 square feet of barrel storage. Ste Michelle was purchased by New York-based private equity firm Sycamore Partners in 2021 for $1.3 billion.

Halter Ranch Announces Purchase of EOS Estate Property in Paso Robles, California

Halter Ranch Vineyard and Winery has purchased the EOS Estate property in Paso Robles, California, from Foley Family Wines. The sale includes the 11,000-square-foot winery/hospitality center and 8.5-acre estate.

"Halter Ranch is excited to launch a new wine brand and experience on the Highway 46 East corridor in Paso Robles. We look forward to welcoming guests later this year.," says Kevin Sass, Halter Ranch Winemaker.

The new location is conveniently located off Highway 46 East on Airport Road in Paso Robles, CA. The structure was originally built by the Firestone Family in 2007 and operated as Firestone Wines. It was later purchased by Foley Family Wines and became the site of the EOS Tasting Room in 2010. The sale brings the new winery/hospitality center into Halter Ranch's expanding portfolio, which includes the recently acquired Hart Winery in Temecula. **WBM**

MADE IN CALIFORNIA

Celebrating California's Resiliency

For over 60 years, Gallo Glass has supported, grown, and prevailed through difficult times with our partners. We are still here for your long-term supply needs and offer the real sense of security you look for in a wine bottle manufacturer. Enjoy our broad range of color and bottle selections that continue to support California's wine industry.

Gallo Glass
california pure

MODESTO, CA I galloglass.com

Oak Aging Cool-Climate Red Wines

Ray Pompilio

RAY POMPILIO

FIGURE 1 Peter Bell, winemaker at Fox Run Vineyards in Penn Yan, NY since 1995.

WHEN ONE THINKS OF cool-climate grape growing regions in the United States, the Finger Lakes region of New York comes to mind. However, other regions that display similar characteristics include Ohio, parts of Pennsylvania, southern New England and the Great Lakes region. Michigan stands out in the latter category and has 230 wineries (according to *Wines Vines Analytics*).

Most of these areas are known for their white wine, with Riesling as the most prominent variety. However, as our climate continues to warm and winegrowing techniques evolve, these cool regions are becoming better known for their red wines, something that was totally unexpected 20 to 30 years ago. Cultivars, such as Pinot Noir and Cabernet Franc, began their ascendency, followed by more plantings of Lemberger, also known as Blaufränkisch, along with smaller amounts of northern Italian red grapes, including Teroldego, Lagrein and Refosco.

When grown in cool climates, these grapes all have good acid structure and often somewhat lighter color. So how do today's winemakers in these regions vinify and age these wines for fruit attractiveness, balance and structure? Much red wine is known for being aged in oak, but oak comes in many shapes, sizes and regions of origin. In this article, I will explore the use of 225L barriques, 600L demi-muids and 20HL casks, with the focus on aging Lemberger, Teroldego and Cabernet Franc.

The question of how to age cool-climate reds in oak was raised in interviews with three experienced and highly regarded winemakers: Peter Bell at Fox Run Vineyards and Morten Hallgren of Ravines Wine Cellars, both in the Finger Lakes, and Sean O'Keefe at Mari Vineyards in the Old Mission Peninsula AVA on the eastern shore of Lake Michigan. In addition to their commonality as cool-climate winemakers, they all share a background of international education and work experiences, including stints in Australia, New Zealand, Germany and France.

Starting Small: Lemberger in Barriques

Fox Run Vineyards is located in Penn Yan, N.Y. and is owned by Scott Osborn and his wife Ruth, along with her sister Kathy and her husband Albert Zafonte. Peter Bell, one of the longest tenured winemakers in the Finger Lakes, has been at Fox Run since 1995. He graduated from Charles Sturt University in Wagga Wagga, Australia, with a bachelor's degree in applied wine science, and worked a season at Hunter's Wines in Marlborough, New Zealand. He began his New York career with a five-year stint at Dr. Konstantin Frank Winery in Hammondsport before making his move to Fox Run (**FIGURE 1**).

The estate has 35 to 40 acres of *vinifera* vineyards, including 5½ acres of Lemberger, which were planted in 1994, the year before Bell's arrival. The Lemberger vines are grown on a modified VSP system, with arced canes, as opposed to purely vertical positions due to somewhat brittle canes. The vines produce moderate crops of 3 to 4 tons per acre and are not vigorous enough to require crop reduction throughout the growing season. Harvest dates, on average, occur during the first week in October, a week to 10 days prior to their red Bordeaux varieties. "I never bow down to the altar of hang time," Bell said, explaining that he finds extended hang time can lead to high alcohol levels and, at times, grape berry oxidation. He added, "Sugar accumulation maxes out at 20° to 21° Brix in a good year" and noted that the freshness he seeks in Lemberger is still attainable with ripened fruit that comes in at somewhat lower sugars.

Once pressed, the must is inoculated with Lalvin ICV GRE yeast from Scott Laboratories. Bell inoculates all his red wines, stating that, in his experience, defects such as volatile acidity and off-odors, along with stuck fermentations, are often caused by microbes in wild or indigenous fermentations. The

FREEDOM TO FLAVOR

YOUR WINE EXACTLY HOW YOU ENVISION

With decades of tasting and toasting experience,
our seasoned team of specialists, supported with state-of-the-art resources
and high-quality products, helps you shape, sharpen then pinpoint
your unique flavor profile time after time.

CREATIVE OAK

INFO@CREATIVEOAK.COM | CREATIVEOAK.COM | TONNELLERIEOSTORE.COM

CREDIT?

FIGURE 11 59-gallon barriques, ranging in age from 3 to 5 years in age, at Fox Run Vineyards are used at the end of fermentation for wines that have not been racked or filtered. The wines remain in the barrels for approximately one year.

RAY POMPILIO

FIGURE 2 Fox Run Vineyards 2018 Lemberger, aged in 59 gallon barriques.

FIGURE 3 Back label on Fox Run Vineyards Lemberger wine.

GRE is very fruit-expressive, and it will spike to about 90°F for about two days, which Bell thinks aids in the extraction of tannins and color intensity. Once begun, the average fermentation takes five to seven days to complete.

Bell prefers that the alcohol level of the wine not reach 13 percent or more. He believes that range allows for good mouthfeel and vinosity, characteristics he seeks in his red wines. When the vines were younger, Bell found the Lemberger to have considerable amounts of rotundone, a chemical component that is found in black pepper. As the vines aged, however, that disappeared, and the grapes now offer what he would describe as a slightly meaty character, often found in Rhône wines, which he attributes to fermentation by-products.

The new wine is put into 225L (59-gallon) barriques, without racking or filtration, at the very tail end of the fermentation. This allows for a small amount of alcohol to develop in the barrel, which Bell thinks adds more complexity and texture. The new wine is then inoculated for malolactic fermentation with Viniflora Oenos, a Chr. Hansen product distributed by Gusmer Enterprises.

The 2021 vintage provided Fox Run with about 7,500 gallons of Lemberger wine (**FIGURES 2** and **3**). About 3,000 gallons will be bottled as a fresh, unoaked wine, with the remaining 4,000 gallons aging in oak. The barriques for the Lemberger are a broad blend of used barrels from several producers, ranging in age from three to five years. The 2021 vintage currently rests in about 70 barrels, roughly half of which are from Nadalié USA, all made with Virginia oak, which Bell believes fits the wine very well. "I like what's not there—no coconut, vanilla or barbecue smoke. They do have a background contribution of soft spices, and they serve to enhance the fruit and elevate the mouthfeel," noted Bell.

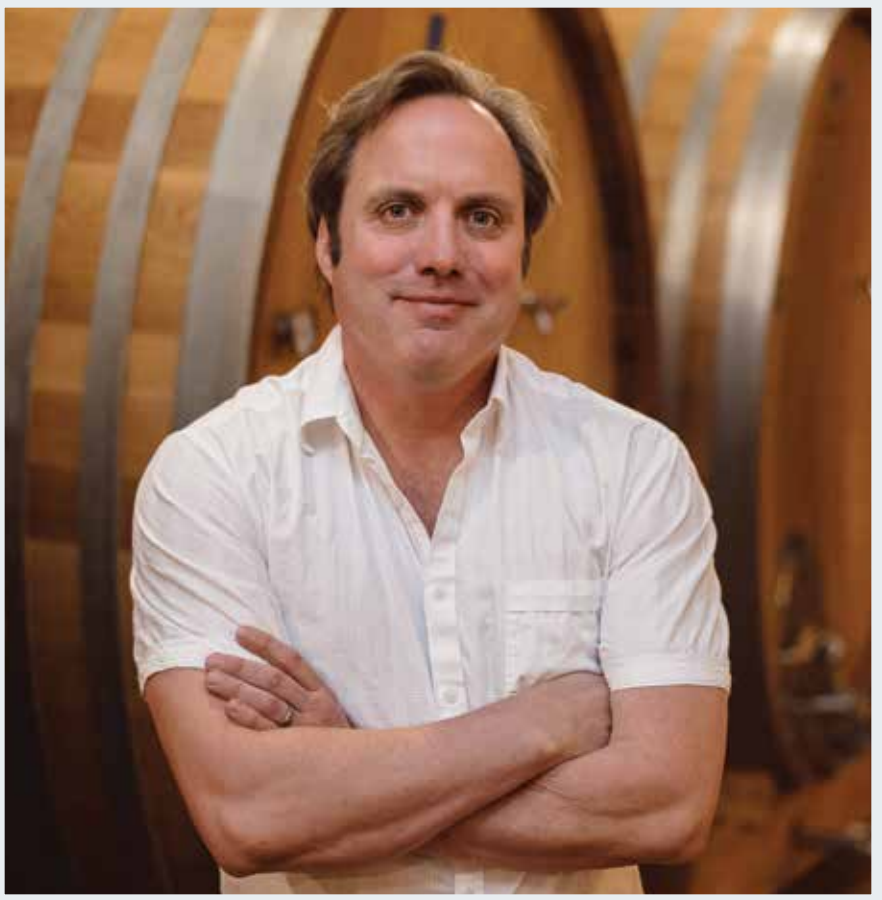
How long will the wine stay in barrel? He answered, "I figured out a long time ago that Lemberger needs a full year in oak to structure the wine." He uses the older barrels so the oak flavor is not obvious while the time in barrel provides some micro-oxygenation that helps to extend the palate structure throughout the finish of the wine. The year in barriques is very time-efficient also: "I very rarely have to keep barrels empty—the day that they get emptied is the day the next year's wine goes in," he said. Once emptied, the barrels are washed out, and then the filling process repeats.

All in all, what does Bell look for in the finished, oak-aged Lemberger? "I'm looking for a developed palate structure—an extension of flavors—on entry, the middle palate and in the finish," he explained. He also looks for moderate tannins, commenting, "I'm not afraid of tannins, and I won't use press-fractioning. I want to get everything I can get out of the grapes. And that is because we're in the Finger Lakes." He added that the astringency of cool-climate reds, like Lemberger, on top of a good amount of acid structure, will soften and develop nicely as the wine ages.

Bell poured examples of his theories in a tasting of Fox Run Lembergers from the 2003, 2013, 2015 and 2019 vintages. The oldest wine showed a diminished fruit character yet still maintained its palate structure, softened by age. He described the 2013 as the last of the Lembergers with some obvious oak accents, and the 2015 offered a good example of the complete package he is now seeking. Finally, the 2019, their current release and priced at the winery for $22.00, had great depth of fruit and firm mouthfeel; it just needed further bottle age to attain its full complexity and roundness.

A Michigan-Italian Marriage in Demi-muids

Some 450 miles further west, Traverse City, Mich. is a home to the burgeoning Michigan wine industry. Sean O'Keefe grew up amidst the family winery, Chateau Grand Traverse, started in the 1970s by his father Edward O'Keefe



TWO TWISTED TREES PHOTOGRAPHY

FIGURE 4 Sean O'Keefe, winemaker at Mari Vineyards in Traverse City, MI for the past eight years

Jr. Not intending to go into the wine business, Sean studied German at the University of Michigan then spent a couple years in Germany, where the wine bug bit. In the early 1990s he served as an apprentice at a family winery while attending school in Neustadt, the center of Germany's Rhineland-Palatinate region.

A year later, he took a number of classes at Giesenheim University in the Rheingau region before returning home and joining the family winery in 1998. At that time, Chateau Grand Traverse was producing some 150,000 cases, and Sean developed his niche there, producing about 6,000 cases of smaller lot Rieslings and other *vinifera* wines. After several years, Sean decided to leave and join Mari Vineyards in 2014 (**FIGURE 4**).

Owned by Martin Lagina and family, Mari Vineyards had been selling most of their grapes to Chateau Grand Traverse although Lagina planned to eventually start his own winery. Before he joined Mari full-time, Sean produced wines for them, starting around 2006. Two years following his move, Mari Vineyards built and opened a state-of-the-art winery, with all production and aging done underground via a gravity-fed system. The winery electricity is supplied by wind and solar power from another Lagina business, Heritage Sustainable Energy.

Mari Vineyards currently has 65 acres planted, 25 percent to Riesling and about 50 percent of the total vineyard in reds, including Italian varietals Teroldego, Refosco, Schioppettino and Nebbiolo. The Lagina's ancestors are from Istria, hence the interest in Northern Italian red grapes. The first Teroldego and Refosco vines were planted in 2012, and currently, there are about 5 and 2.5 acres of each, respectively. The vines were sourced from Novavine in Santa Rosa, Calif.

TWO TWISTED TREES PHOTOGRAPHY

FIGURE 5 French oak 600 L (159 gallon) demi-muids line the walls of Mari Vineyards barrel room.

BERYL STRIEWSKI PHOTOGRAPHY

FIGURE 6 Mari Vineyards' Troglodyte Rosso, a blend of Teroldego, Pinot Noir and Merlot, is aged in demi-muids.

Planted in sandy and sandy loam soils, the vines are grown organically and are quite vigorous. The vines have great length between the internodes, and the double-cane VSP has a crossbar installed at the top to further open the canopies. The result is very large clusters of fruit, which this past year required trimming the cluster tips, after berry set, to keep the clusters manageable. The fruit, due to the high acidity, is left to hang as long as possible, with both cultivars hand-picked, usually during the last week of October, with average 21° to 22° Brix.

"I've found I can make good wine from these grapes even when they come in lower," O'Keefe said. He inoculates with Lalvin RBS 133 (from Scott Laboratories), which is designed to work well with high acid must. In addition, he sources Opti-Red from Lallemand and Scott Labs. "In the beginning," he noted, "I'll add Opti-Red, a yeast nutrient that stabilizes color and rounds the tannins, which is crucial in these high acid and tannic wines."

The fruit is de-stemmed and fermented at relatively cool temperatures, not exceeding 70°F, for about two weeks. Pump-over fermentation takes place in 860-gallon red wine fermenters from Vance Metal Fabricators in Geneva, N.Y. O'Keefe lets the pressed wine rest overnight before directly adding it to 600-liter (159-gallon) French oak demi-muids made by Tonnellerie Mercurey and Seguin Moreau USA. The lightly toasted staves are 40mm thick, compared to the 22-28mm found in most barriques. Malolactic fermentation takes place spontaneously while in this cooperage. First purchased in 2016, the demi-muids are permanently in place, and he plans to use them for many years in the future (**FIGURE 5**).

O'Keefe thinks this type of cooperage best suits the Italian cultivar wines. "I use them to have air transfer at a much slower rate, filling in the mid-palate, by enabling the tannins to integrate without a fast loss of fruit," he said. This is particularly important for his first batch of Refosco, which has been aging in demi-muids since 2016. He expects to bottle it shortly and will continue to release it with six years of aging each following year.

He believes these grapes work best in blends. "In our case I've taken the model of winemaking in the Sud Tirol or Alto Adige as an organizing principle, blending grapes of different tannin structures for a more complex result," explained O'Keefe. "Teroldego needs to be blended—by itself it can be a little coarse, especially from younger vineyards." It makes up as much as half of the winery's Troglodyte Rosso ($34/750ml), with the remainder a blend of Pinot Noir and Merlot (**FIGURE 6**). Mari Vineyards has also released a wine named Proserpina, after the ancient Roman goddess, which has 75 percent Merlot and 25 percent Teroldego.

"Teroldego and Refosco go very well with Merlot: they are just meant for each other," said O'Keefe. He explained that the tannin structure of Merlot softened the higher acid tannins of their Italian cultivar partners, making the resulting wines more complex and complete. Another blend that includes a Bordeaux grape grown at Mari is Ultima Thule, which is composed of 52 percent Nebbiolo, 28 percent Schioppettino and 20 percent Cabernet Franc. Made in very limited quantities, the blend sells at the winery for $80/750ml.

Although O'Keefe likes to think of himself as a Riesling specialist, he has married alternative Old World cooperage and European grape varieties to birth unexpected products. The use of French oak demi-muids and grapes best known in Italy and France are joined at the shores of Lake Michigan. The resulting wines offer a unique look at cool-climate red wines from an area not usually known for such wines.

Is Bigger Better? Cabernet Franc in 20HL Oak

Currently, Cabernet Franc appears to be the best and most consistent cool-climate red grape in the United States. This is particularly true in the Finger Lakes, where it can be aged in stainless steel, new and used barriques and, in the case of Ravines Wine Cellars, 20HL oak casks made in Austria.

Ravines' main vineyards and production facilities are based in Geneva and are co-owned by Morten and Lisa Hallgren. Morten is the winemaker and brings a breadth of European and American experience to the winery, which produces 25,000 to 28,000 cases annually, 35 percent of which is red. Born in Copenhagen, Denmark, he came to the United States to study physics and astrophysics for eight years at the University of Texas, where he met his wife, Lisa. He decided, however, to make wine his career and returned to the Provence region of France, where his family owned Domaine de Castel Roubine, along with 170 acres of vineyards.

While working there, Hallgren studied at the École Nationale Supériere d'Agronomie in Montpellier and earned advanced degrees in oenology and viticulture. He worked a vintage at Chateau Cos d'Esternoul before returning to the U.S. for stints at Ste. Genevieve Winery in Texas, Biltmore Estates

Winery in North Carolina and at Dr. Konstantin Frank Winery in New York, his final position before founding Ravines.

After all these moves, he and Lisa decided the Finger Lakes was the place to stay and purchased 17 acres on the slope of Keuka Lake, where Ravines would be established. He made his first Ravines wine in 2002; and after leaving Dr. Frank's winery in 2005, he dedicated himself full-time to Ravines.

His current facilities, including the winery and 50 acres of grapevines, were purchased from White Springs Winery at the northwestern tip of Seneca Lake in 2012. Ravines then purchased the 44-acre 16 Falls Vineyard on the eastern shore of Seneca Lake and also sources some of the oldest Finger Lakes' *vinifera* grapes, planted in the mid-1980s on the southeastern shore of Seneca Lake, in partnership with the Argetsinger family.

Ravines has 9 acres of Cabernet Franc at the White Springs site, planted in 2004, and another 5½ acres planted in 2016. These vines are grown in a limestone-based soil and are trained with VSP. "I find the limestone soil tends to produce wines that are a little more structured, with firmer tannins," Hallgren said. The 16 Falls Vineyard, with a shale stone soil, has 4 acres planted in 1998 and 2 acres more planted in 2018. The vines are supported by a split-canopy lyre trellis. He believes the wines from this vineyard are a bit softer and rounder. Combined, the vines yield an average of about 3 tons per acre, resulting in 1,500-1,800 cases annually. Price at the winery is $22.95/750ml.

The vines are moderately vigorous, so leaf removal in the fruit zone is a standard practice for better ripening and limiting fungus problems. This is done with a Collard E2200F leaf remover, distributed by Lakeview Vineyard Equipment in Niagara-on-the Lake, Ontario. The remover is tractor-mounted and has a double stream of air jets that use low pressure (15 PSI) to remove the foliage.

On average, Cabernet Franc is harvested around Halloween. The grapes at White Springs are machine-picked and destemmed while all the 16 Falls fruit is hand-picked and destemmed. Hallgren does not use analytical values for determining ripeness. He stated, "We look for a combination of how the berries are holding up, the coloring of the grapes, whether the shoots are still standing upright, while looking at the foliage color as well."

By harvest, ambient temperatures are very cool, so the grapes will

RAY POMPILIO

FIGURE 7 Morten Hallgren, winemaker and co-owner of Ravines Wine Cellars in Geneva, NY, in front of one of the winery's 20 HL (528 gallon) casks.

undergo two to seven days' cold soak until inoculation temperatures are achieved. Fermentation is done mostly in open stainless steel and several American oak open top fermenters. Four different yeasts are used for primary fermentation: Lalvin ICV D254 from Scott Labs, and F15, FX10 and F33, all from Laffort USA, based in Petaluma, Calif. Including cold soak, degassing and fermentation, with early punch downs and pump overs, there is typically a total of three to four weeks of skin contact. The new wine is pressed into stainless steel tanks to rest for three to seven days before going into the casks.

Why Oak Casks?

"One of the painful lessons I learned, when I came to the Finger Lakes, was you have to be super careful with oak. It's very easy to overwhelm red wines here," Hallgren noted. Initially, he employed a five-year rotation of smaller oak, but decided he wanted to eliminate the oak uptake in flavors and aroma. He went to larger casks because "I don't really want to have an oak character in the Cabernet Franc; rather I'm after having the right vessel to soften and develop with slow oxygenation while, at the same time, preserve the fruit

RAY POMPILIO

FIGURE 8 Ravines' casks come with a small plaque that identifies them as Fassbinderei Schön casks from Austria.


RAVINES

Ravines Wine Cellars rests on a hillside overlooking glacier-carved Seneca lake in the Finger Lakes wine region of New York State. Our cool growing season, sloped vineyard sites and moderating effects of the deep lakes create ideal conditions for producing vibrant, balanced and food-friendly wines.

We are a small, family-owned winery dedicated to the craft of fine, classical winemaking, wines that express the unique qualities of the vineyard sites, the growing season, and the wine maker's vision.

Ravines Cabernet Franc is *beautifully balanced* and *expressive* with aromas of ripe bramble fruit, baking spices, minerality and tannins softened during aging in French oak casks.

Produced and Bottled by:
Ravines Wine Cellars, Geneva, NY. 14456
315.781.7007 www.RavinesWine.com

CONTAINS SULFITES 750ml.

GOVERNMENT WARNING: (1) ACCORDING TO THE SURGEON GENERAL, WOMEN SHOULD NOT DRINK ALCOHOLIC BEVERAGES DURING PREGNANCY BECAUSE OF THE RISK OF BIRTH DEFECTS. (2) CONSUMPTION OF ALCOHOLIC BEVERAGES IMPAIRS YOUR ABILITY TO DRIVE A CAR OR

RAY POMPILIO

FIGURE 9 Ravines' 2020 Cabernet Franc was aged in their large French oak casks.

FIGURE 10 Back label on Ravines Wine Cellars Cabernet Franc wine.

aromas." He stressed that well-structured wine works best in casks, which allow the wines to soften moderately (**FIGURE 7**).

For the same reasons, he now also uses the 20HL casks for Pinot Noir. He thinks that both wines are better protected from harshness and oxidation in the casks. Each one holds 528 gallons and is much thicker—55mm thick, or about double the thickness of barrique staves—while having a bung hole not much larger than the smaller cooperage. Hallgren purchased eight casks in 2017 and eight more in 2018. They are produced in Austria by Fassbinderei VBS Schön GmbH and sold by Veneta Botti SRL in San Vendemiano, the Treviso region of Veneto, Italy (**FIGURE 8**). Half of the casks are made from French oak, and the rest are made from Austrian and Slavonian oak.

For the most part, malolactic fermentation is spontaneous in the cask and barrel part of the cellars. Hallgren does keep some Chr. Hansen ML cultures on hand, just in case there is a lagging ML fermentation. In cask, the wine is not stirred and is only topped off to refill any loss from evaporation. Additionally, a misting system has been built into the cellar to limit evaporation. This works in combination with radiant heating, which is necessary to complete malolactic fermentation. Typically, he leaves his Cabernet Franc in casks for a full 12 months, refilling the cask with the next year's wine within 24 hours of emptying the prior vintage. That transfer usually occurs between Thanksgiving and Christmas each year.

The finished wine goes into stainless steel tanks for four to five weeks before bottling. The popularity of Ravines Cabernet Franc requires a quick turnaround, with no older vintages available on a regular basis. The current release is the 2020 vintage, and the winery actually limits tasting of it at the winery so they can maintain a regular inventory for retail and restaurant sales (**FIGURES 9** and **10**). "We're hoping the new 5½-acre block can finally help to provide enough wine so we can have older vintages available, as well as serving it at our tasting room year-round," Hallgren said.

He is very happy with how the casks have worked out. Although his family in France used casks ranging from 50HL to 100HL, the 20HL size was the right one for Ravines' snug cellar confines that originally housed a dairy barn. Approximately equal in volume to nine barriques, these casks require less manual labor to fill and empty and provide an efficient use of cellar floor space. These physical attributes only add to the sensory value of the casks, and Hallgren expects them to provide all their benefits for many years to come. **WBM**

BUYER'S GUIDE

Select Oak Alternative Vendors

This list of select vendors is generated using the Wines & Vines Buyer's Guide. To see a full list of vendors please visit: *winesvinesanalytics.com/buyersguide*

Oak Alternatives Directory

				Chips	Cubes	Oak Powder	Segments	Staves
AFTEK	Rochester, NY	(585) 458-7550	*aftekfilters.com*	•				•
Agrovin USA	Rohnert Park, CA	(707) 782-6371	*agrovin.com*	•	•			•
Barrel Builders	St. Helena, CA	(707) 963-9963	*barrelbuilders.com*	•	•		•	•
Boswell Co.	San Rafael, CA	(415) 457-3955	*boswellcompany.com*	•			•	•
Respected family firm with 40+ years of experience supplying the wine industry with new French oak barrels, French oak alternatives and cellar equipment. Proud partners with fiercely independent Tonnellerie Bossuet, innovative Tonnellerie Vinea/ Eclat and the one man cooperage La Fabrique Eric Millard. History of introducing new cellar equipment to the American wine industry. Providers of top quality bungs since 1981. Glass wine thieves handblown in France. Aromoak by VINEA is the global leader for oak alternatives. Based in Marin County, CA and helmed by the second generation Janice Boswell.								
Bouchard Cooperages	Napa, CA	(707) 257-3582	*bouchardcooperages.com*	•	•		•	•
Artenova, Canadell, Chêne-oelogie, CLC Vasche, Drunk Turtle, Egginox, European Coopers Hungary, Master Coopers, Schneckenleitner, Tonnellerie Billon, Tonnellerie DAMY, Tonnellerie Maury, Vin et Terre								
Brick Packaging, A Saxco Division	Traverse City, MI	(866) 770-7600	*brickpackaging.com*	•			•	•
BSG Wine	Shakopee, MN	(800) 585-5562	*bsgwine.com*	•	•		•	•
Supplying select winemaking ingredients and equipment to North American wine and cider industries of all sizes. Specializing in innovative and value adding yeast, bacteria, tannins, enzymes, fining agents, oak adjuncts and filtration.								
Canton Cooperage	Santa Rosa, CA	(707) 843-4407	*cantoncooperage.com*	•	•		•	•
Creative Oak	Benicia, CA	(707) 752-6350	*creativeoak.com*	•	•		•	•
California-made French and American oak alternatives available in tank and barrel styles. Choose between fire or convection toasts in a variety of flavor profiles.								
Demptos Napa Cooperage	Napa, CA	(707) 257-2628	*demptosusa.com*	•	•		•	•
Elevage Global - Elevage Barrels	Napa, CA	(707) 804-9440	*elevageglobal.com*				•	•
Enartis USA	Windsor, CA	(707) 838-6312	*enartis.com/en-us/*	•			•	
ErbslÃ¶h Geisenheim GmbH	Geisenheim	(496) 722-7080	*erbsloeh.com/en*	•				•
G3 Enterprises	Modesto, CA	(800) 321-8747	*g3enterprises.com*	•				•
Gusmer Enterprises	Fresno, CA	(559) 485-2692	*gusmerwine.com*	•				
Gusmer offers a full line of solutions for the wine industry including fermentation and processing aids, filtration media and equipment, analytical products and instrumentation, processing equipment and analytical laboratory services.								
GW Kent	Ypsilanti, MI	(734) 572-1300	*gwkent.com*	•				
Innerstave	Sonoma, CA	(707) 996-8781	*innerstave.com*	•	•	•	•	•
Laffort USA	Petaluma, CA	(707) 775-4530	*laffortusa.com*	•				•
MagreÃ±Ã¡n Toneleria	Cloverdale, CA	(707) 633-4254	*magrenan.es*	•	•		•	•
NadaliÃ© USA	Calistoga, CA	(707) 942-9301	*nadalie.com*	•	•	•	•	•
New World Winery Equipment Enotools	Springfield, MO	(607) 426-0434	*enotools.com*	•	•			
Oak Infusion Spiral by The Barrel Mill	Avon, MN	(800) 201-7125	*infusionspiral.com*	•	•		•	•

BUYER'S GUIDE

Select Oak Alternative Vendors

Oak Alternatives Directory

				Chips	Cubes	Oak Powder	Segments	Staves
Oak Solutions Group Through sensory science and creative technology, Oak Solutions Group offers two product lines with unparalleled selection: evOAK forward-thinking oak products and tru/tan enological tannins.	Napa, CA	(707) 259-4988	*oaksolutionsgroup.com*	•	•		•	•
Oak Wise	Lodi, CA	(209) 224-5353	*oak-wise.com*	•	•		•	•
OCI	Waverly, OH	(740) 947-4159	*www.oakchipsinc.com*	•	•		•	•
Oenofrance USA	Petaluma, CA	(707) 971-8270	*oenofrance.com/us*	•	•		•	•
Oenosylva	Cloverdale, CA	(707) 224-2377	*oenosylva.com*	•	•		•	•
Quality Wine Barrels Cooperage Because winemakers know: quality barrels, make quality wine. New French Oak – barrels, staves and additives. Used high end once filled barrels. Neutral red and white wine barrels. Used wine barrel racks. Quality Wine Barrels has been in business for over 16 years specializing in providing certified for refill used wine barrels to the wine, beer, cider and the distillery industry.	Arroyo Grande, CA	(805) 481-4737	*qualitybarrels.com*	•				•
Quercus Concepts	San Francisco, CA	(707) 775-7065	*oakalternatives.com*	•	•		•	•
Saveurs	Cloverdale, CA	(707) 224-2377	*saveurs-saury.com*	•	•		•	•
Scott Laboratories For almost 90 years, Scott Laboratories has provided fermentation, filtration, equipment and packaging products to the wine, brewing and distilling industries. We believe in education, honesty, and doing the right thing.	Petaluma, CA	(707) 765-6666	*scottlab.com*	•	•	•	•	•
Seguin Moreau Napa Cooperage	Napa, CA	(707) 252-3408	*seguinmoreaunapa.com*	•	•		•	•
Squarrel Barrels	Minnetonka, MN	(855) 773-2337	*squarrelbarrels.com*	•	•			•
StaVin StaVin's barrel fingerprinting project integrates quantitative scientific analysis of barrel extractives with qualitative sensory panels of leading winemakers, enabling us to capture the essence of desired barrel profiles within tanks.	Sausalito, CA	(415) 331-7849	*www.stavin.com*	•	•		•	•
TN Coopers	Sonoma, CA	(707) 996-5600	*tncoopers.com*	•	•	•	•	•
Tonnellerie Ã"	Benicia, CA	(707) 752-6350	*Tonnellerieo.com*	•	•			•
Tonnellerie de Jarnac	Napa, CA	(707) 332-4524	*tonnelleriedejarnac.com*	•				•
Tonnellerie Radoux USA	Santa Rosa, CA	(707) 284-2888	*radouxcooperage.com*	•	•		•	•
Trust Cooperage	Jupiter, FL	(561) 540-4043	*trustcooperage.com*	•	•		•	•
Vadai Barrels Vadai Wine LLC	San Gabriel, CA	(626) 289-8250	*vadaiwinebarrels.org*	•	•		•	•
Vicard USA Driven by the passion of his work and born from five generations of expertise, Jean-Charles Vicard and his team are crafting, quality barrels, casks and tanks using the best essence of oak for winemakers around the world.	Napa, CA	(707) 699-1103	*groupe-vicard.com*					•

WINEMAKER TRIAL

Trialing Modern Cooperage Barrels to Ensure Brand Style Consistency

Consulting winemaker explores the consistency of Modern Cooperage Stainless Steel Barrels during Aging

Bryan Avila

Bryan Avila is a formally trained enologist, seasoned commercial winemaker, ACUE Credentialed Educator and Co-Founder of the Vintners Institute. The Vintners Institute is a grassroots, next-gen effort to bring wine industry producers and allies together, online and in-person, to Innovate with nature, Educate the workforce, and Inspire good leaders. A freelance writer for *WBM*'s Winemaker Trials, Bryan would love to hear what you are doing in your vineyard and winery to overcome challenges, grow better grapes and make better wine. Contact: *bryan@vintnersinstitute.com*

Kale Anderson, Consulting Winemaker, Kale Wines, grew up in Sonoma County, where he was exposed to the wine industry by a community that encouraged creativity, love for the outdoors, and stewardship of the land. Having graduated from UC Davis' Plant Science program with a BS degree in Viticulture and Enology, he worked at Colgin Cellars, Terra Valentine Winery, Cliff Lede Vineyards and Pahlmeyer Winery. While Director of Winemaking at Pahlmeyer, Kale became one of the youngest winemakers to earn 100 points from Robert M. Parker, Jr. for the 2013 Pahlmeyer Cabernet Sauvignon Pièce De Résistance, the first perfect score awarded to Pahlmeyer in their thirty-year history. After fifteen vintages, Kale began consulting in 2016.

PHOTO 1. The Modern Cooperage Barrel fits on standard rack mixed in with wood cooperage

BACKGROUND:

Grapes, barrels and microbiology are the three major players when it comes to shaping a wine style for a brand. Winemakers take great care in sourcing grapes that fit their wine program's needs and manage fermentation so that the wrong microbes don't obscure the terroir of the grapes while adding bouquet and dimension to the palate. While the vintner or the somm may tell a consumer that "these wines are made in the vineyard", the winemaker knows that all wines are made in containers better known as "cooperage" in the wine industry.

While the term cooperage has the connotation of solely oak barrel usage, this term has expanded to include tanks and barrels composed of wood, concrete, stainless steel and wine-grade plastics. Each of these materials influence the wine differently and provide the winemaker a wide range of stylistic options based on their unique abilities.

From crush to cork, we're here for you.

Yeast & Bacteria • Fermentation Nutrition • Oak & Wine Finishing

Filters • Filtration Systems • Crossflow

Crush Equipment • Cellar Equipment • Cork & Wine Closures

A trusted partner for more than 80 years.

North American winemakers and wineries have trusted Scott Laboratories for our technical expertise and best-in-class products for generations. We remain steadfast in our commitment to support and assist winemakers and wineries through every product decision and winemaking challenge for many generations to come.

Learn. Explore. Buy. It's easy at ScottLab.com

SCOTT LABORATORIES

Committed to education, honesty and doing the right thing since 1933.

PHOTO 2. 2-inch TC-style bung for sampling/cleaning access

- Oak imparts toasted oak characters with subtle nuances imparted by the forest, seasoning process and toasting method and is the original form of micro-oxygenation,
- Exotic woods such as cherry, acacia, chestnut impart stylistic nuance,
- Concrete is known for imparting minerality on the palate,
- Stainless steel imparts nothing but preserves what it contains.

While the wine takes residency in its fermenter and ultimately its aging vessel, many compounds are finding their new equilibrium as ethanol has replaced what was once sugar. Malolactic bacteria may impart buttery characters, yeast cells may be allowed to settle and lyse creating mid-palate texture and bread-like character, porous containers may allow for micro-oxygenation which soften tannins, and so on. These are the tip of the iceberg regarding the processes a winemaker can create in barrel.

The ability to make all these elements come together into something delicious is what separates the scientist from the winemaker. A good winemaker can manage these aspects to make a tasty beverage. However, even a delicious wine without a brand is just a commodity. A great winemaker uses these attributes with precision to make well-balanced beverages that radiate a sense of personality and express a sense of place that resonates with the brand.

Most customers don't care about any of this stuff. Once a customer connects with a brand they are more likely to purchase a second glass and buy a case at the winery and even join the wine club. Consistency matters.

This article discusses a consulting winemaker's methodical approach to evaluating a new technology which can reduce the cost of goods by reducing the number of new barrels required by supplementing them with a stave system without a loss of quality or consistency.

PHOTO 3. MC Barrel with must filling door removed and handle attached

TRIAL OBJECTIVE:

This trial evaluated the use of Modern Cooperage (MC) barrels. These are 75-gallon stainless steel barrels which contain a center shaft that is mechanically sealed. This shaft contains both stave attachment sites as well as a baffle that acts as a battonage for lees stirring. A crank is applied to the shaft that allows access to turn the baffle.

TRIAL DESCRIPTION:

This trial evaluates six barrels of Chardonnay that will ultimately be blended into the Trinitas brand. Four of these barrels are Modern Cooperage barrels that were set up with the identical load of 20 staves that are purported to mimic a new barrel as stated by the manufacturer. These four barrels were compared to one new French Oak barrel with a medium-long toast profile and one neutral oak barrel to provide a point of reference for the tasting notes. This wine was tank fermented prior to barreling down.

1. Modern Cooperage replicate 1 – Quercus Medium-Long toast
2. Modern Cooperage replicate 2 – Quercus Medium-Long toast
3. Modern Cooperage replicate 3 – Quercus Medium-Long toast
4. Modern Cooperage replicate 4 – Quercus Medium-Long toast
5. Neutral Oak barrel (2019)
6. New 2021 Meyrieux, Grand Selection Medium Toast

CONCLUSIONS:

For comparison, Kale ran wine chemistry panels on each barrel within the trial and added dissolved CO2 and tasting notes on June 13th of 2022, the six-month mark. The raw data is as follows:

PHOTO 4. Close up of lees-stirring crank

TAKE AWAYS PER KALE ANDERSON:

- The Modern Cooperage barrels retained the CO_2 and helped to protect the delicate varietal aromas.
- The retained natural CO_2 presence means that little or no additional CO_2 will be needed to be added prior to bottling.
- The core wine chemistries, sugars, acids, alcohol, were essentially the same.
- All barrels in the trial all received the same sulfite additions. Free and Total SO_2 levels were slightly lower in the barreled samples.
- MC barrels were very effective at battonage based on a visual assessment of turbidity.
- MC barrels do not deliver the creaminess of the oak barrels but preserve fresh fruit character very well.
- While these barrels did not effectively replace the oak barrel profile, they are a great complement when blended together.

POST-MORT Q&A [THE INTERVIEW QUESTIONS]

1. What was the motivation to conduct a trial using Modern Cooperage barrels? Why were you interested in studying these next-gen stainless steel barrels that fit oak inserts with a stirring system?

Consistency is important. Before using this product for the first time I wanted to check the variability between barrels using the same barrel set up. It is important to me that this barrel and stave system can deliver a predictable flavor profile. We typically use quite a bit of SS for this style of Chardonnay anyway.

TABLE 1: Six-month chemical and sensory results

ID	RS g/L	TA g/L	pH	Alc %	Malic	VA g/L	FSO2 mg/L	TSO2 mg/L	CO2 mg/L	Kale's Tasting Notes
MC 1	1.6	5.6	3.71	14.3	0	0.51	21.5	88	1133.43	Modern Cooperage 1 - Higher NTU, slightly hazy. Super fresh - citrus, primary flavors, minerality, some saline/salty acidity.
MC 2	1.7	5.6	3.71	14.28	0	0.51	22.7	88	1102.35	Modern Cooperage 2- Higher NTU, light in color/slightly green, some stave flavors, freshness, some brioche/toasted bread
MC 3	1.6	5.6	3.71	14.28	0	0.5	21.9	86	1070.22	Modern Cooperage 3 - most clear of the SS Barrels, most evolved flavors - slightly tropical. Still snappy dissolved CO2 - slight spritz
MC 4	1.7	5.6	3.71	14.26	0	0.52	21.9	89	1086.33	Modern Cooperage 4 - Most barrel flavor. Saline in mouthfeel. Thinnest texture of SS Barrels
Neutral Oak Barrel	1.8	5.7	3.69	14.25	0	0.57	15.1	85	760.28	2019 Barrel - Clear and light in color. Very little barrel, but showing some age and petrol. Some tropical and carmelized flavors - creaminess evolving
2021 Meyrieux, Grand Selection Medium Toast	1.7	5.6	3.7	14.25	0	0.51	15	79	692.26	2021 Barrel - Darkest in color and flavor. More aged flavors. Francois Feres signature in nose and palate. Most evolved. Pie crust, creamy.
	Pretty much all the same	Pretty much all the same	Pretty much all the same	Barrel alcohols track slightly lower	All ML dry	The neutral barrel is slightly higher but still low	The FSO2 and TSO2 numbers seem to balance out so that the difference between wood and stainless is negligable.	The FSO2 and TSO2 numbers seem to balance out so that the difference between wood and stainless is negligable	The porous wine barrels do not retain the carbon dioxide as well as the stainless steel barrels	Very tight flavor profile within the stainless steel

2.Which grape varieties did you study? Why did you pick those?

I looked at my Napa Valley Chardonnay for my Trinitas Cellars client. We are looking at using more stainless steel with the Chardonnay and the Modern Cooperage barrels seemed like a good bridge between an oak barrel and pure stainless. This barrel is a perfect candidate for this transition.

I'm also experimenting with a Grenache-Mourvèdre blend for my Kale brand and with Cabernet Sauvignon and Grüner Veltliner for Trey Eppright, the guy that bought the old Dutch Henry Winery.

3. How did you design your experiment? What parameters did you decide on and how did you measure them?

This was an aging trial this time. I tank-fermented my Chardonnay until it was sugar and malic dry then barreled down the trial. Since my goal was to check the variation between barrels, I loaded four barrels with exactly the same staves in the manner that Modern Cooperage recommended to mimic new barrel aging.

There are a lot of moving parts with this barrel system so I needed to prove it to myself and the cellar crew that they were worth the expense and operation using a barrel with a mechanical seal and crank. I put these up against a new Meyrieux Medium toast barrel and a neutral barrel so that I would have a frame of reference for how close these could come to aging in an actual oak barrel.

4. Who else worked with you on this trial? What were you and your team's initial hypotheses before beginning the experiment?

This study was conducted at the Wine Foundry custom crush facility in Napa. Modern Cooperage owner, Jon Roleder, supplied us with some free barrels to trial in trade for wine samples that they could use to show other winemakers. My new Assistant Winemaker for Kale Consulting, Jane Jiang, shared her palate on this trial as well. I really value her perspective.

5. Did you encounter any difficulties during the trial? If so, how did you address these complications?

Honestly, not so much for the Chardonnay. That trial was straight forward. There are little details like making sure that the operational details are planned out to make sure that things get done consistently. For example, making sure that we trained the cellar staff on proper barrel stirring and remembering to stack the barrels where they were accessible. All those little details have a big impact on quality.

The red ferments however were another story. We quickly discovered that we needed a longer handle for the red fermentations. This extra leverage helped to overcome the resistance when the cap forms in the barrel. Jon of Modern Cooperage was super responsive and had a new handle welded and ready-to-go asap. In fact, I think that's part of their product now.

6. What was the most important outcome of the trial that winemakers can use?

Fantastic consistency. It can satisfy your stainless-steel component for your whites beautifully and possibly dial in your oak influence for your whites. It retains the freshness of the aromas too. You can see this in the higher CO2 numbers in the lab analyses. This keeps us from having to add it later. I think that the CO_2 that comes from the yeast has more fermentation bouquet than the type you sparge in later just before bottling.

There are just so many ways to use it. I am slowly integrating more and more of the Modern Cooperage barrels into my clients' wines and my own because the way in which you use it for each is different. They are the Swiss

Army knife of barrels. Is it going to work in the cellar? Can we stack it ok with wood and stainless? Can I use standard barrel racks? How does it work with the handle?

7. Were the results as you predicted, or did anything unexpected occur?

In general, the MC barrels had slightly higher NTUs and were also fresher in aroma than the barrels. Very fresh, clean and less evolved. This means that the wines taste younger. Saving the youth for the Chardonnay so that it does not taste too creamy or fat which is all to easy to do with California whites.

In earlier experiments. I didn't expect how efficient the paddle was for stirring the lees. It's extremely efficient. So much so, that I'll just rotate it once. Just one, full rotation slowly perfectly suspends the lees. We got this dialed in with our previous work on Grüner Veltliner where we found that we were stir happy. Although, we can't contribute it to exclusively Modern Cooperage barrel because it did hang past the Cabernet in the vineyard. I was also blown away by how much I liked it on the Grenache. We'll certainly be doing that more.

8. What was your and your team's impression of the resulting wines following aging? Did you or they have a favorite between?

We were very happy with the consistency between barrels and will expand this barrel program. We want to get the most out of this new tool because it is so flexible with style. Its always nice to have a new tool in the wine making tool belt. We are really excited about the results. I wouldn't change over to Modern Cooperage all at once but I'm enjoying exploring the system. We can also use different stave types; thinner, thicker, concrete staves and of course French and American with varied toast levels.

9. Do you plan to conduct a follow-up trial to re-test these results?

In the future, I would like to ferment on the staves. We will look to vary the number and type of staves. There are also newer options that will have channels for temperature control that can be used in a standard warehouse assuming you have the means to hook them up to a fire and ice unit. I also think we will find our sweet spot for the red fermenter using a larger format barrel that would fit on puncheon racks.

10. What are your next steps with the technology?

I've been using stainless barrels in winemaking for quite some time. Especially for Sauvignon Blanc and Chardonnay and now some varieties that are new to me like Grenache Blanc, Grüner Veltliner. Everything is small-lot, everything is blended and everything is top-quality. Lately, I find myself using stainless steel barrels for stylistic reasons. Blending lots aged in stainless, especially in whites yield a wine with more restraint. More and more I'm going the direction of lower alcohol and higher acid. More concrete too! Of course, we still buy a lot of French oak but the stainless gives you more freshness and brightness which work well for blending. I represent a lot of small boutique producers so most lots are very small and lend themselves to barrel-sized blends. Their design lends themselves to more precision and ability to dial-in small lot wines. These barrels give you a lot more options and a lot more control in one package. Being a small producer means that I have to really watch my costs and the precision I get from this platform helps me do just that. One of those rare win-wins.

PHOTO 5. Shaft and stave retaining wire

I've already embraced the Modern Cooperage barrels but we plan to continue experimentation to explore different styles. For whites in general this system is a slam dunk and now, I'm really excited about trying it with my Avaia Pinot Noir next. The price difference between the Modern Cooperage barrel and a standard stainless steel wine barrel is not much but the functionality difference is like having a Tesla versus a stripped down Civic. The flexibility of temperature control, a lees stir paddle, varying stave types and red fermentation is huge. Not to mention that they hold 75 gallons versus the 60 gallons you get in a standard wine barrel. That's a gain of 25% volume per square foot over wood.

I'm constantly thinking of new ways to use these to make new and exciting wine styles too. The flexibility of this barrel system really raises the bar on quality through precision. You can stir lees without oxidation, add any combination oak staves and even make red wines in these barrels. It also doesn't hurt that we are saving money in the long run either. Of course, cost savings is good but that is secondary to making the best wine possible. **WBM**

PHOTO 6. Close-up of stave retaining wire and stave clips

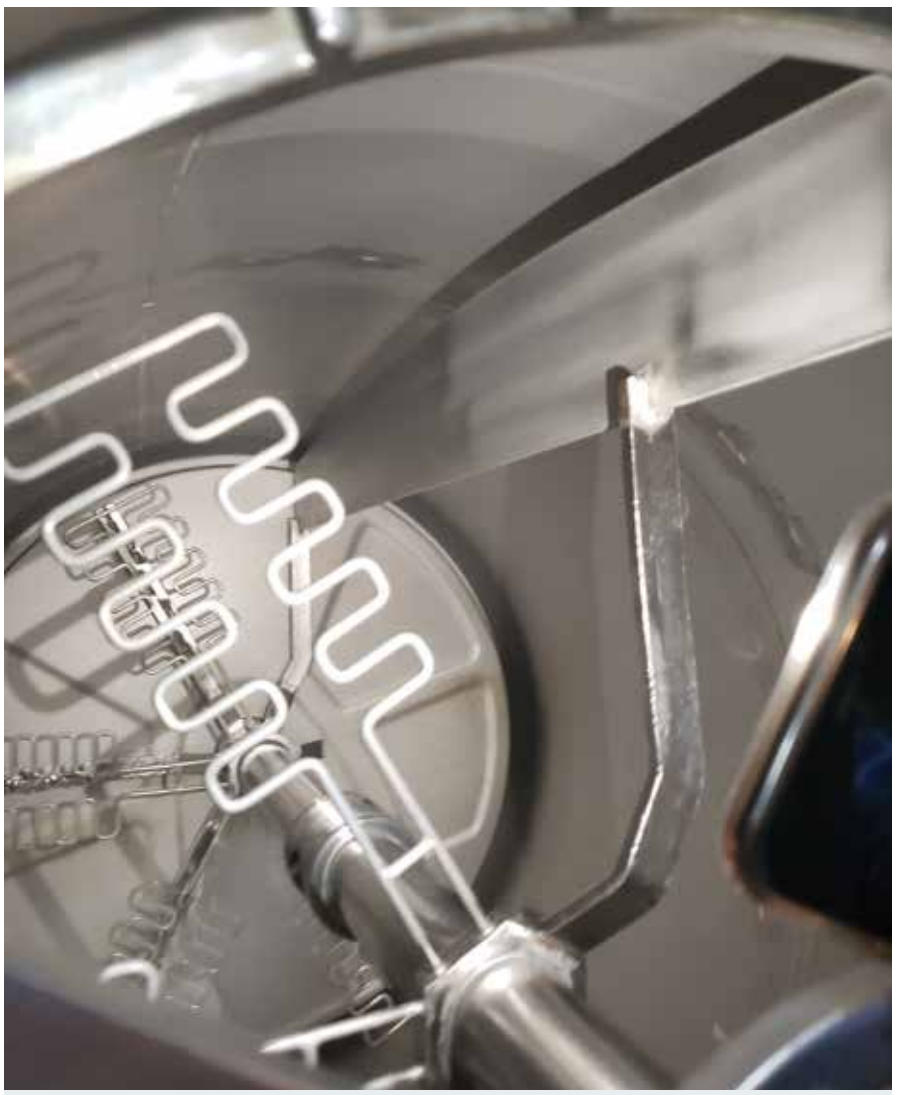


PHOTO 7. Lees baffle

WINNOVATION AWARDS
WINNER 2020

air miXing™
MODULATED INJECTION

PARSEC
LEADER IN ENOLOGICAL AUTOMATION

The innovative wave system to break up the cap in red wine vinification

Air mixing™ PATENTED 2014
IT 1427181 - EU 3094715
US Pat. App. US 2017/0321175 A1

Pumping Over ?
When the cap is 6-10 feet, this is entirely ineffective

Other pressure or air bubble solutions?
Complex, expensive and often ineffective

A new & effective method for tank maceration for any volume.

A new patented solution for wine cap management that has been revolutionizing enology since 2014.

SAEN 5000 PLATFORM IS AT THE HEART OF EVERYTHING

The first bus multifunction, multiprocessor, integrated, modular and expandable system, designed for oenology, for total and automated cellar control.

SAEN 5000

SAEn5000, the only process oriented platform.

www.parsecsrl.net | sales@parsecsrl.net

Distributed by:

atpgroup

ATPGroup has multiple locations across the U.S. to better serve you. Tel: (707) 836-6840 | enology@ATPGroup.com | www.ATPGroup.com

PRACTICAL Winery&Vineyard

Managing Free Sulfur Dioxide in Barrels

An improved understanding of the behavior of free SO_2 in barrel ageing wine can help improve wine quality and reduce the risk of costly downgrades

David Sommer

David Sommer is chief technical officer at BarrelWise Technologies, a Vancouver, BC based company developing new technology for winemakers. He has worked in the biomedical engineering, fluid dynamics, chemistry and clean energy fields and now focuses on deploying cutting edge research in science and engineering into the winemaking space to improve wine quality and winery processes.

SULFUR DIOXIDE (SO_2) HAS seen broad use in winemaking for centuries and has been used in its present-day salt form since the 1920s.[1] SO_2 is particularly important in barrel ageing where the surface-area-to-volume ratio, permeability of the vessel, and opportunities for microbial spoilage are all increased relative to tank or bottle.

By acting as both an antioxidant and antimicrobial, SO_2 reduces risk and improves consistency in a barrel program. Because of its participation in multiple chemical and microbiological processes, a mechanistic understanding — and careful management — of free SO_2 reactions is central to controlling risk and maximizing wine quality in a barrel program.[2,3]

Barrel Downgrades and the Role of SO_2

Barrels often contain a winery's most valuable wines, rendering mistakes that potentially lead to lost or downgraded product to be very costly. An example of the potential revenue impacts of barrel downgrades to a winery are illustrated in **FIGURE 1**. Fruit for a top tier wine can be several times more expensive than the fruit destined for lower tiers — whether purchased from a grower, or when considering the impact of farming costs and yields when growing for premium quality compared to lower quality.

After a successful ferment, the homogenous wine batch is split from large tank into many much smaller barrels. Each individual barrel progresses on a unique trajectory throughout the ageing cycle with variations in oxygen exposure, microbiome, oak character, temperature exposure, and a multitude of additional factors.

In preparation for bottling, the winemaking team strives to build the best possible blends that maximize quality, revenue, and market fit. In the example shown in **FIGURE 1**, if one single barrel originally intended for a top-tier blend is relegated to a mid-tier SKU, it would decrease the revenue opportunity of that barrel by $13,800. Similarly, downgrading a lower tier barrel that does not make the quality and stylistic goals of that SKU into a bulk program, could reduce that barrel's revenue opportunity by $3,900. These downgrades are most costly in higher tier wines where each individual barrel holds so much valuable product.

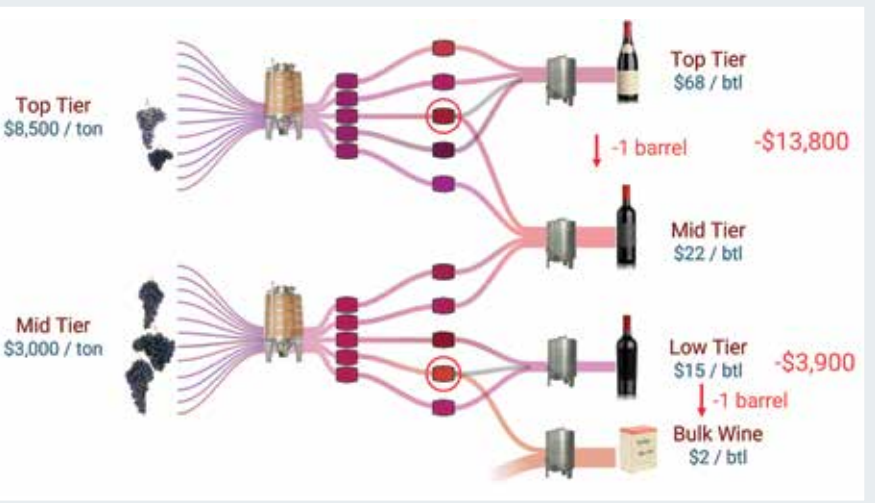


FIGURE 1 Typical process flow of a barrel aged wine program with example prices of fruit and bottle sale prices to highlight the monetary impact a barrel downgrade can have for a winery.

Given its central role in protecting wine from oxidation and microbial impacts, suboptimal free SO_2 concentration is often a contributing cause of wine quality loss during barrel maturation, which result in barrel downgrades. Of course, not all downgrades are directly caused by free SO_2; some may be caused by unexpected oak profiles, stylistic decisions, issues with product-market fit, or other factors. Bearing this in mind, free SO_2 is certainly known by the winemaking community to play a major role in maintaining quality and reducing risk in barrel ageing programs. Appropriate concentrations of free SO_2 mitigate the growth of spoilage bacteria and deleterious yeast strains, such as Brettanomyces, and inhibit oxidation pathways of desirable aromatic compounds.[2,3,4]

SHAPEART

SHAPEART: *Dare to be different !*

Amcor, the largest range of capsules and closures for Wine, Sparkling and Spirits.

Contact us at **+1 707-257-6481**
info.capasules@amcor.com www.amcor.com

amcor

SOFTGARD
Tin

CAPGARD
Aluminium

ROLLTOP
Polyaminate

STELVIN
The original wine aluminium closure

HOOD
Tin
Polyaminate

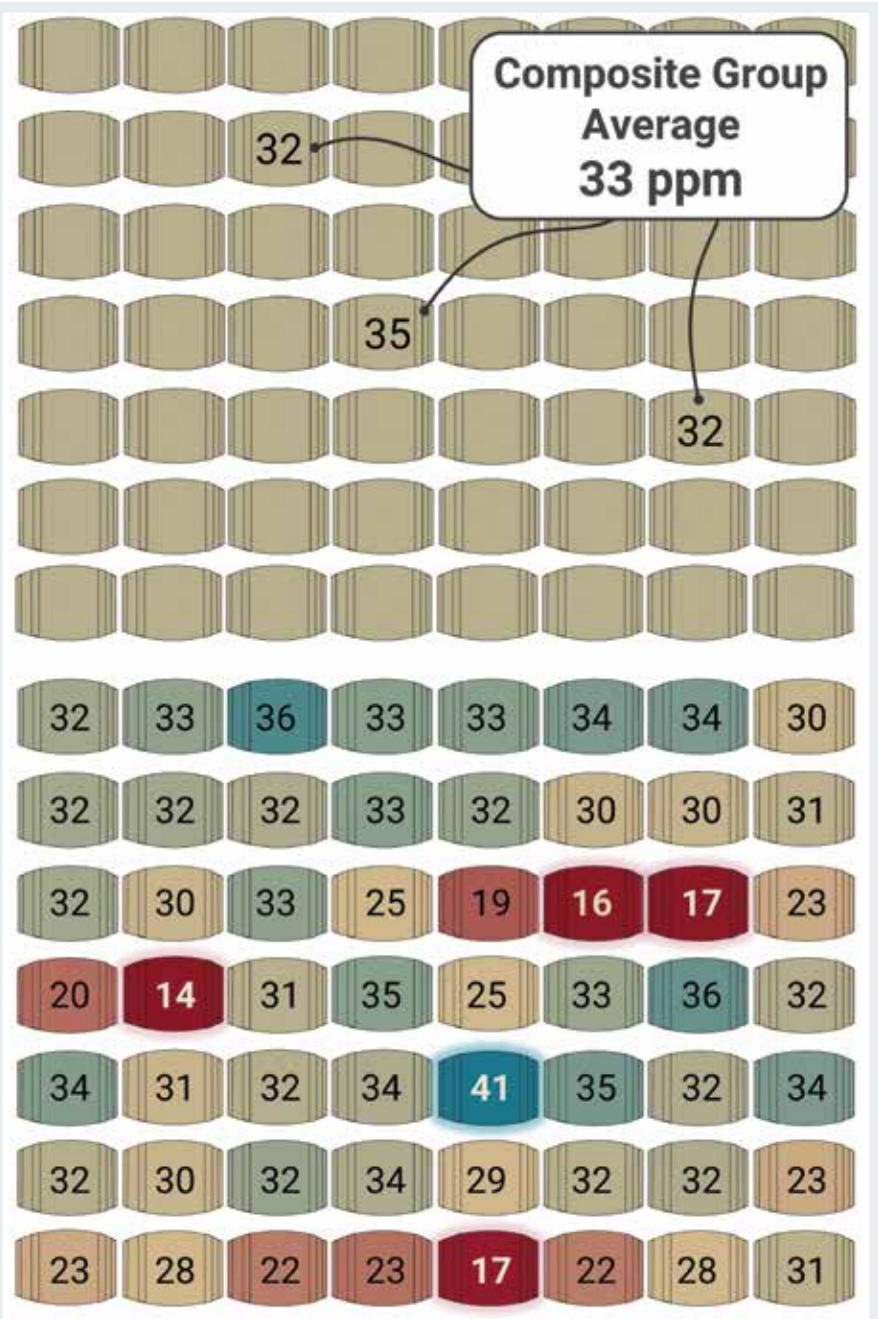


FIGURE 2 Free SO_2 concentrations (ppm) of a 56-barrel group of Merlot. A typical group-level approach to free SO_2 measurement practiced in most wineries (top) as compared to a barrel-by-barrel measurement of the actual free SO_2 concentrations in each individual barrel (bottom).

Free SO_2 Varies from Barrel to Barrel

Despite free SO_2's impact on wine quality in a barrel program, most barrels are never explicitly sampled and measured. Almost all wineries with more than a few dozen barrels only sample free SO_2 from a small subset of barrels within each barrel group. These samples are typically blended to form a composite sample and analyzed for free SO_2 concentration, providing the winemaker with an estimate of the free SO_2 concentration of every barrel within that group.

Making sulfite addition decisions with the measurements obtained from a composite sample of a few barrels in a group tacitly assumes that all barrels in that group contain about the same concentration of free SO_2. The example in **FIGURE 2** shows a 56-barrel group of Merlot, six months into the ageing cycle. Three of the barrels were sampled to form a composite group average, leading the winemaking team to conclude that the group is at 33 ppm free SO_2 concentration. Individual samples were drawn from each barrel in the group and analyzed for free SO_2. The results, shown in the lower panel of **FIGURE 2**, suggest that this assumption of homogeneity is far for from reality, with some of the barrels having less than half of the free SO_2 as others within the same group.

The data from this barrel group showed a significant level of variance in free SO_2 concentration, but is this specific to just this group of barrels? To better understand barrel-by-barrel variance, more than 2,000 barrels were analyzed from 60 different barrel groups, in 16 different wineries. The wineries ranged in size from 100-barrel to 6,000-barrel programs and were located in several different wine regions across Canada and the United States.

FIGURE 3 summarizes the results of all the measured SO_2 data from this study, displayed as distributions of the molecular SO_2 concentration of each barrel in the group. Molecular SO_2 concentration is used in lieu of free SO_2 as it accounts for the difference in pH for each wine. These data suggest that broad variance in free SO_2 concentrations is common, if not ubiquitous.

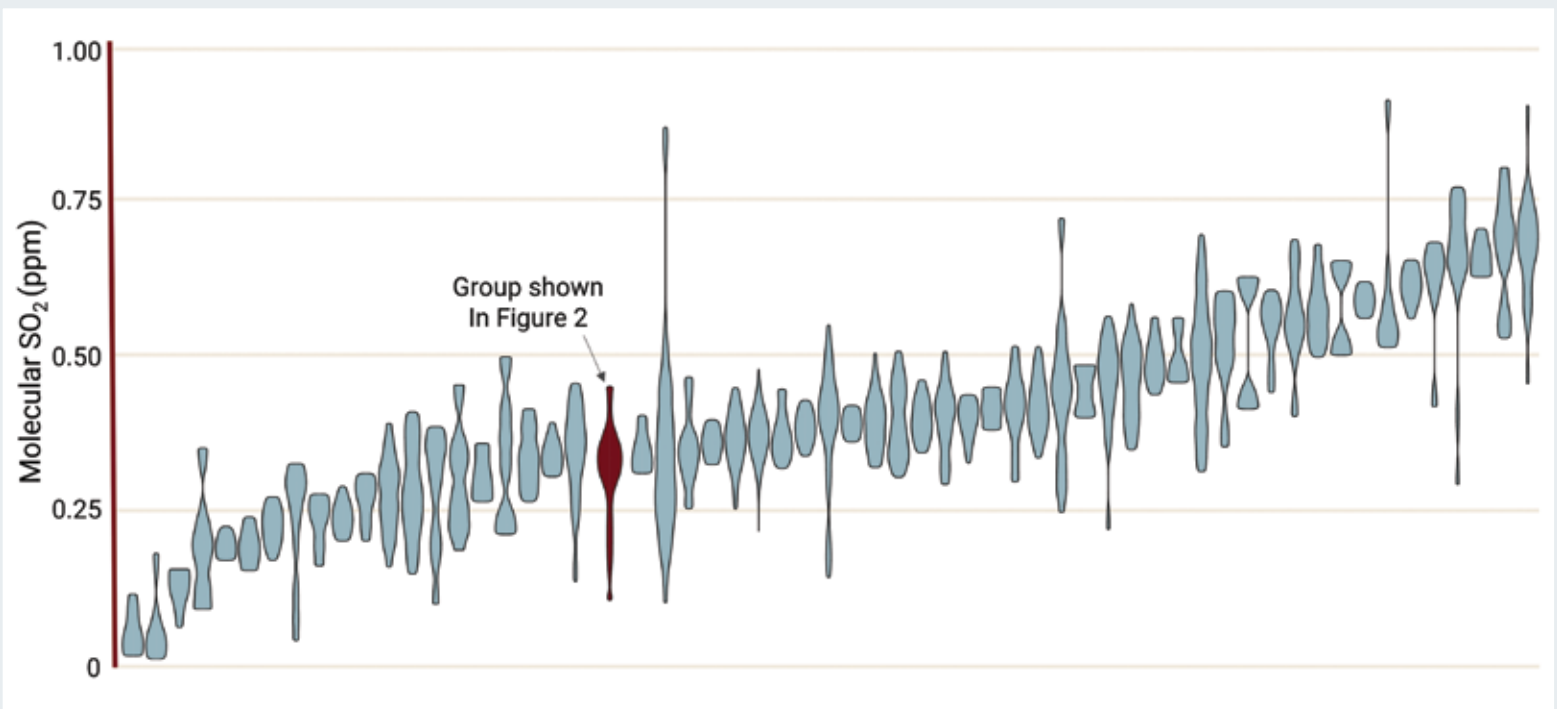


FIGURE 3 Distribution of molecular SO_2 concentration for 60 different barrel groups from 16 different wineries. The width of each distribution corresponds to the number of barrels within that group with a given concentration of molecular SO_2. Note the group shown in red corresponds to the same group of barrels shown in FIGURE 2.

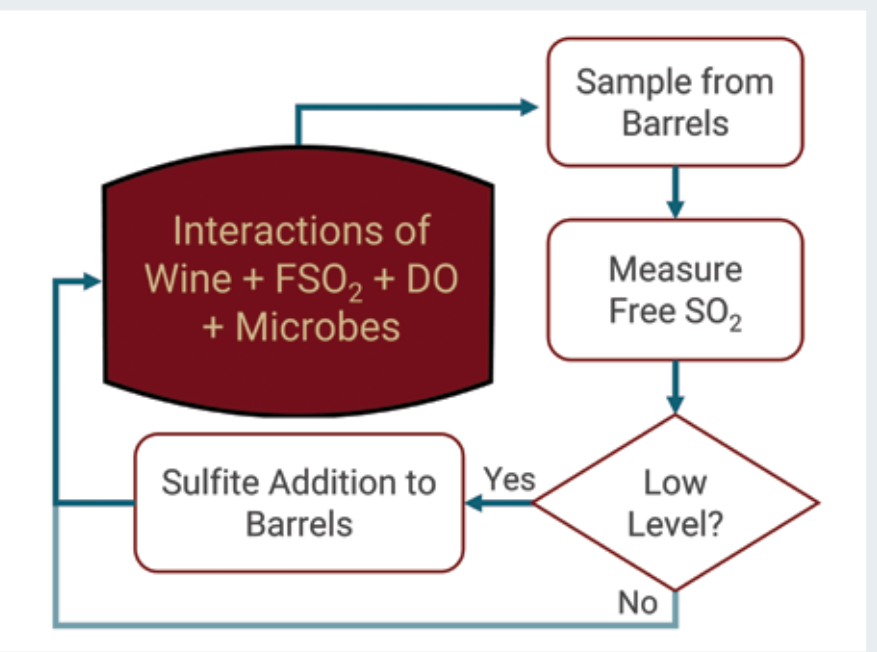


FIGURE 4 Free SO_2 management activities completed by a winemaking team to maintain closed-loop control of free SO_2 levels.

Managing Free SO_2 In-Barrel

What would cause barrels of the same wine, in the same cellar, sitting side-by-side, to have different concentrations of free SO_2? There are many different factors to consider, which can broadly be broken down into two groups: the biochemical interactions within the barrel and the barrel management activities completed by the winemaking team; together, these create a feedback loop for managing free SO_2, shown graphically in **FIGURE 4**. Samples are drawn from barrels, the samples are analyzed for free SO_2 concentration, this information is passed to the winemaking team, and a decision of whether to add sulfites is made. A detailed discussion of each process and the impact on free SO_2 management is discussed below.

Sampling and Measuring Free SO_2

If a winery is only sampling a small number of barrels within a group, the decision of which barrels to select for sampling can impact the information the winemaker has available to make decisions. This can ultimately lead to different actions being taken, depending on which barrels are selected by those performing the cellar work.

FIGURE 5 shows the same 56-barrel group discussed previously. For the example barrel group shown, composite samples taken from three different subsets of barrels lead to concentrations of 20 ppm, 32 ppm, and 36 ppm. If a winemaker receives information from the lab showing the barrel group is at 36 ppm, they may take a different course of action than if they are informed it is at 20 ppm – perhaps no sulfites would be added in the former case, but a significant sulfite addition would be requested in the latter case. This means the very same barrel group could end up having almost twice the sulfite levels depending on which of the barrels happen to be selected for sampling.

It is, of course, understandable why a winemaker would elect to only sample and analyze a subset of barrels within a group. If using aeration-oxidation for SO_2 measurement, each sample requires 15 minutes to analyze in addition to the labor required to access barrels, pull samples, and correctly label and

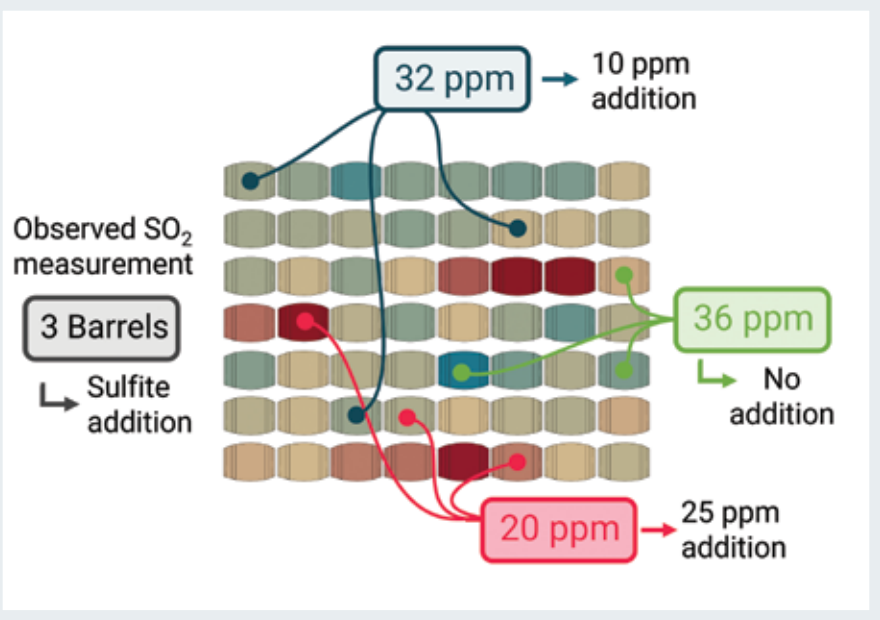


FIGURE 5 Depending on which three barrels are sampled from this group, the winemaking team receives very different information on the SO_2 concentration of the group. Different samples may lead to different sulfite addition decisions being made.

track the resulting measurement data. For any winery with more than a few dozen barrels, this would quickly become both tedious and impractical.

Should a winemaker decide to sample a bigger percentage of barrels in a group, or move to barrel-by-barrel analysis, an appropriate free SO_2 measurement method is needed. There are several free SO_2 measurement methods available that vary in cost, measurement time, precision, and susceptibility to wine matrix effects.

A thorough comparative analysis of free SO_2 measurement methods is beyond the scope of this article but the key factors to consider when choosing a free SO_2 measurement method for barrel management are speed and accuracy. The more samples that can be processed, with sufficient accuracy, the better information the winemaker has available to make decisions and identify issues before wine quality is impacted. No matter what analysis method is selected, careful documentation of free SO_2 readings can allow a winemaker to detect unexpected changes in free SO_2 levels and identify patterns that may indicate an underlying oxidative or microbial issue.

Sulfite Additions to Barrels

Once the winemaker has received the free SO_2 concentration information, they will decide if a sulfite addition is required by comparing the measured concentration to a desired setpoint. The SO_2 setpoint of a group will depend on the grape variety, pH, time of year, goals, and risk-tolerance of the winemaking team. Ideally, each barrel receives the specific sulfite addition required to move the concentration to the setpoint. The variance in free SO_2 concentration within a group can be mitigated by sampling and measuring more barrels and performing customized sulfite additions, particularly to target outliers.

The most common means of adding sulfites to barrels are powdered potassium metabisulfite (KMS) or sodium metabisulfite (SMS) salts, or an aqueous solution made from these salts. The compounds are also available in pre-measured tablets which typically contain a carbonate to release carbon dioxide gas bubbles when dissolved in wine (i.e. effervesce), designed to encourage mixing of the sulfite through the wine.

Stratification of Sulfites in Barrels

When sampling barrels in the winery, we observed it could sometimes take days or weeks for free SO_2 concentrations to rise after a sulfite addition. To investigate this in more detail, an experimental facility was created with oak barrels (228L American Oak) instrumented with taps at seven different locations inside the barrel, allowing for samples to be drawn and analyzed for free SO_2 concentration with the aeration-oxidation method. The goal of this experiment was to measure how sulfite concentrations develop throughout the barrel after an addition is made.

Two common methods of sulfite additions were considered: addition by 10 percent free SO_2 aqueous KMS solution, and addition with pre-dosed effervescent KMS tablets (Campden tablets). In both cases, a 40 mg/L free SO_2 addition was made to each test barrel. An artificial wine matrix was used to reduce sulfite binding with pH = 3.4 and temperature held at a constant 18°C. The barrels were not stirred, topped, or moved during the experiment.

After the sulfite addition was made, samples were drawn (50 mL) from each measurement station at different time intervals to track the development of the free SO_2 concentration distribution. Results for both the aqueous KMS and effervescent tablet additions are shown in **FIGURE 6**, showing the spatial free SO_2 concentration distributions at one hour and six days after the respective additions were made.

Significant stratification of the sulfite addition remained, for both methods, after six days. In the aqueous KMS solution addition, most of the added sulfites remain in the lower quarter of the barrel one hour after addition.

The most popular place for wineries to buy and sell grapes.

grapes & bulk wine

find us on **WINEBUSINESS**.com

The grapes & bulk wine exchange is part of the wine industry's most popular website.

created & managed by **WINE BUSINESS MONTHLY**

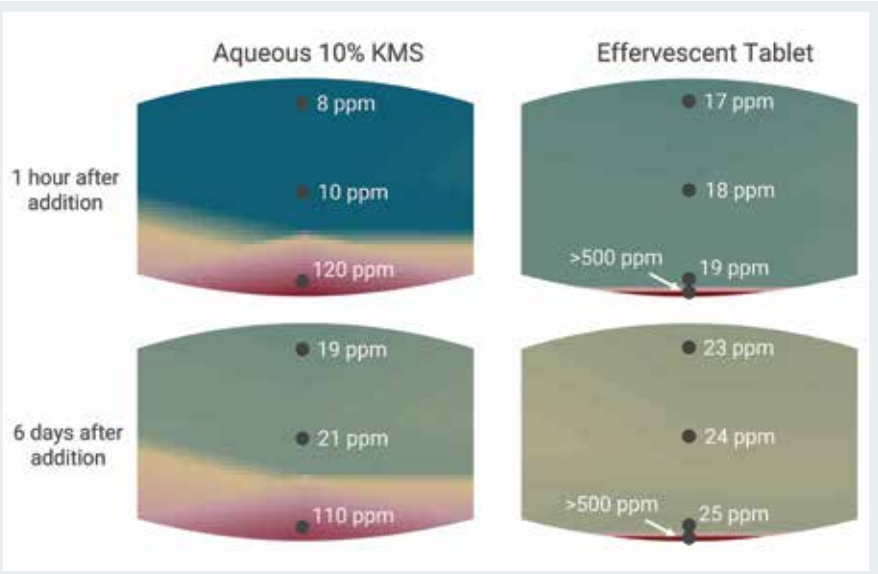


FIGURE 6 Experimental measurement of the distribution of free SO_2 concentration in a 228L barrel one hour after a sulfite addition (top row) and six days after a sulfite addition (bottom row) for 40 ppm additions made with a 10% aqueous KMS solution (left column) and effervescent tablet (right column).

The effervescent tablet distributed about half of the sulfites vertically into the barrel within one hour, driven by the mixing created by the CO_2 bubbling. However, the other half of the 40 mg/L addition remained concentrated at the very bottom surface of the barrel.

After six days of diffusion, 21 mg/L of the 40 mg/L aqueous KMS addition had made it to the centroid of the barrel, while 24 mg/L of the 40 mg/L tablet addition made it to the centroid of the barrel. Most of the remaining sulfite addition was concentrated at the bottom of the barrel in both cases.

The biggest implication of these results, in the context of free SO_2 management, is that the depth at which a sample is drawn from a barrel can have an impact on the measurement. What is the "correct" depth to sample at? There is no definitive answer. Sampling near the center of the barrel, or biased towards the top, captures a more conservative measurement, and considering most of the oxygen and microbial forcing will be biased towards the top surface, this may make sense. It is more important that the sampling depth be consistent between barrels, so that an apples-to-apples comparison can be made.

If a barrel is sampled and measured to have a free SO_2 concentration well outside of the expected level for the barrel group, it may be worth resampling at a different depth to determine if the variance is caused by stratification or if the barrel is a true outlier and needs specific attention.

Stirring the barrel after a sulfite addition can, of course, break up the stratification and lead to a more homogeneous distribution of free SO_2. Stirring also distributes particulate and lees, folds in oxygen, and potentially adds microbial forcing — all of which increase free SO_2 consumption. We have conducted in-winery experiments that show a marked increase in binding rate of free SO_2 in barrels that are opened and stirred as compared to barrels that have an addition only. Because stirring impacts so many parts of barrel ageing, whether to stir or not should be a contextualized decision based on winemaking goals, with free SO_2 stratification being one aspect to consider.

Takeaways to Improve Barrel Sulfite Management

Sulfites are an important tool to control risk in a barrel program and proper SO_2 management helps to prevent barrel downgrades, which can have significant financial impact. Most winemakers rely on composite samples from a small subset of barrels to evaluate the free SO_2 concentrations of an entire barrel group, but the dataset shown suggests that free SO_2 concentrations often vary significantly between barrels within the same barrel group and there are often outliers.

Sampling only a small subset of barrels within a group can exacerbate variance by affecting the information flowing to the winemaker and therefore their barrel management decisions. Sampling a bigger percentage of barrels or transitioning to barrel-by-barrel sampling and customized additions can help to reduce variance by capturing and correcting outliers.

Concentrated sulfite additions can stratify within unstirred barrels which can cause free SO_2 concentrations to vary depending on the depth within the barrel. This impacts the antimicrobial and antioxidant protection at different points in the barrel and can affect how samples are taken from barrels. Sampling from a consistent depth within the barrel and resampling at different depths to investigate anomalies can both help mitigate the impact of stratification on decision-making.

The free SO_2 management cycle implemented by the winemaking team can benefit from better information flow and tracking, ultimately preventing losses in quality and helping winemakers to consistently achieve their stylistic goals. **WBM**

References

1. Bush, Robert K., Steve L. Taylor, and William Busse.1986 "A critical evaluation of clinical trials in reactions to sulfites." *J. of Allergy and Clinical Immunology* 78.1: 191-202.
2. Danilewicz, John C. 2007 "Interaction of sulfur dioxide, polyphenols, and oxygen in a wine-model system: Central role of iron and copper." *Am. J. of Enol. & Vit.* 58.1: 53-60.
3. Divol, Benoit, Maret du Toit, and Edward Duckitt. 2012 "Surviving in the presence of sulphur dioxide: strategies developed by wine yeasts." *Applied microbiology and biotechnology* 95.3: 601-613.
4. Du Toit, W.J., I.S. Pretorius, and A. Lonvaud-Funel. 2005 "The effect of sulphur dioxide and oxygen on the viability and culturability of a strain of Acetobacter pasteurianus and a strain of Brettanomyces bruxellensis isolated from wine." *J. of Applied Microbiology* 98.4: 862-871.

Guala Closures North America

presents

WAK®

Enjoy the benefits *of an*
Aluminum Closure *with the* **look of a**
Traditional Cork

Manufactured
in **Fairfield, California**
U.S.A.

Guala Closures Group

Tel 707 425 2277
Email: info@gualaclosuresNA.com
www.gualaclosures.com

PHENOLICS

CloudSpec Hazy Spectrophotometer Gives Winemakers Data Without Centrifuging or Filtering

Winemakers can take samples straight from the tank during fermentation

Cyril Penn

A COMPANY FOUNDED THREE years ago in Wellington, New Zealand says it has developed a spectrophotometer that gives winemakers greater control over, and insights into, color and phenolics.

Spectrophotometers have been around winery labs for a long time, employing light for chemical analysis. The new device, however, does an analysis without any centrifuging or filtering. That means winemakers can take a grape sample or a juice sample straight from the tank during a live fermentation, in the middle of the harvest, and put it straight into the device for analysis.

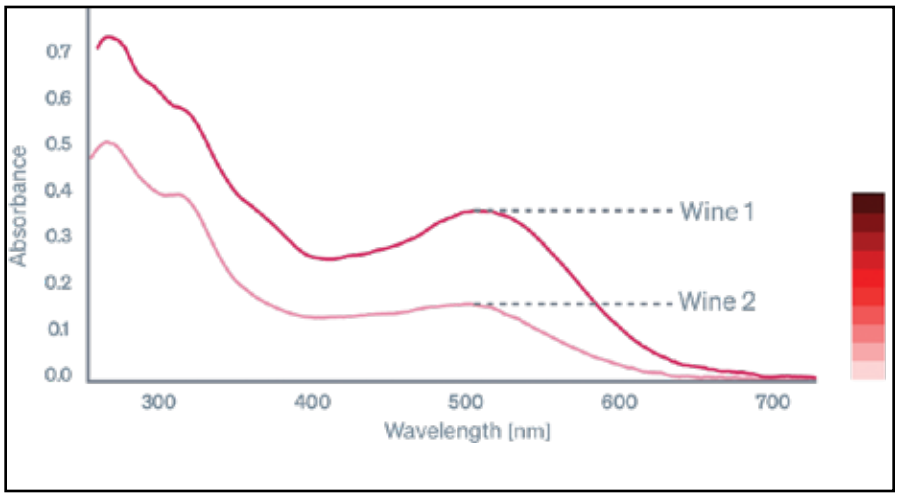
"It's a very new thing because it's never been possible before," Marco Wilkins, business development manager for Marama Labs and CloudSpec, said. "We're getting out there, doing a bit of education about what's now possible.

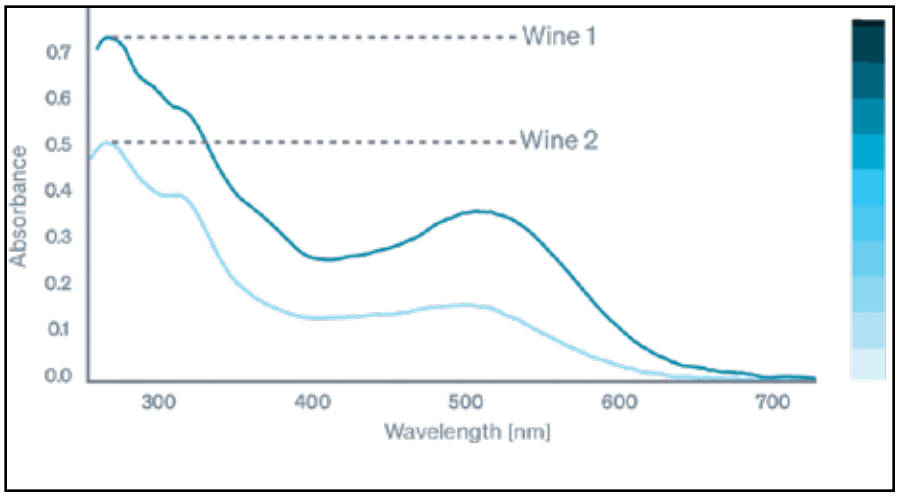
"You're now able to measure things you've never been able to measure because you're not taking out the stuff you're actually looking for (centrifuging or filtering) which is what winemakers have always had to do," Wilkins added. "What you were actually measuring in the past was the clear juice, or clear wine. That doesn't give a very accurate measurement of what the tannin is going to be after extraction."

Software developed by the company assists winemakers in tracking and starting to control wine profiles instead of merely measuring them.

Wilkins said some of New Zealand's best wineries are using the device when grapes are harvested to understand what the vintage is looking like as its coming in the door. "They can start changing their processes based on what they're seeing so that year-on-year they can target the wine style that they actually want, rather than being at the mercy of sort of how those things can change."

U.S. wine producers, meanwhile, continue to increase and expand the use of grape and wine phenolic data to manage color and tannins to better manage wine quality. They do this with professional labs, consultants, and in-house analytical methods. Labs include ETS Laboratories and Enologix while Fruition Sciences specializes in monitoring and mapping color/anthocyanin accumulation in the vineyard. In-house methods and equipment include the OenoFoss WineScan distributed by Gusmer Enterprises,





the NomaSense PolyScan P200 from Vinventions, the Harbertson-Adams Assay, and WineXRay, based on the Harbertson-Adams Assay, in addition to WineCloud from the Australian Wine Research Institute (AWRI) and available through Enartis USA.

Two wineries from New Zealand provided testimonials for CloudSpec's website: Cloudy Bay and Giesen.

At Giesen, where the predominant red variety is Pinot Noir, chief winemaker Duncan Shouler has used CloudSpec for two vintages, measuring tannin and color through ripening and in winemaking. He said his team targeted specific lots to measure year-on-year with the aim of creating a database for helping make future decisions and better understanding separate vineyard blocks and the fermentation process.

Shouler told *WBM* CloudSpec has proven useful for deciding when to pick; getting extraction right during fermentation for flavor, texture and color; and for deciding when to press.

"We've used it quite extensively over a number of our wines and we've found it fantastic," he said. "What the Cloudspec can do is give us a number where we can hopefully see what we taste so we've got something else to reference when we're making decisions."

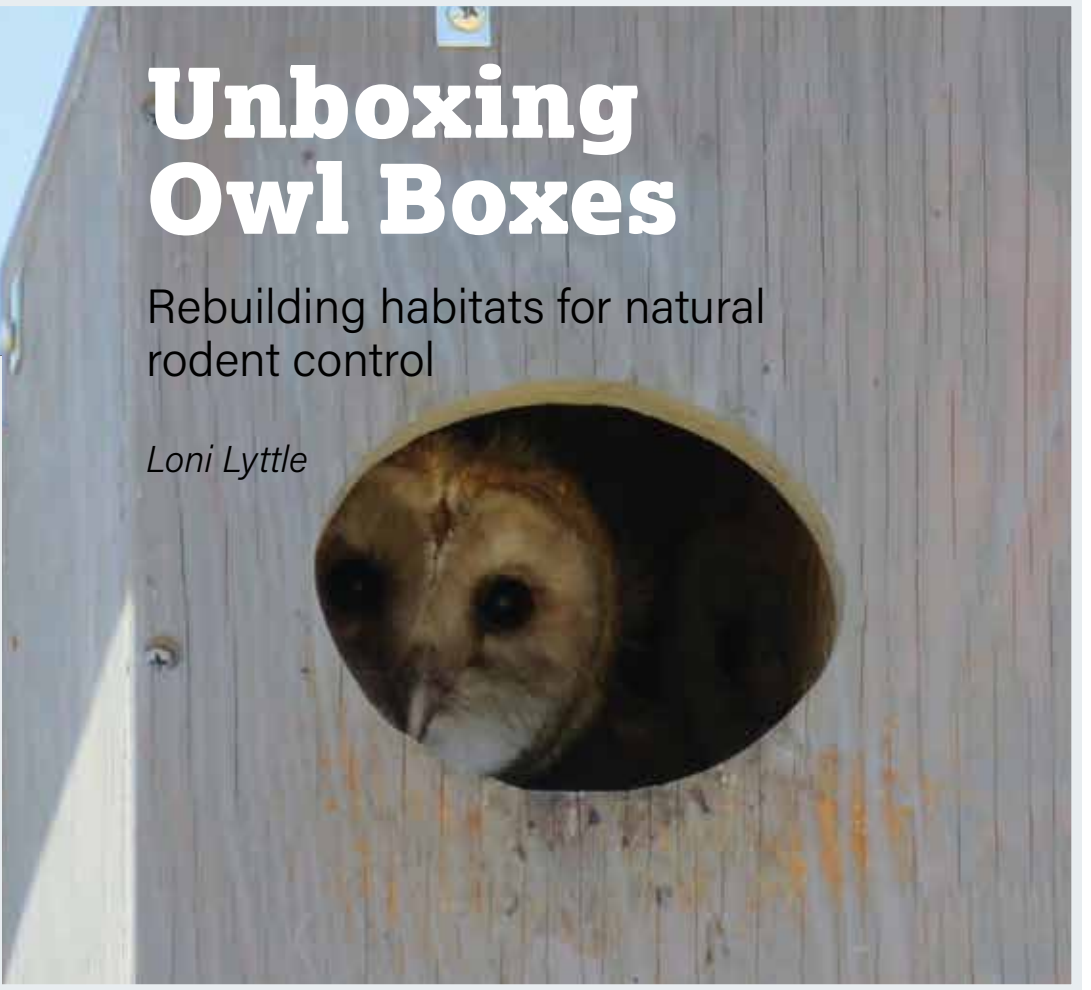
Shouler said the CloudSpec may come in handy after wine is sulfured as sulfur bleaches color. As Giesen builds the database, it may help in knowing which blocks are more susceptible to losing color after sulfuring and what blocks retain their color. Shouler said the data may help the team with future decisions on which blocks are best suited to various styles and price points.

"We do all of these things already through winemaking and tasting but it just adds that extra element to help us make decisions and most importantly build a robust data base we can refer back to over the years," he said. **WBM**

Unboxing Owl Boxes

Rebuilding habitats for natural rodent control

Loni Lyttle



ABOVE: Baby barn owl, Marina, CA
LEFT: John Schuster, owner operator, Wild Wing Company

Loni Lyttle began her viticultural journey in 2010, when she visited the bucolic hillsides of Piedmont, Italy, and decided to stay there. Over the next eight years, she worked as an assistant vineyard manager and cellar hand while earning a bachelors and master's degree in viticulture and enology from the University of Turin. She specializes in grapevine physiology, cold hardiness, and obscure Italian varieties. In 2019, she found a home at Advanced Viticulture Consulting in Windsor, California, where she works as a viticulturist and contributes regularly to the Advanced Viticulture blog.

DID YOU KNOW THAT owls are cannibalistic? Baby owls will feast on their owlet-siblings to reduce competition. Did you know that owls strike so fast they kill on contact? It's the equivalent of getting hit with a truck…a truck with talons.

I love talking to bird people. They're such sadists. Or rather, they look at the grim brutality of the natural world and dive right in. They're the ones who root for the T-Rex in *Jurassic Park*. In *Don't Look Up,* they're most likely rooting for the asteroid.

So, when it comes to rodent control, a topic most people find icky, who better to consult than someone passionate about birds? Recently, I had the opportunity to sit down with John Schuster of Wild Wing Company in Sonoma County, Calif.

Schuster has had a fascinating career in forestry, firefighting and conservation. He also makes most of the owl boxes I see in the North Coast. It turns out if you ply him with a cappuccino, he'll tell you all sorts of things about owls and how they benefit farmers.

What Is an Owl Box and What Is it Used for?

Owls are a cavity dwelling bird species. They eat a lot of nocturnal rodents, such as voles and pocket gophers. An adult owl requires on average 156 grams of food each night: that's about the size of one gopher or two voles—double

DUARTE
TREES & VINES®

WINEGRAPES

CLEAN PLANTS • UBERVINES

Large Vines Big Returns

TONS AND TONS OF REASONS

- Optimized for your vineyard design
- Advance production
- Reduce labor
- Increase profit
- NPV up to $25,000 per acre

*Source: ASEV Catalyst Report funded by Wonderful Nurseries

JOHN ARELLANO
Sierra Foothills
Lodi & Clarksburg
San Joaquin Valley
(559) 804-6949

TIA RUSSELL
North Coast
Southern Oregon
San Joaquin Valley
(209) 815-2399

TIM COITO
Chico
Sacramento Valley
(530) 521-8733

AARON SALSEDO
San Joaquin Valley
Southern CA
(559) 892-6028

TIA RUSSELL
North Coast
Southern Oregon
(209) 815-2399

JOHN DUARTE
At Large
(209) 531-6874

STEVE SCHEUBER
Central Coast
San Joaquin Valley
(209) 531-5065

Duarte Nursery®
Clean. Clonal. Containerized.
1-800-GRAFTED
duartenursery.com | Hughson, CA
sales@duartenursery.com

Clean Plants
For Your Future™

that if he's got a mate back home. Baby owls require three to five times this per night, and a typical brood is between three to five owlets. If you have an owl box with a little owl family in it, you're looking at 3 kilograms (about 6.5 pounds) of rodents per night.

The goal of your natural predation program should be this: establish a healthy population of breeders. Predators follow prey; so, if you have a high population of rodents, that should be enough to sustain many families of breeding owls. Owl families will consume many more gophers and voles than your bachelor birds. Owls won't even mate unless there's enough food on the table to support offspring. I know many farmers who have more than enough gopher meat to go around.

It's always important to remember that the vineyard is far from a natural place. Under untouched conditions, owls would be able to find homes in tree hollows and the like. That kind of real estate isn't as available among acres and acres of vines and trellis hardware. If your rodent population has blown up, it's probably linked to habitat loss of native predators. Owl boxes allow for the reestablishment of what's been lost. For some of you, that is reason enough to put some of these in. However, not all owl boxes are created equal.

Owl House in the Middle of Owl Street: What Makes a Good Owl Box?

To build a good owl box, one must first become the owl…or at least consult someone like John Schuster, who's made it his life's work.

To begin with, owls are sensitive to heat. For this reason, it is imperative to face the opening of your owl boxes eastward: not magnetic East but true East. Wild Wing's owl boxes are built with sun shields on both the roof and the westward wall to keep the cavity from getting too hot.

There are ways you can tell if you've created the right kind of cavity environment for owls. Bluebirds, for instance, have very similar residential tastes to owls, as does the Northern Flicker and the ubiquitous European Starling. If you see any of these birds in your box, you know you're on your way. You will want to clean these other species out first, but hopefully, your next denizens will be of the owl variety. Wild Wing's boxes have convenient trap doors at the back to accomplish this.

Other birds may be bad roommates, but they are not the only creatures you'll want to keep out of your owl boxes. Raccoons and opossums prey on owlets and owl eggs. I've seen plenty of owl boxes with little lattices to facilitate entering and exiting the cavity; however, owls don't need those. Raccoons do. It's much better to have a smooth exterior surface that nothing can cling onto as it snacks on your owls. The same goes for how you mount the owl box. It's best to use a smooth metal pole rather than a wooden one. Don't put an owl box in a tree, either. According to John, that's the biggest mistake people make. Anything that can climb a tree will be able to enter.

When an owl leaves the front door, it always hooks to the right. Isn't that weird? According to John, this is just their well-documented behavior. If an owl flies out of an eastern-facing door, it will fly southeast and find a perch there. This could be a tree or, in the case of a vineyard, a raptor perch. You will want to ensure your owls have something like this installed at the southwest of your box for the owls to hunt from. The good thing is that these perches can serve double duty by being shared with diurnal hunters, such as hawks and falcons. You can also consider installing one of these at the top of your owl box. Sleeping owls are not bothered by raptors on the roof.

Humboldt State University, Natural Resources Wildlife Department

Owl City: Location and Density

Owls will hunt within about a mile and a half radius from their home. Barn owls and Screech owls are not territorial, so there's no problem having considerable overlap in hunting grounds. John says it's best to have an owl box every 100 to 200 yards if the rodent population is moderate, with owl boxes every 60 yards if you want to take a more aggressive approach. That seems like a lot to me; but if you are planning on relying exclusively on owl boxes for gopher and vole control, you will want to build a healthy population.

As far as location goes, most owl boxes I see are on the borders of vineyards. This is fine as long as they are not too close to riparian areas that host Great Horned owls. These apex predators will make a meal out of your beneficial owls. Hence Barn and Screech owls steer clear of owl boxes in Great Horned owl neighborhoods. You will know you have Great Horned owls in the area if you hear hooting during the night. Barn owls don't hoot, but rather make a screeching, hissing or clicking sound.

Most farmers avoid putting owl boxes in the vineyard row. In reality, owls are unbothered by daytime tractor noises or vibration. If you want to avoid wooded areas, putting the box in the middle of the vineyard is better. The only vineyard operation obstructed by owl boxes is mechanical harvesting.

Aside from that, owl droppings are caustic. You won't want to keep your owls too close to wherever you park your tractor or other vehicles. Droppings (pellets) can also contain rodent fur and bones, which can spread disease, such as Hantavirus. Owls are great but keep them at a distance.

Are Owls All You Need?

An owl can eat plenty of gophers and voles. There's no argument there. But can farmers rely on them exclusively to control rodent pests? Unfortunately, there's not a lot of concrete studies that have been done on the topic, and the research that has been done won't necessarily translate across crops and regions. In Malaysia, for instance, there's been a few projects that looked at how owls can be used to control rat populations in palm oil fields. Even there, results varied and depended on which rodent posed the greatest threat and how high the population was.

When you're reintroducing Barn owls into your vineyard, you're playing with a delicate balance. If you have a high population of gophers and voles, the new birds on the block will gladly dig in. If you follow up with conventional means of rodent control, your owl population may crash soon after due to dwindling food sources. There's not much research on combined methods of rodent control, which frankly are what most people use.

I know farmers well enough to realize that it all boils down to cost. One of the few studies on this is from Professor Matthew Johnson at Humboldt State University. Johnson compared the use of owl boxes to conventional trapping and strychnine application for pocket gopher control. In 2012 he concluded that the cost of extermination was $0.34 per gopher via owl and $8.11 per gopher via traps. Johnson was not able to calculate the per-gopher cost via poison as most deaths from poison baits occurred underground. While he calculated that a year of rodenticide application was double that of establishing a Barn owl program, poison may very well be more effective.

To be clear, I don't recommend using rodenticide. If you're trying to bolster the population of your natural predators, using poison is shooting yourself in the foot.

Conclusion

If you have the bandwidth, I encourage anyone to experiment with natural means of rodent control. Owl boxes are only a piece of the puzzle. Raptor perches can help with ground squirrels, and songbird boxes can be used for insect pests. We kicked out the birds when we developed the vineyard. That's why there are so many pests, like gophers, voles and ground squirrels. Why not welcome them back into your vineyard. If you build them, they will come. **WBM**

References

Kross, S.M. and Baldwin, R.A. (2016). Gopherbusters? A review of the candidacy of Barn Owls as the ultimate natural pest control option. In *Proceedings of the Vertebrate Pest Conference* (Vol. 27, No. 27).

Wendt, C.A. and Johnson, M.D. (2017). Multi-scale analysis of barn owl nest box selection on Napa Valley vineyards. *Agriculture, Ecosystems & Environment*, 247, 75-83.

INSIGHT & OPINION

The Climate Crisis, Carbon Neutrality and the Wines of America

Dr. Richard Smart

Dr. Richard Smart is the founder of Smart Viticulture, a consulting company based out of Glenroy, Victoria, Australia. He can be reached at *vinedoctor@smartvit.com.au.*

CLIMATE CHANGE AND THE impending climate crisis are newsworthy internationally. Some climate scientists have resorted to public activism to increase awareness of the situation; their concern is that emissions must be reduced by 2030 if global temperature increases are to remain below 2^0C, which they consider critical. The rate of Arctic ice cap melt is now at 13 percent per decade—if this continues, we have about 60 years before the ice cap disappears entirely.

The Australian grape and wine sector had been actively researching and promoting the climate change issue and its consequences for over two decades as is also common in Europe. One might ask: Is there the same level of awareness in the United States' wine industry? I note that the American Society of Enology and Viticulture hosted a one-day Climate Change Symposium, Part 1 Viticulture, in June 2022, to be followed in 2023 by Part 2, Enology. Of the 12 presentations listed, the titles suggest that most were concerned with the effects of climate change and adaptation strategies. At the same time, there appeared to be little coverage of mitigation and reduction in carbon footprint for vineyards.

Mitigating Climate Change: An Industry Responsibility?

The global wine supply chain is thought to contribute around 0.3 percent of annual global emissions (Rugani et al. 2013). Pressure is being felt by industries and jurisdictions worldwide to reduce emissions and/or carbon footprints. The New Zealand and Australia wine sectors were the first to declare intentions in this regard (zero emissions by 2050 or earlier). The Bordeaux wine region plans a 46 percent reduction in emissions by 2030.

Several wine companies are presently active in this regard. Familia Torres of Spain and Jackson Family of California have established reduction targets of 50 percent or more by 2030 through modifying present practices. Some other companies, such as Lindeman's Wines of Australia (part of Treasury Wine Estates), currently claim carbon neutrality. For Lindeman's, however, this was achieved with limited changes to practices and instead through the purchase of offshore credits, or offsets.

The Carbon Footprint of Wine, Along the Supply Chain

Wine's carbon footprint is measured with a Life Cycle Analysis approach, which spans several years. Such an analysis was carried out by Wine Institute's Sustainable Winegrowing Alliance for California wine in 2011, and it recorded similar results as others performed around the world. (sustainablewinegrowing.org/docs/California_Wine_Executive_Summary.pdf)

According to the study, the biggest contributors, or so-called "hot spots," to the wine industry's overall carbon footprint are packaging and transport, together totaling 51 percent of all emissions. Vineyards are at 34 percent (which showed higher than in other studies) and winery emissions at 15 percent. It is important to note that in this analysis, the release of carbon dioxide from fermentation was excluded on the basis that it is "biogenic" in nature. In the sections to follow, opportunities to reduce the carbon footprint of wine will be investigated based on an article by Smart and Cameron (2022) that analyzed the Australian situation, which is of direct relevance to the USA.

Reducing the Carbon Footprint of Vineyards

Many vineyard regions are sunny and provide opportunities for owners to replace grid electricity with renewable solar. In Australia, such conversions are economic and are being embraced. Fossil fuel-derived diesel is a big contributor to vineyard emissions, and it may be replaced in the future by electric tractors or hydrogen power (van Leeuwen 2022) and using drones to spray.

What are some of the other, perhaps less obvious options? Another option is the use of biodiesel produced from waste stream biomass. Irrigation water can be pumped by renewable solar energy, even at remote locations. Artificial nitrogen fertilizer application can be replaced by legume-based nitrogen

fixation, again using solar energy, combined with the "Amisfield Approach" irrigation modification (Smart 2019). Such modifications can lead to the elimination of most vineyard carbon emissions.

A further word about vineyard and winery waste streams, specifically the disposal of annual vineyard prunings, grape stalks and pomace at the winery: They comprise about 0.6 t fresh weight for each ton of grapes crushed, assuming 600 L wine per ton. Prunings can be easily collected in the vineyard and air-dried as can other components. They can be subject to pyrolysis and gasification, producing electricity and maybe biodiesel. Mobile units may be shared around smaller wineries in a region. Biochar, a form of "fixed" carbon, is a by-product, which can be incorporated in the vineyard.

Reducing the Carbon Footprint of Wineries

Grid electricity can be replaced by renewables and other fuels used in wineries from biomass sources to reduce emissions substantially. Accentuated Cut Edge (ACE) skin fragmentation allows shorter ferment time on skins and improves quality, helping avoid vintage compression issues with red fermenters (Sparrow and Smart, 2017). Wineries presently release fermentation CO_2 to the atmosphere, (approximately 80 g of carbon dioxide per 750ml bottle, plus some extra CO_2 used for sparging tanks). These are Scope 1 releases, similar in nature to those from compost and wastewater ponds, but are conveniently left out of most wine carbon calculators, in truth, making terms like "carbon neutral" highly questionable. This release is a sad and most regrettable form of atmospheric pollution that contributes directly to climate change and will assuredly come to the attention of environmentally-aware wine consumers in the future.

Reducing the Carbon Footprint of Packaging and Transport

The 750ml glass wine bottle is the wine sector's biggest culprit in terms of carbon footprint for two reasons: firstly because of the very high electricity demand for manufacturing (somewhat less for recycling) and secondly because of its unfortunate weight and shape. Glass bottles are a most inefficient package with high transport costs. That the glass bottle may be found wanting is no great surprise—after all it was developed in 1633, making it quite old for packaging still in use. In some countries the rate of recycling is pitiful. Where I live, in Melbourne, most glass wine bottles end up as crushed road fill after a single use, a situation that could be improved if local wine producers supported container deposit and if municipal recycling were not the primary collection method.

There are now a range of alternate packs available, which will likely increase in use as consumers become more carbon-conscious. Since most wine is consumed soon after purchase, very long shelf life is not an issue. So now we have cans, PET bottles, cartons and bag in box. Don't worry about appearance on the dining table, just use an attractive decanter! Alternatives have a much reduced carbon footprint, weigh less and pack more efficiently, and many are recyclable, which will appeal to cost- and environmentally-conscious consumers.

What is the future of glass wine bottles? Might they gradually disappear as has happened for some other beverages? (I am sure that wine bottle

manufacturers will put up a fight!) There are signs of glass bottles being retained in a "re-use" mode, with retail store co-operation; such systems are now in place in Austria and under trial in the UK. I understand wine bottles have generally been exempt from recycling and deposit programs in the U.S. even though such a system operates for milk bottles! Further, recycling could be greatly improved by retail store cooperation, acting as receiving points for washed and color-sorted empties.

Concluding Remarks: Might Wine from America Declare a Carbon-Neutral Goal?

Readers who are aware of current concern about the climate crisis will likely agree that reduced carbon emissions to limit global warming are the ultimate concern of sustainability. If this is not achieved, society and economic systems, as we know them, will be threatened as will the biosphere eventually.

Part of the answer to this question is ethical: might grape and wine producers select procedures to limit carbon emissions, which, in the short term, may not enhance profit? Should bare-faced "green-washing," by using dubious offsets, be applauded or even recognized by the marketplace?

Given the highly developed, sustainable winegrowing sentiment in America, especially in California, might there not be considerable support to move in the direction of a clear statement of intent to achieve carbon neutrality in the future? Grape and wine producers, the supply chain and consumer education will be critical. Perhaps there could be another Climate Change Symposium hosted by ASEV in 2024, Part 3, Packaging. This would address "the elephant in the room," the glass wine bottle. **WBM**

References

Rugani B., Vazquez-Rose I., Benedetto G. & Benetto E. (2013) A comprehensive review of carbon footprint analysis as an extended environmental indicator in the wine sector. *Journal of Cleaner Production*, 54, 61-77.

Smart R. (2019) Making organic vineyards sustainable: the Amisfield approach. *Wine Business Monthly* (US), February 2019, pp 160-165.

Smart, R. and W. Cameron. (2022). Avoiding climate change: is the Australian wine industry 'all in this together'? *Wine and Viticulture J.*, summer, 38-42.

Sparrow, A.M. and R. E. Smart (2017). Pinot noir wine processing and quality improved by skin fragmentation. *Catalyst discovery into practice* (2017) 1:3, 88-98.

Van Leeuwen. 2020. Hydrogen or battery tractors: what potential for sustainable grapegrowing? *Ives*, August 2020.

Winery Logistics Maintain Resilience Despite Continuing Supply Constrictions and Price Increases

Michael S. Lasky

DESPITE THE ACCUMULATING HEADWINDS of packaging supply availability, budget-busting price increases and schedule delays, wineries have, for the most part, proven resilient and found ways to bring their wines to market. The results of *Wine Business Monthly*'s latest packaging survey bring the point home as respondents said the most significant supply issue was with obtaining (and affording) glass bottles.

TABLE 1

Which of the following packaging products have you had difficulty sourcing in the last year?

Glass bottles	91.82%
Closures (cork, screw cap, etc.)	33.64%
Label stock	40.00%
Capsules / Wax / Foils	27.27%
Cans	8.18%
Other alternative packaging	4.55%
Shippers / Boxes	27.27%

From the seven commonly used packaging materials for wine, we asked, "Which of the following have you had difficulty sourcing in the last year?" To anyone who follows global wine and beverage alcohol trends, the fact that 90 percent of respondents said that sourcing glass bottles has been a challenge is not a surprise. The domino effect of labor shortages, global shipping disruptions and domestic port congestion has had an impact on obtaining glass bottles.

While new domestic glass manufacturing facilities have come online in the last year, that supply remains overwhelmed by the demand for wine bottles. This has been an issue for many years—and until the onset of COVID-19, supply was easily found from foreign glass suppliers and was competitively priced among Chinese manufacturers. But it's not just glass: anecdotes about difficulties finding paper label stock and other materials have been shared among colleagues.

Wine Business Monthly queried random wineries about their experiences with ordering packaging materials in the past year. "Getting glass has been a big issue as we get closer and closer to bottling in the next couple of weeks," said Adelsheim Vineyard's president and CEO, Rob Alstrin. "The glass for this year was a challenge because we were buying directly from a glass producer, and that glass producer decided to no longer have direct clients like us. So, they redirected us to their distributor. At first, they told us there would be no problem, but they found out they were not getting the additional glass they were promised and so only had stock for their previously existing customers."

According to Alstrin, Adelsheim did what many other wineries had to do: make multiple orders from multiple vendors.

Stephanie Honig of Napa Valley-based Honig Vineyards agreed, adding that obtaining glass this year has been a struggle, especially with a longer ordering lead time now necessary.

"We had to plan a year or more to make sure glass arrived in time for our bottling schedule. And even then, we had some issues with our Cabernet bottle. Because we wanted to be more sustainable anyway, we turned the supply issues into a plus and switched to a lighter, more available glass," Honig told *WBM*.

"That problem with this is we have to order even before we know what our grape yields will be, so we don't know how much of a glass order will be required," she added.

Shipping Costs, Dock Delays Force Production Schedule Changes

Gridlocks at shipping ports partially caused by labor shortages and a concurrent, increased demand for product not only resulted in delivery delays but spiraling shipping costs for all packaging materials.

According to survey respondents, paper-based packaging materials were harder to source this year, with 40 percent noting that label stock availability was a problem and more than a quarter of respondents saying they had difficulty sourcing shippers and boxes. Many wineries also reported problems obtaining closures (33 percent) and capsules (27 percent).

For Jason Haas, general manager at Tablas Creek Vineyards in Paso Robles, Calif., capsules were a more difficult problem to solve this year. "That's because it's the only packaging material we source from Europe. There's no domestic maker of capsules, so we have to order them from France," he said. "We had to push back bottling dates about six weeks, and that caused a domino effect

for other parts of our production. We had to scramble a day here and there to compensate for the lost bottling date."

Winemaker Adam Sbragia at Sbragia Family Vineyards in Geyserville, Calif also had to scramble because of packaging supply hassles. "I wasn't able to start planning my bottling in January this year. For months my supplier told me that I would get the glass. Basically, that meant I couldn't plan anything, not a bottling line, not ordering corks, not ordering capsules, labels or anything until I could actually figure out when I got that glass. I had to work backwards and scramble to get the corks, get the tin, get the labels and secure a bottling line," Sbragia explained.

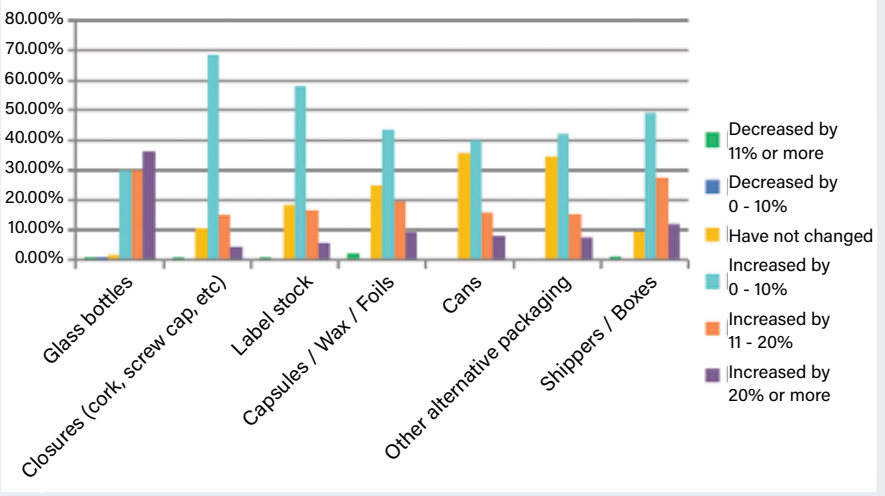
Luckily, the Russian River Valley winemaker was at least able to get the glass. The bad news was the bump in price—and he is not in a position to raise the bottle price to maintain margin. As a side note, Sbragia told WBM, "Fortunately enough, or unfortunately, depends on how you look at it, we weren't able to make any wine in 2020 because of the fires. There was too much smoke taint, so I'm not going to have to worry about glass for at least a year."

Prices are Escalating, and Most Wineries Have to Absorb the Increase

When product availability gets tight, price increases invariably follow. Accordingly, Wine Business Monthly asked wineries how prices for the key packaging products have changed in the last year.

TABLE 2

How have prices for the following products changed in the last year?



While wineries reported at least a 10 percent increase in all packaging supplies, glass bottles were the most likely to see big price adjustments—respondents overwhelmingly noted a 20 percent or more increase in what they paid. Paper-based supplies were also hit particularly hard with price increases, whether for labels, alternative packaging (i.e., wine in a box) and plain and custom-printed shipping cartons.

The high price of glass can partially be attributed to the ancillary cost of shipping bottles. For Asian and European glass, the prices for seafaring container boxes have skyrocketed. As reported by research consultancy firm Statista.com and other sources, the cost for shipping overseas container boxes rose from about $3,000 to an average of $8,000 each.

Likewise, for domestic-made glass the cost of truck transportation has soared with the steep rise in gasoline and labor costs and a shortage of drivers.

TABLE 3

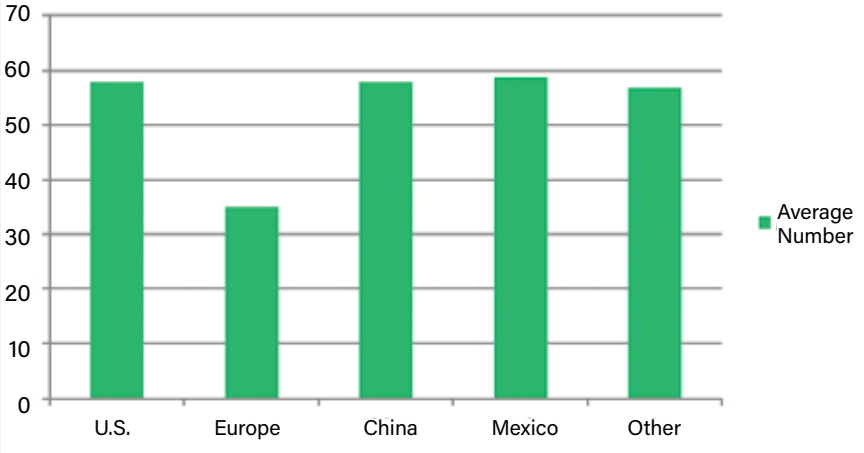
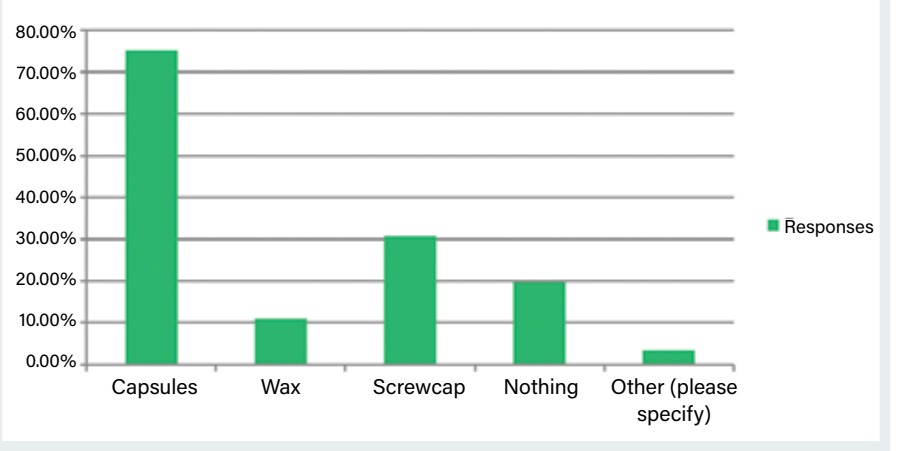


TABLE 4



As of June 2022, the average cost to ship wine by truck in the U.S. hovered at or just above $3.00 per mile, according to Statista.com. This converts to about an additional $10 to $12 per case. It also explains why wineries, eager to foster sustainability and lower shipping costs, are reverting to lighter weight bottles.

Pricing and Timely Availability Determine Where Wineries Source

The 2022 Packaging Survey queried wineries: "What percentage of your glass is sourced from U.S., Europe, China, Mexico and Other?" In past years China has been dominant for its generous availability and competitive pricing, but factory shutdowns and rampant, trans-oceanic shipping delays have resulted in an equal amount of bottle orders for U.S.-based suppliers and nearly as much sourced from Mexico.

The survey found that despite the finite domestic supply of glass, wineries have been able to source their bottles from North America nearly equally to Chinese glass. Almost 60 percent of survey respondents reported they source their glass bottles from the U.S., and just under 60 percent are imported from China.

To avoid possible (or rather, probable) port logjams, nearly 60 percent of winery respondents noted they purchased their glass from Mexico for delivery over the border by trucks. European glass, which tilts to higher end, luxury containers, was chosen by 35 percent of survey takers.

Capsules Remain Dominant but Are "Naked" Bottles Gaining Traction?

Three-quarters of survey respondents use capsules to finish 750ml bottles—not much of a surprise there as this has been the leading tradition for wineries for decades. While it may be too early to suggest a trend, the survey also demonstrated an uptick in wineries that choose to forgo capsules.

In their quest for both sustainability and retail shelf differentiation, 20 percent of winery respondents said they used nothing to finish their 750ml bottles: No capsule, no wax, no screwcap, no foil—just a cork. The primary advantage of this finish is less downtime on the bottling line.

Honig Vineyard and Winery, eyeing an increase in sustainability (and reduction in expenses), recently eliminated foil from their largest production wine, Sauvignon Blanc. "This also provided the wine bottle a distinctive appearance with a see-through-the-glass cork. Part of the switch," noted Stephanie Honig, "was to avoid supply chain issues but driven more by the resulting sustainability and its look on the retail shelf."

Furthering discussion on product differentiation, the 2022 Packaging Survey asked wineries whether they use anything other than glass—and if so, what? Fifty percent of those wineries that use alternative packaging said they use cans, and about 40 percent acknowledged they use kegs—though likely purchased solely for on-premise sales.

So, what was the motivation of wineries to use alternative packaging? By far the largest response to this survey question was "brand diversity," followed by both consumer and retail/restaurant demand. WBM

It's one thing to be able to accurately taste and identify flavors in a heady glass of wine. It's another thing altogether to deliberately put them there to begin with. StaVin's vast array of barrel alternatives give the discerning winemaker a veritable mixing board of subtle flavor controls. With lusciously abundant savings in operating costs.

StaVin®

Reducing the Use of Plastics in Wine Production and Sales

Richard Carey

NOAA

FIGURE 1A (GPMap) Whereas Chile may have one of the largest garbage patches, this map shows how perverse the oceanic garbage issue is.

CHILE TODAY

FIGURE 1B This is the image of the garbage patch off the coast of Chile.

IN THE APRIL 2022 issue of *Wine Business Monthly,* I wrote an article about "Cool Things at Unified 2022." One of the items I wrote about in that article was a new method of producing plastic materials developed by Smart Plastic Technologies that has the potential of mitigating the damage to our environment by plastic waste. In this article, I will review the process developed by this company in greater detail.

It should be noted that I am writing this article more from the position as an advocate for the goals of this company than I usually take in my normal approach to these articles for two reasons. The first is that this company has a unique product, SPTek ECLIPSE™, that is protected by a pending patent. Second, this group of materials should have a profound impact on the end-of-life protocol of many plastic materials. This product will provide a new pathway for waste plastic end-of-life decomposition. In doing so, that would lower waste and protect our environment from the ravages of micro- and nanoparticles that result from waste plastics entering our ecosystem.

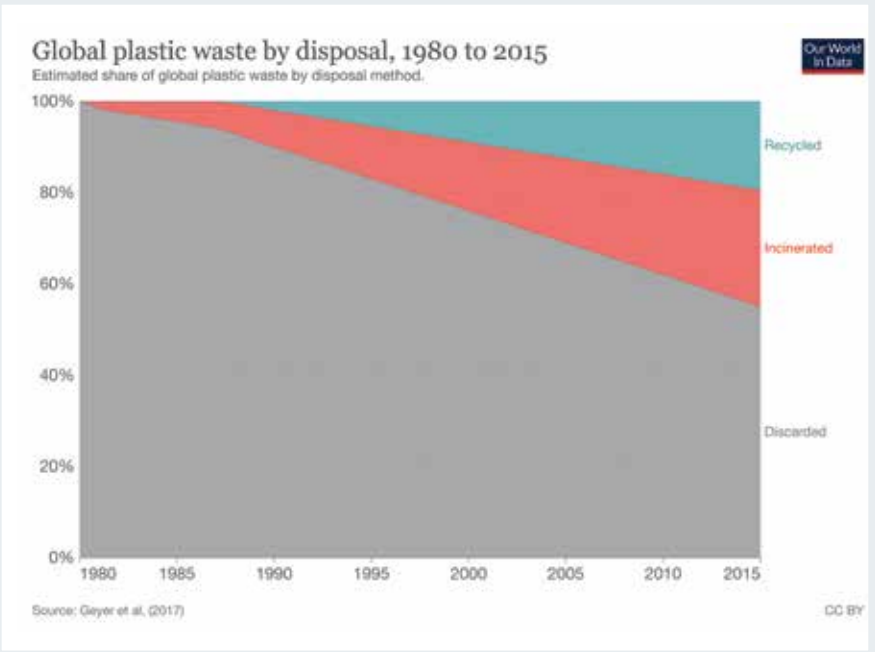
The Problem with Plastics

Within the wine industry, responsible companies are searching for ways to become more sustainable so that they can make advances in reducing their climatic and environmental impacts. With all of the equipment we use in the process of wine production, it might be surprising to realize how much of our disposable materials are composed of plastics. It may also be surprising to note that one of the environmental impacts these plastics impart on the environment is not related to the absolute volume of that material. In the United States (and elsewhere), the end-of-life protocol is for plastics to be put into landfill for disposal. For these plastics, it is only the beginning of the problem. The major issue is to create a new solution to what is called the "End of Life" impact.

Many readers may be aware of the environmental disaster known as the Pacific Ocean's "Island of Garbage" floating off the coast of Chile (**FIGURE 1A** and **1B**). This debris covers i.6 million Km2 or over 617,773 miles squared. I was surprised to find that as of 2015, only 20 percent of plastic used in the United States is recycled, and only 25 percent of that recycled plastic is incinerated (**FIGURE 2**). That means that 55 percent of used plastics is discarded, some in landfill and much falling onto land, then into rivers and eventually into the ocean, where it floats in the ocean's upper levels.

In 1950, records began to be maintained of the annual production of plastic material worldwide. Since then, the production of all plastics has grown exponentially up through 2015, which is the date of the latest graphic representation. Additional reports for 2020-2021 show a flattening of the curve at 367 to 368 million metric tons (**FIGURE 3**). The chart shown in **FIGURE 4** indicates that by sector, packaging represents 36 percent of the plastic being produced. Packaging plastics are composed of three main types of polymers: polyethylene, polypropylene and ethyl vinyl alcohols or EVOH.

When we look at this information as it relates to the wine industry, wineries in the U.S. now produce about 800,000,000 gallons of wine each year, which equals 3.03 BL. Assuming that all this volume goes into 9L cases or some other



ORUWORLDDATA.ORG

FIGURE 2 The fate of plastic disposal is a dismal prospect for the materials end-of-life disposal. Fifty-five percent is neither recycled or incinerated.

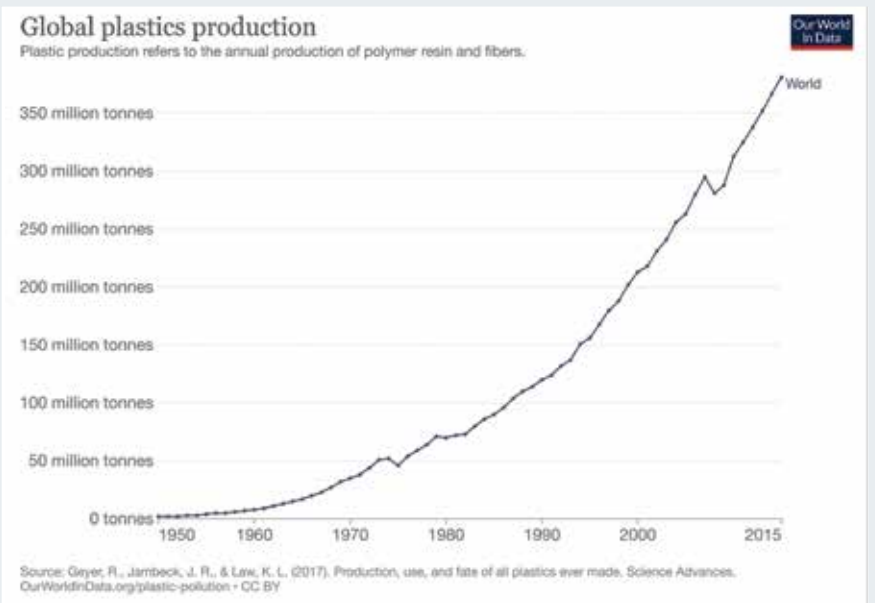


FIGURE 3 This graph is one of the latest production estimates and shows the full range of plastic production since 1950s. Other sources show current production at about 368 million tons.

packaging size represented by that volume, that is the equivalent of about 336M 9L cases. For purposes of explanation here, if those cases were all put on pallets, there would be approximately 5,000,000 pallets of wine. It takes approximately 150 feet of stretch film to cover one pallet. Those 5,000,000 cases would require a total of about 780,000,000 feet of stretch film, and virtually none of that film would be recycled. There are some cases where stretch film can go into incinerators, but in the U.S., the majority goes into landfill.

When this plastic goes into landfill, the process of decomposition should begin, but it doesn't. Plastics remain pliable for a long period of time because of the stabilizers that are added. As the plastic becomes brittle, it fractures into smaller and smaller particles. Ultimately, the particles reach what is defined as nanoparticles (1 to 100nm). At this level, the plastics do not naturally break down into smaller polymer units because the physical environment cannot physically grind any further. To get the particles smaller, the bonds must be broken so that the polymers can break into smaller polymer

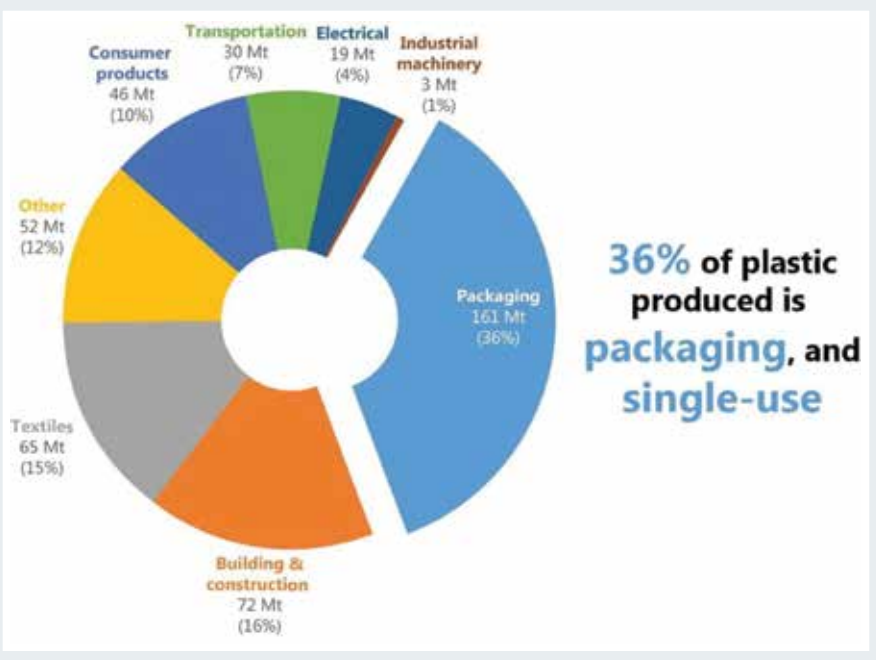


FIGURE 4 One can see from the distribution of total amount of plastics produced each year that it is highly likely that flexible plastics add significantly more to the annual plastic waste, primarily because most of the annual production is single use.

units, a process that can take thousands of years or longer in a landfill. In other words, plastics don't compost.

The world is filling up with nanoparticles at a rate of 150 million+ metric tons annually because of the continued production of millions of tons of plastics every year that are not recycled or incinerated. We also don't have an infrastructure that could recycle even a modest percentage of what is produced. Since the rivers are conduits to the oceans, the lowest common destination of our trickle-down garbage, these particles are traversing through our environment. The particles are consumed by the organisms that feed in these aquatic environments. An article by Yee et al.[1] is only one of many research studies that show fish are accumulating micro- and nanoparticles of plastic in their flesh and organs. These plastics have many of the stabilizers still in their matrix that have been shown to cause metabolic and physical changes in the organisms that are accumulating these micro- and nanoparticles. Articles by Guerrera et al.[2] and Stapleton et al.[3] report that humans may be accumulating nearly 100,000 nanoparticles a year from all sources, including air, water and food. They also add about 4,000 more particles if a person drinks bottled water from plastic bottles.[4]

The Science Behind the Plastics Problem and a Solution

Smart Plastic Technologies was formed to mitigate the increase in nanoparticle production to give industries time to develop more sustainable avenues for plastic production and use. The company has developed an economical additive to polyolefin polymers, the group of plastics that comprises most flexible products and the polymers mentioned above: polyethylene, polypropylene and EVOH.

Polyethylene is the most widely used plastic in the polyolefin family. It is a commodity plastic that is often found in common applications, like bottles, bags, toys and tubes, in part because it has a rubber-like flexibility. This plastic is so diverse it has a website devoted to its myriad of uses: https://omnexus.specialchem.com/selection-guide/polyethylene-plastic.

Polypropylene is used for many different products. Because of its resistance to fatigue, it is used in items that experience high stress, such as hinge mechanisms on water bottles. It is also used in manufacturing piping systems, as well as chairs, in medical or laboratory equipment and related supplies.

EVOH is made into a composite film with an intermediate barrier layer, which is found in all hard and soft packaging. It is used in the food industry for aseptic packaging, and in other industries for packaging solvents, chemicals, air conditioning components, gasoline drum linings, electronic components and many other products.

It is not surprising that polyethylene is the source of most stretch film produced. This product is made from LDPE (Low Density Polyethylene) plastic. Based on the estimates above, the wine industry is responsible for almost 3,000 tons of stretch film plastic just to ship their products to the market. This plastic mostly goes into landfill in widely dispersed areas. This calculation did not include the pallets of empty cases of glass that are wrapped with stretch film shipped to wineries across the country. This could significantly raise the quantity to a total of 6,000 tons, or more, of stretch film.

The example of stretch film may be the largest single item of plastic used by the wine industry, but it is not the only one. Laboratories consume many single-use plastic items, from test tubes to sample cups, pipette tips and more. Many wine shippers use plastic to cushion wine bottles shipped to consumers.

The solution developed by Smart Plastic Technologies is an additive that suppliers can use in the production of their plastic material as it is made into different products. The additive, known as SPTek ECLIPSE, facilitates bio-assimilation of the plastic so that organic biomass is produced from the decomposition, plus some CO_2 and water.

This additive can be programmed with a functional lifespan based on the length of time the product will be used or stored. The manufacturer determines the lifespan of their plastic products so that the stabilizer will not run out before the plastic product is recycled and bio-assimilation can begin. Complete bio-assimilation takes from six to 42 months and the end result is biomass, CO_2 and water, not fragmented plastic.

Smart Plastic Technologies' website describes the process as follows:

ECLIPSE bio-assimilation technology causes the complete molecular transformation of plastic. In other words, it breaks the carbon-to-carbon bonds within the polymer molecules, allowing microorganisms to feed on the available carbon. Once this process is initiated, it becomes a runaway freight train that can't be stopped, resulting in zero microplastics.

At the end of an ECLIPSE-enabled product's functional life, the molecular structure of the polymer within the material has a molecular mass of approximately 200,000 Daltons (a measure of molecular weight for large complex molecules).

1. *Stage A (200,000 Da): The free radical process begins, and carbon-to-carbon bonds within the material begin to break. The molecular mass of the material rapidly reduces as the long-chain molecular structure transforms into shorter and shorter chains.*
2. *Stage B (40,000 Da): As the molecular transformation continues, these shorter chain molecular structures change from being hydrophobic (repelling water) to being hydrophilic (attracting water), surrounding them with microorganism-rich water (known as a bio-film).*
3. *Stage C (5,000 Da): As the free radical process continues to transform the molecular structure and expose more and more carbon, the surrounding microorganisms begin to utilize this carbon as nutrients.*
4. *Stage D (0 Da): As the microorganisms consume all the available carbon, the molecular mass of the original polymer continues to reduce until there is nothing left but water, $C0_2$ and biomass.*

Extensive research has been performed by Smart Plastic Technologies to prove that the plastics are bio-assimilated by micro-organisms. ECLIPSE bio-assimilation technology has been subjected to rigorous independent third-party testing. The world's first C-13 bio-assimilation study was conducted at LMPE, a leading Ecosustainable Polymeric Material Laboratory located in Italy. ECLIPSE technology is also compliant with recognized ASTM standards.

The company currently produces products that incorporate their bio-assimilation technology to cover a number of highly visible products in common use:

- ECLIPSE Stretch Film
- ECLIPSE Pouch
- ECLIPSE Co-Ex Films
- ECLIPSE Straw

The goal of this article is to make the wine industry aware of technology that can significantly reduce nanoparticle production, which will then positively impact the health of our environment. However, the magnitude of that effect is dependent on business leaders insisting that their suppliers incorporate bio-assimilable technology to manufacture their products so that the negative impacts of the plastics problem are significantly reduced. Replacing heavily consumed plastic products with ECLIPSE-enabled alternatives from Smart Plastic Technologies does not pose an economic risk. The additional cost is almost insignificant, and the impact on environmental improvement is definitely positive.

More information about Smart Plastic Technologies is available at *www.changetheplastic.com*. **WBM**

References:

1. Yee, M., L. Hii, C. Looi, W. Lim, S. Wong, Y. Kok, B. Tan, C. Wong, and C. Leong (2021). "Impact of Microplastics and Nanoplastics on Human Health." *Nanomaterials,* 11, 496.
2. Guerra, M., M. Aragona, C. Porcino, F. Fazio, R. Laurà, M. Levanti, G. Montalbano, G. Germanà, F. Abbate, and A. Germanà (2021). "Micro and Nano Plastics Distribution in Fish as Model Organisms: Histopathology, Blood Response and Bioaccumulation in Different Organs." *Appl. Sci.,* 11, 57-68.
3. Stapleton, P.A. (2019). "Toxicological considerations of nano-sized plastics." *AIMS Environ Sci* 6(5): 367-378.
4. Cirino, E. "Thicker Than Water: The Quest for Solutions to the Plastic Crisis." (2021). Island Press.

Market Divergence Seen in Sales by Packaging

Peter Mitham

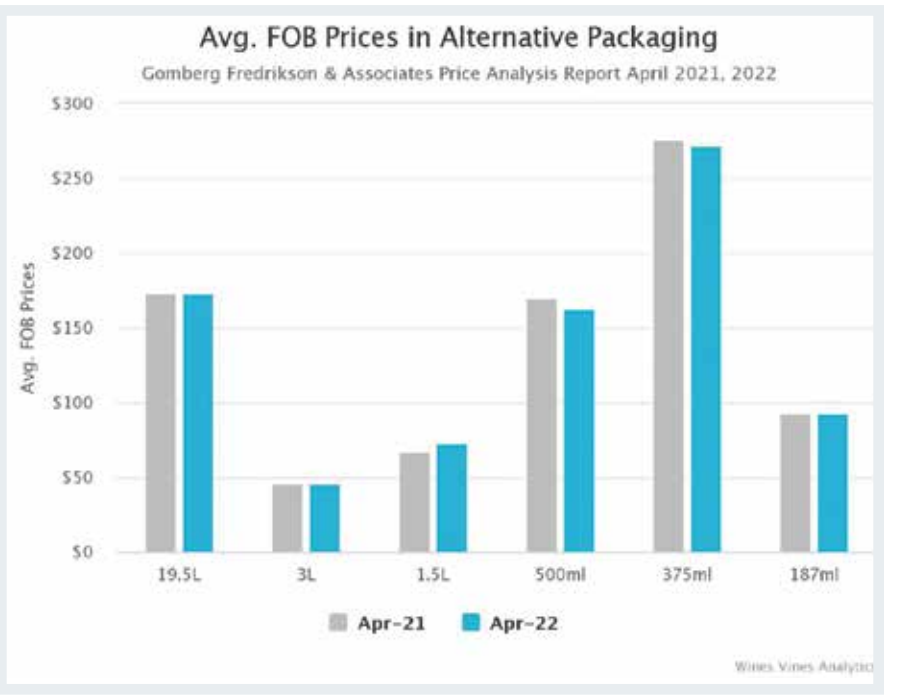
WINE IS ONE OF the few consumer products where glass is more than just packaging but a signal of value. While almost all other food and beverage items—along with a host of general consumer products—long ago swapped glass for plastic, wine commands a premium in the marketplace when packaged in glass.

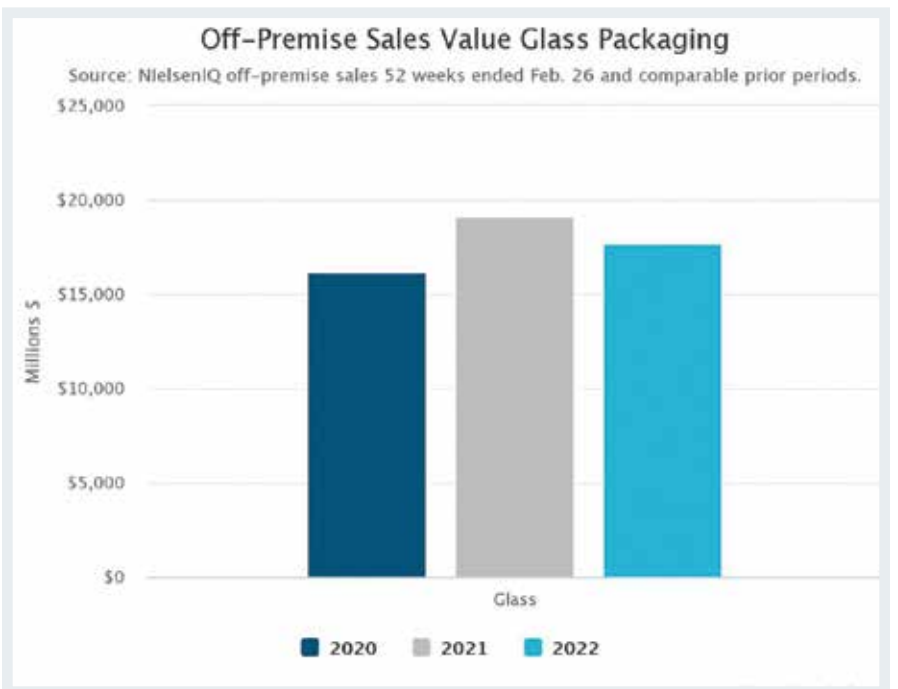
Two years of pandemic purchases do not appear to have diminished the reputation of glass.

Consumers gravitated to boxed wines early in the pandemic then moderated to smaller formats as social distancing gave a boost to single-serve packaging, which was good for takeaway and solo consumption, but glass maintained its dominant share of the market. Now, with premiumization one of just a few growth drivers in a flat market, glass remains the packaging material of choice. When consumers trade up, glass benefits. "We're challenged by the 750ml with a cork, but it's also part of the image of wine that helps drive up big price," quipped Jon Moramarco, editor of the Gomberg, Fredrikson Report, in his review of 2021 sales at the end of March 2022.

The high-level stats point to the overarching trends in wine sales. NielsenIQ scan data, provided by major chain retailers that account for 24 percent of the value and 40 percent of the volume of off-premise sales, indicate that glass saw its share of the market slip half a percentage point, during the pandemic, to about 88 percent of all wines sold. That translates to a loss of nearly $1.4 billion in the latest 52 weeks.

This loss, however, also accounted for the majority of the drop in total wine sales, through NielsenIQ outlets in the 52 weeks ending Feb. 26, as consumers shifted spending back to on-premise outlets. Sales in glass are up 9 percent versus pre-pandemic levels in terms of value, though volumes are down 2 percent. The growth experienced by glass, as wine sales increased through the pandemic, has been shared by every other packaging type. But drilling into the data indicates that sales of wine in boxes are behaving similarly to glass.





While most other alternatives to glass have seen a steady upward trajectory in terms of market share, box wines have paralleled glass and ceded share to other categories. Box wines are arguably now a mainstream option for consumers, particularly those seeking quantity. Underscoring this is lackluster growth in average pricing, which rose 1 percent in the latest 52 weeks to $3.68 per 750ml. This trails wines in glass (up 5 percent to $10.03), cans (up 13 percent to $9.75) and plastic (up 5 percent to $7.50).

Wholesale depletions indicate that box wines enjoyed a strong boost during the pandemic, stealing share from similarly sized glass packaging. "The data indicate the consumer rush to large sizes during shelter-in-place," noted Dale Stratton, senior analyst with SipSource, a firm that analyzes aggregated distributor depletion data. "The big driver for these packages is bag-in-box, and a look back at scan data would show this to be the case. This was, of course, offset by losses in the smaller sizes, with 750ml losing almost 3.5 share points."

While depletions of the traditional 750ml glass bottle have since returned to pre-COVID levels, driven, in part, by restaurant restocking, as well as solid activity in off-premise outlets, smaller formats, including cans, have gained share.

TRICORBRAUN®
winepak

TricorBraunWinePak.com | 1-800-DRINKWINE

Your Global Partner in Packaging

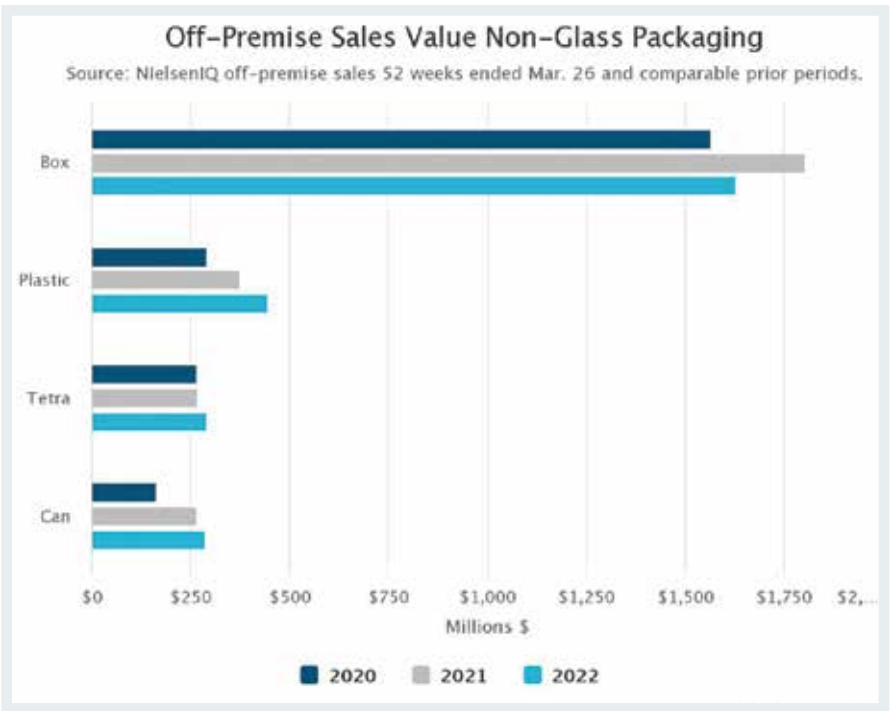
STOCK BOTTLES AVAILABLE NOW!

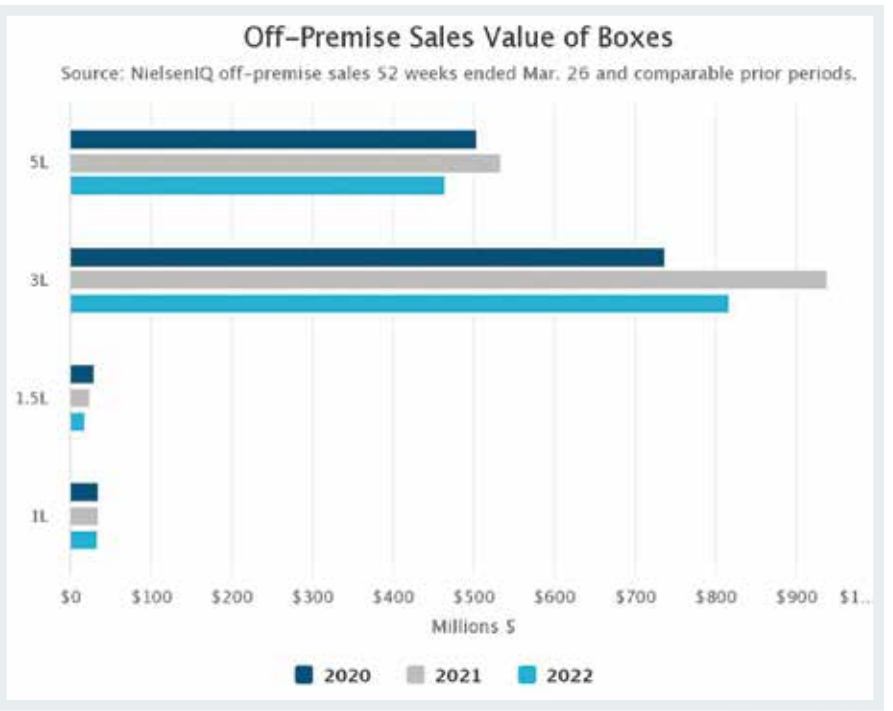
BROWSE ONLINE OR CONTACT US TODAY.

TricorBraun WinePak provides unparalleled access to the highest-quality packaging from domestic and international sources, with stock bottles ready to ship from our regional warehouses today.

Visit tricorbraunwinepak.com or call 1-800-DRINKWINE to learn more!

Market Divergence Seen in Sales by Packaging





Stratton said the gains have come at the expense of larger formats. This is true regardless of packaging material, according to NielsenIQ numbers. When formats larger than 3L are excluded, box wine sales grew 8 percent versus two years ago, double the 4 percent growth rate when all formats are considered. Similarly, glass bottles larger than 750ml saw double-digit sales declines. The growth segments for both glass packaging and boxes versus two years ago are primarily the tried-and-true formats—750ml and 375ml glass bottles, along with 3L boxes. Meanwhile, wines sold in alternative packaging—particularly cans and plastic—continue to see strong growth, but the wine types and consumption occasions are distinct from wines sold in glass.

Alternative packaging materials are typically used for smaller formats, which have seen growth from various factors, none of which easily separates from the others. "While a mainstream 750ml bottle will continue to be the dominant size/format, it does not always fit the consumer need/occasions," explained Danny Brager, managing director, category and consumer insights, for Azur Associates, a wine industry consultancy firm.

Premiumization Shapes Packaging Trends

The strength of the 750ml bottle is supported by premiumization, Brager added, while wines at lower price tiers are increasingly shifting into alternative packaging, such as boxes. "For 750ml bottles, it's more about growth at the higher price tier end and not at all at lower tiers—it's more of a price trend than a package trend."

This is borne out by NielsenIQ data, where sales of wines priced $11 a bottle saw increases in the latest 52 weeks versus two years ago. The trend is even more evident versus a year ago as sales increased above $20 a bottle, but less expensive wines lost ground. Meanwhile, box wines have become an accepted option for everyday occasions.

Notwithstanding the recent release of Patelin de Tablas Rosé from Paso Robles, Calif-based Tablas Creek Vineyard, priced at $95 for 3L, consumers have shown themselves to be price-sensitive when it comes to box wines. Oregon's Sokol Blosser Winery recently made the decision to cease production of box wines under its Evolution brand. It offered a series of four wines that retailed for $28 per 1.5L.

Building off the success of Sokol Blosser's affordable Evolution bottles, the box wine format was met with lackluster consumer demand via distributor feedback. "Chain stores—which are essential in order to attain scale—were not receptive to boxed wines at the super-premium level," CEO Alison Sokol Blosser observed. "Overall, consumers are going for lower-priced box wines."

For single-serve wines, 375ml bottles are where it's at—and glass is favored over cans, which Brager said face pressure from other canned beverages, such as hard seltzers and ready-to-drink cocktails.

Sales data from online ordering platform Drizly indicate similar trends at play among consumers engaged in e-commerce. Despite skewing younger (half are between the ages of 28 and 41), Drizly consumers have shown a preference for wines sold in glass. Glass claims approximately 92 percent of the value of wine orders placed through the platform, which taps into a variety of local retailers to deliver alcohol to consumers in markets across the country. This is a percentage point higher than in 2019. While box wines increased during the first year of the pandemic, to 7.7 percent of wine orders, they're now just 6 percent. Cans, meanwhile, have not lived up to the significant growth seen prior to 2020 thanks to competition from other canned beverages.

Packaging Needs to React to Younger Consumers

A shifting demographic, however, is still contributing to some sales dynamics, added Stratton. Citing the most recent Wine Market Council Benchmark Segmentation study, based on a survey of consumers in October and November 2021, 24 percent of consumers purchase packages smaller than 750ml at least monthly. Rates were highest for Millennials and Gen Z, at 44 percent and 34 percent, respectively, as well as Hispanic (36 percent) and Black (32 percent) consumers. "Younger consumers and people of color are more inclined to purchase sizes below 750ml," he noted.

While the survey didn't ask participants about packaging materials or specific formats, the results indicate a clear preference among younger consumers for smaller sizes. This is consistent with previous surveys that have found younger adults tend to be more eclectic when they drink, with smaller sizes allowing them to try several beverages over the course of an occasion rather than sticking with just one format. Sales of cans have surged 79 percent versus pre-pandemic levels while sales in plastic have increased 53 percent.

Brager observed that 187ml plastic packages are "a growing part of the market, offering a convenient single size format/occasion."

The same format in glass has seen sales plateau but still offers a convenient size for specific occasions. Even Tetra packaging has seen respectable growth, rising 12 percent in the latest 52 weeks versus two years ago. The driver here is the 500ml format under the Bota and BeatBox brands (the latter is a wine-based cocktail).

Reviewing sales in 2021, Moramarco pointed to the growth in alternative packaging as part of a structural change in the industry. Working in New York between 2010 and 2014, he watched as younger diners embraced cocktails over wine at dinner. "We saw more couples coming into restaurants, having the cocktail then having a glass of wine. And that's kind of evolved since then, and we've lost a piece of that dinnertime beverage," he noted, adding that producers need to be mindful of this and respond.

While glass with a cork may be fine for premium wines, consumers are more comfortable now with alternative packaging that allows them to enjoy individualized portions. "I see people doing cans, I see people doing other things, but I don't think they're totally looking at all the other factors of what the consumer, the retailer, the marketplace are demanding of beverages today," Moramarco said.

One of these factors is cost. While many box wines offer convenience and affordability, the package size means they're not top of mind when consumers are sizing up their options against a Modelo or a Tito's vodka with cranberry juice. Similarly, the use of boxes to package more expensive wines for everyday consumption also runs counter to wider wine consumption trends.

Such factors need to guide the development of new products, Moramarco urged. One example of the kind of product he thinks could succeed reflects the ongoing success of single-serve packaging at a price point that's competitive with hard seltzers and ready-to-drink beverages. Moramarco described an eight-pack of 125ml containers (1L total) with a suggested retail price of $17.99 and promotional price of $14.99, or around $1.87 per serving, with an ABV of 12 percent to 14 percent.

Departing from existing norms, the eight-pack would offer a mix of wines and styles, including a red wine, sweet red, white and Rosé. Produced as blends, the wines would be affordable and cater to more palates across a variety of occasions. A younger, primarily female consumer would be the target market, but the multi-pack would have a premium appearance to help it stand out on the shelf. The individual wines could also be packaged in a 1L bottle with a screwcap, making it just the right size for larger family gatherings that bring together several generations. **WBM**

PACKAGE & DESIGN SPOTLIGHT

Redesign Celebrates Polo Culture While Bringing Label into the Modern Era

Andrew Adams

Roseland
(brand of King Family Vineyards)

Crozet, VA
TOTAL ANNUAL CASE PRODUCTION: 18,000 cases
ROSELAND PRODUCTION: 1,000
AVG. WINERY BOTTLE PRICE (ALL WINES): $26
ROSELAND: $25

Packaging Vendors:

DESIGNER: Watermark Design
BOTTLE VENDOR: All American Containers
LABEL VENDOR: Monvera Glass Décor

MOST WINERIES IN THE United States were founded because the owners had a specific vision of making wine with their own estate-grown grapes. King Family Vineyards originated from a much different vision.

When David and Ellen King moved to Virginia from Houston, Texas, where David had founded a law practice, they envisioned buying acreage for a polo field. An avid polo enthusiast since he first started playing in 1980, King wanted to spend more time pursuing his passion in the renowned Virginia horse country. In 1996, the Kings purchased a 327-acre farm, which had the requisite level ground for polo, but still had no interest in planting grapes.

A couple of years later, however, an inquiry from grower Tom Vandenberg about leasing a parcel for a vineyard sparked an interest that ultimately created a new passion. This led to the much more familiar origin story of starting out as growers, making a couple barrels of wine, a few more then going all in on an estate winery in 2002.

David King, who passed away in 2019 at the age of 64, served as chair of the Virginia Wine Board and helped pass legislation to facilitate the growth of the state's wine industry. The winery remains owned and operated by Ellen King and her three adult sons: Carrington, Stuart, James and their families. Annual production is around 18,000 cases, sourced primarily from 30 estate vineyards and 16 leased acres on an adjacent property.

While turning the grape growing side project into a winery, the King family never lost sight of polo and simultaneously turned the Roseland Polo Club into a leading center for the sport with regular public matches, lessons and boarding.

Because polo remains integral to the history and ongoing story of the estate, winemaker Matthieu Finot said they wanted to showcase the sport in a newly designed label with a modern, minimalist approach while avoiding anything too obvious or hokey. "We initially told Watermark that we didn't want horses or anything polo-related; but when they came up with this design, we loved it and went for it," he explained.

Finot is a native of the Rhône Valley and has been working in Virginia since 2003. The Roseland redesign follows the use of similar designs on the winery's popular Crosé (a Merlot Rosé) and a spritzy white produced in the style of Vino Verde (both wines are also now offered in three-can packs). Roseland

had been packaged in the winery's traditional labeling with a classic paper label and gold capsule, but Finot said they wanted a redesign to make the blend of Viognier, Petit Manseng and Chardonnay distinct. "Because it is more of an entry-level white wine, we wanted to get something different, less classic and more fun."

Entered into the redesign category of the 2021 Pack Design Awards, the labeling design earned praise from the judges who called it an "iconic way to celebrate the culture" and "way more modern and compelling."

The image of a polo player lifting his mallet is screen-printed on the back of the bottle, giving the image greater depth and helping draw attention to the "o" in Roseland that appears like a white polo ball. Roseland is sealed with a cork but no capsule in an effort to make it more approachable, as well as differentiate it from the winery's line of classic wines that includes estate varietals, a "flagship" red Bordeaux blend, limited-production blends and a fortified red wine that is aged for two years in Bourbon barrels. All the estate and leased acreage for the winery is in the Monticello AVA, which is the source for nearly all the winery's production, aside from some additional Merlot grapes to support the Rosé. "We are proud of what we grow in the state, and we are very adamant to use only Virginia grapes," Finot stated in an email.

Finot has been at King Family since 2007, consults for several other wineries and helped establish a technical group for Virginia winemakers. Despite his time on the estate, however, he has still not picked up the sport of kings. "My polo game is nonexistent," he noted. "I think I have ridden horses three times in my life. My eight-year-old daughter is a better rider than me!" **WBM**

RETAIL SALES ANALYSIS

Retail Wine Sales Fall Nearly 6 Percent in May

Wines Vines Analytics

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

Sales Value Down 6 Percent in May

Off-premise table wine sales fell nearly 6 percent versus a year ago to $1.1 billion in the four weeks ended May 21, NielsenIQ scan data showed. Sales in the latest 52 weeks totaled $16 billion, down 7 percent from the previous year. The only price tier showing growth in the latest four weeks was box wines at $4-plus per 750ml (up 2 per cent), while the $15-$19.99 price tier was the most resilient for glass packaging, with sales down just 1 percent. This marked a shift from the latest 52 weeks, which saw ongoing growth in wines retailing for $20-plus a bottle.

Sales Volume Down 7 Percent in May

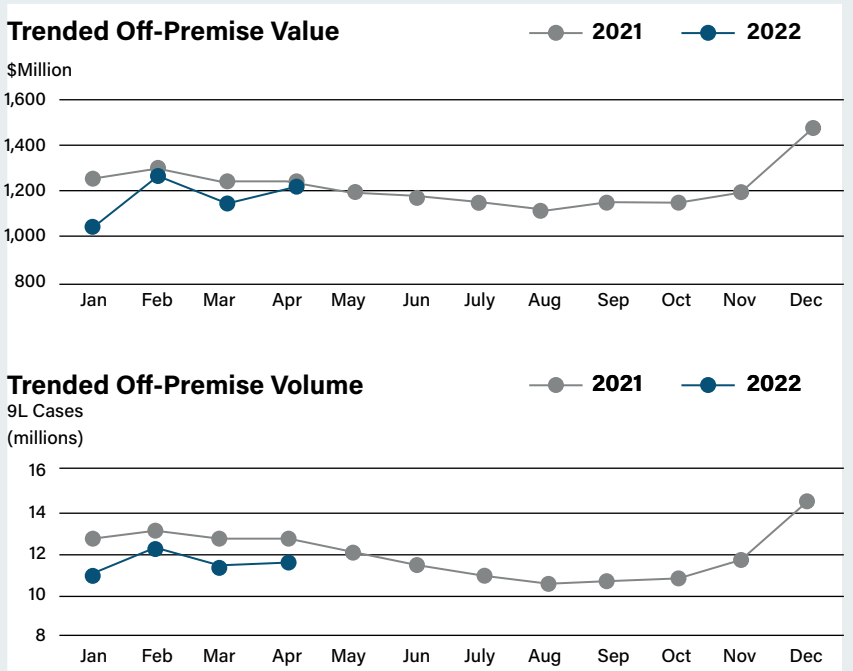
Off-premise table wine volumes dropped more than 7 percent versus a year ago in the four weeks ended May 21 to 11.3 million 9L cases. The decline contributed to a contraction of 10 percent in the latest 52 weeks versus a year earlier to 156.7 million 9L cases. Sales volumes continued to decline more sharply than sales value, underscoring the shift in spending to more expensive wines. The only category to show growth in the latest four weeks were box wines averaging $4-plus per 750ml, with volumes rising 2 percent in step with value growth. This was a shift from the latest 52 weeks, in which $25-plus bottles were the only category showing volume growth.

Wine Sales in Glass Alternatives Grow

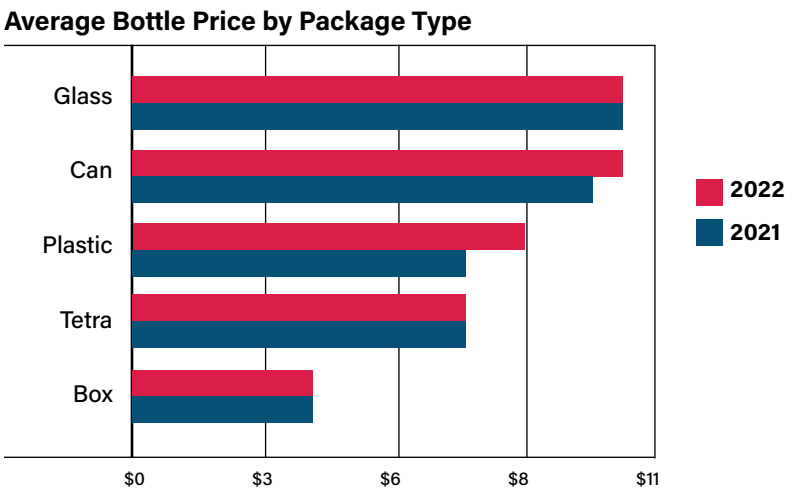
Glass remains the dominant packaging material for wine, accounting for 88 percent of sales through NielsenIQ retail outlets in the latest 52 weeks. The dominance of glass means it posted the greatest decline in sales during the period, with value down 6 percent. This shaved a percentage point off the market share held by glass packaging as public health restrictions eased and consumer purchasing returned to a semblance of normal. Box wines, the second largest segment of sales by value, saw sales decline in line with the overall market, falling 6 percent.

Wines in alternative packaging picked up the slack. Challenges accessing glass have driven demand for alternative packaging. Some wineries have embraced cans and plastic packs because they're lighter and seen as having a lower environmental impact. Many have positioned them as suited to outdoor social occasions.

During the latest 52 weeks, wines in plastic — already the third-ranked packaging material, with sales approaching $451 million — saw sales increase 16 percent versus a year earlier. Tetra packaging also posted strong growth of nearly 9 percent to sales of $298 million. Cans are catching up, however, with sales rising 5 percent in the latest 52 weeks to $288 million.



SOURCE: NielsenIQ Latest 4 Wks - W/E 04/23/22



SOURCE: NielsenIQ, off-premise sales in the 52 weeks ended May 21 and comparable prior periods.

Methodology

Sourced from NielsenIQ, 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. NielsenIQ figures are updated and released every four weeks.

NielsenIQ Table Wine Category Segments **MARKET:** Total US xAOC+Conv+Military+Liquor Plus **PERIOD:** Week Ending May 21, 2022

		Dollar Value		Dollar Value % Chg YA		9L Equivalent Volume		9L Equivalent Volume % Chg YA		Avg Equivalent Price Per 750ML	
		Latest 52 Wks - W/E 05/21/22	Latest 4 Wks - W/E 05/21/22	Latest 52 Wks - W/E 05/21/22	Latest 4 Wks - W/E 05/21/22	Latest 52 Wks - W/E 05/21/22	Latest 4 Wks - W/E 05/21/22	Latest 52 Wks - W/E 05/21/22	Latest 4 Wks - W/E 05/21/22	Latest 52 Wks - W/E 05/21/22	Latest 4 Wks - W/E 05/21/22
	TOTAL TABLE WINE	**15,996,285,889**	**1,146,406,700**	**-6.8**	**-5.5**	**156,696,786**	**11,267,391**	**-10.1**	**-7.5**	**8.51**	**8.48**
PRICE TIERS BY CONTAINERS	BOX	1,569,981,792	120,357,009	-6.7	-0.1	35,257,350	2,654,590	-8.0	-2.7	3.71	3.78
	$0-$3.99	556,185,725	42,472,333	-10.0	-3.0	18,442,221	1,368,519	-11.0	-6.8	2.51	2.59
	$4+	1,013,610,787	77,860,863	-4.8	1.6	16,811,774	1,285,633	-4.4	2.1	5.02	5.05
	Total Table Wine Glass	14,092,313,980	1,000,749,419	-6.9	-6.1	117,770,359	8,340,154	-10.9	-8.8	9.97	10.00
	Value Glass $0-$3.99	476,623,931	34,984,647	-16.5	-9.1	11,723,573	834,612	-17.7	-12.6	3.39	3.49
	Popular Glass $4-$7.99	2,671,982,842	195,123,040	-13.2	-7.6	39,626,722	2,823,981	-14.1	-10.1	5.62	5.76
	Premium Glass $8-$10.99	3,031,271,494	214,647,441	-11.8	-8.8	26,538,066	1,851,783	-12.4	-10.6	9.52	9.66
	Super Premium Glass $11-$14.99	3,660,378,727	263,191,341	-5.0	-4.8	24,029,220	1,709,942	-6.0	-6.3	12.69	12.83
	Ultra Premium Glass $15-$19.99	1,945,641,869	139,505,129	-1.1	-1.0	9,438,910	678,894	-2.1	-1.3	17.18	17.12
	Luxury Glass $20-$24.99	826,283,820	59,029,117	0.8	-4.2	3,127,115	221,176	-0.3	-5.8	22.02	22.24
	Super Luxury Glass $25+	1,444,639,088	89,909,480	4.5	-9.9	3,102,921	197,187	2.5	-9.3	38.80	38.00
IMPORTED	IMPORTED	4,385,571,302	317,220,617	-8.3	-7.4	41,562,915	2,999,444	-10.8	-8.8	8.79	8.81
	ITALY	1,443,804,896	100,667,288	-8.1	-8.4	11,401,429	789,804	-10.4	-10.4	10.55	10.62
	AUSTRALIA	652,765,127	46,773,198	-13.7	-10.1	10,436,826	749,026	-13.5	-10.6	5.21	5.20
	FRANCE	628,334,079	46,596,913	-6.2	-10.4	3,369,635	252,740	-10.3	-13.0	15.54	15.36
	CHILE	358,659,108	27,098,201	-11.1	-3.9	6,170,056	468,395	-9.9	-3.2	4.84	4.82
	SPAIN	158,284,665	11,517,007	-6.6	-0.5	1,127,385	84,035	-11.1	0.4	11.70	11.42
	GERMANY	78,782,317	5,448,288	-9.9	-7.9	670,862	46,431	-11.6	-7.9	9.79	9.78
	NEW ZEALAND	645,523,207	50,435,679	-1.2	0.0	4,412,599	338,491	-3.1	-3.4	12.19	12.42
	ARGENTINA	304,556,424	20,661,926	-12.6	-11.6	3,045,068	205,425	-14.9	-13.6	8.34	8.38
	SOUTH AFRICA	25,775,316	1,883,963	-10.8	-9.3	215,466	15,577	-8.9	-6.1	9.97	10.08
	PORTUGAL	49,622,531	3,663,785	-10.8	-6.8	484,909	35,122	-12.5	-9.7	8.53	8.69
DOMESTIC	DOMESTIC	11,610,714,587	829,186,083	-6.2	-4.8	115,133,871	8,267,947	-9.8	-7.0	8.40	8.36
	CALIFORNIA	10,452,641,467	746,779,748	-5.7	-4.3	106,370,696	7,650,777	-9.5	-6.6	8.19	8.13
	WASHINGTON	587,225,031	42,985,099	-13.9	-8.6	4,627,762	337,511	-14.8	-10.3	10.57	10.61
	OREGON	301,284,566	20,120,975	-4.1	-10.1	1,458,290	97,338	-6.3	-12.9	17.22	17.23
	TEXAS	30,530,460	2,203,135	-14.8	-14.3	320,104	22,021	-18.7	-21.9	7.95	8.34
	NEW YORK	42,164,381	3,554,081	-8.8	-8.9	451,192	32,377	-10.9	-10.1	7.79	9.15
	NORTH CAROLINA	44,840,298	3,275,021	-4.2	1.4	447,432	31,349	-6.9	-5.6	8.35	8.71
	INDIANA	25,039,389	1,784,954	-7.5	-4.1	266,872	18,177	-8.4	-10.0	7.82	8.18
	MICHIGAN	26,021,775	1,647,589	-10.7	-11.2	257,091	15,719	-13.7	-14.2	8.44	8.74
TYPES	RED	8,315,373,278	564,767,964	-7.1	-6.4	71,395,269	4,930,639	-11.0	-8.0	9.71	9.55
	WHITE	6,499,183,907	489,730,441	-5.2	-2.9	70,401,125	5,237,593	-8.1	-5.3	7.69	7.79
	PINK	1,174,836,144	91,836,411	-12.6	-12.6	14,833,086	1,098,481	-14.8	-14.5	6.60	6.97
VARIETALS	TOTAL CHARDONNAY	2,707,349,441	203,857,525	-5.2	-3.1	28,833,339	2,154,320	-8.1	-5.1	7.83	7.89
	TOTAL CABERNET SAUVIGNON	3,168,520,954	217,601,722	-4.4	-4.0	25,336,238	1,779,412	-8.5	-4.8	10.42	10.19
	TOTAL PINOT GRIGIO/PINOT GRIS	1,465,904,479	111,497,696	-4.1	-1.5	17,957,243	1,344,318	-6.2	-3.7	6.80	6.91
	TOTAL PINOT NOIR	1,333,541,904	89,664,737	-3.8	-3.7	9,025,797	611,904	-7.1	-5.5	12.31	12.21
	TOTAL MERLOT	624,797,931	43,546,505	-11.9	-9.8	7,851,528	551,421	-14.2	-11.3	6.63	6.58
	TOTAL SAUV BLANC/FUME	1,305,507,429	101,199,698	-0.4	1.3	10,767,964	821,926	-2.7	-1.2	10.10	10.26
	TOTAL MUSCAT/MOSCATO	601,820,201	43,357,206	-14.6	-10.9	8,378,311	593,466	-16.7	-13.3	5.99	6.09
	TOTAL WHITE ZINFANDEL	225,654,968	16,524,211	-14.6	-12.5	4,364,152	313,040	-15.6	-14.1	4.31	4.40
	TOTAL MALBEC	238,513,887	16,120,376	-11.5	-10.1	2,105,023	142,925	-12.8	-10.2	9.44	9.40
	TOTAL RIESLING	229,846,956	16,212,258	-12.1	-9.6	2,273,713	157,719	-14.3	-11.2	8.42	8.57
	TOTAL ZINFANDEL	212,550,219	14,005,530	-12.9	-11.8	1,361,348	88,505	-16.3	-15.0	13.01	13.19
	TOTAL SHIRAZ/SYRAH	111,737,346	7,492,953	-15.8	-14.8	1,140,842	77,100	-18.8	-15.5	8.16	8.10
	WHITE BLENDS (ex. 4/5L)	250,358,722	18,051,935	-9.1	-8.1	2,643,687	191,953	-12.1	-8.5	7.89	7.84
	RED BLENDS (ex. 4/5L + CHIANTI)	2,152,665,704	143,657,491	-9.1	-8.9	17,485,560	1,183,596	-12.8	-9.9	10.26	10.11
	ROSE BLEND	682,377,512	55,642,645	-11.2	-13.4	5,226,278	407,041	-14.1	-16.6	10.88	11.39
GLASS SIZES	750ML	11,950,929,373	844,022,996	-6.0	-6.0	82,963,885	5,829,488	-9.9	-8.8	12.00	12.07
	1.5L	1,850,994,784	136,238,707	-11.9	-5.9	30,279,655	2,191,163	-13.1	-8.1	5.09	5.18
	3L	50,282,146	3,636,704	-15.0	-11.0	1,151,896	79,748	-16.3	-16.8	3.64	3.80
	4L	65,939,061	4,785,941	-13.2	-9.0	2,002,234	141,959	-14.6	-12.1	2.74	2.81
	187ML	88,583,515	6,469,927	-14.5	-12.0	995,580	72,515	-15.3	-13.4	7.42	7.44
	375ML	61,298,529	4,493,739	15.5	0.5	226,740	16,378	19.2	-0.1	22.53	22.86
BOX SIZES	ex. 4/5L	1,106,891,474	84,798,532	-5.3	1.1	19,282,427	1,466,037	-5.2	1.1	4.78	4.82
	1L	34,673,888	2,824,535	0.7	10.6	492,148	39,696	0.6	10.1	5.87	5.93
	1.5L	18,326,356	1,370,374	-19.2	-6.5	336,168	24,569	-23.5	-9.6	4.54	4.65
	3L	816,153,007	61,437,665	-7.8	-0.8	15,542,554	1,169,834	-6.5	0.1	4.38	4.38
	5L	463,086,396	35,558,134	-9.9	-2.8	15,974,827	1,188,544	-11.1	-6.9	2.42	2.49
	TETRA	272,976,719	22,030,249	4.3	7.4	3,409,373	272,037	3.7	6.5	6.67	6.75

Source: NielsenIQ

Retail Wine Sales Fall Nearly 6 Percent in May

NielsenIQ scan data for the latest 52 weeks indicates that wineries are also using alternative packaging for more expensive products. While the average bottle price for all wines increased 4 percent in the latest 52 weeks, wines in cans posted a 13 percent increase to $9.90 per 750ml. This is second only to wines in glass, which averaged $10.10 per 750ml.

Sparkling wine was one of the big winners during the pandemic as consumers shifted spending to the off-premise channel from on-premise outlets. But as consumer spending returned to pre-pandemic patterns, sales of sparkling wines through NielsenIQ outlets have seen growth patterns reverse. The four weeks ended April 23 saw sales contract nearly 5 percent versus a year earlier to $167.8 million. This marked a deceleration versus the latest 52 weeks, when sales contracted 3 percent versus a year earlier to $2.4 billion. During the comparable 52 weeks ended April 24, 2021, sales surged by 29 percent.

A glance at sales volumes also indicates a return to pre-pandemic patterns. Sales in the latest 52 weeks continued to exhibit the premiumization that took hold during the pandemic, with volumes declining faster than value to support a 3 percent increase in average bottle price to $14.35. But during the latest four weeks, sales value and volume declines were more closely aligned. This resulted in an average bottle price of $14.21 in the latest four weeks, a decline of little more than 1 percent versus a year earlier.

Despite the shifts, off-premise sparkling wine sales have emerged from the pandemic in a stronger position than they were two years ago. Sale value in the latest 52 weeks is up 25 percent versus two years ago and average bottle price is up 11 per cent over the same period. **WBM**

WINE INDUSTRY

Financial SYMPOSIUM

The wine industry's leading business conference now includes the Wine Industry Technology Symposium and the Vineyard Economic Symposium.

Save the Date!

November 16/17, 2022

CIA@Copia, Napa

Registration Opens on August 17th.

wineindustryfinancial.com

Presented by WINE BUSINESS MONTHLY

For Sponsorship Opportunities, contact Waunice Orchid at 707-307-3020 or send an email to waunice@winebusiness.com

Wineries Struggle to Find Fire Insurance

Industry continues search for solutions as it learns to live with wildfires

Kerana Todorov

Kerana Todorov is a reporter based in Napa. She can be reached at *kerana.todorov@gmail.com*

WITH EVERY PASSING YEAR, wildfires threaten wineries in wine country and beyond and, as climate change worsens, cause extreme weather patterns around the globe.

In California, North Coast wineries recorded wildfire-related losses totaling nearly $371 million between 2017 and 2020, according to the California Department of Insurance. At the same time, an increasing number of California wineries have lost their fire insurance. In 2017, insurance companies canceled 118 fire policies that covered wineries in California; that number jumped to 616 policies in 2020.

Others saw their rates dramatically increase while the amount covered shrank.

Cyril Chappellet, president and CEO at Chappellet Vineyard, said his company paid about $200,000 for $80 million coverage in 2017. The Napa Valley winery now pays $1.2 million for less than $25 million of coverage. "We're probably insuring a quarter of the value of our business," he remarked.

Still, Chappellet added, "It's a heck of a lot better than people who aren't able to insure any of their risk whatsoever."

About 60 percent of Napa Valley's wineries cannot obtain insurance at any price, said Chappellet, who is also a member of the board of directors at Napa Valley Vintners, as well as a Napa County Fire Safe Council director. He called the insurance rates "insane," though he also understands insurance companies have their reasons. "They've got a business to run, right?"

"I don't know if there is a solution to this," Chappellet also noted, referring to the insurance issue.

Last fall, Vintage Wine Estates, a publicly-traded company, formed its self-insurance company, Captive LLC. The company, which owns properties in California, Washington, Oregon and Ohio, did so after its insurance policy went from $200,000 to $4 million a year after the 2020 wildfires.

Vintage Wine Estates is now self-insured for up to $10 million. It also has supplemental insurance. "It's just more cost-effective," Vintage Wine Estates' CEO Pat Roney said.

Being Proactive Seems the Best Insurance

In the meantime, Vintage Wine Estates, Chappellet and other wineries continue to prepare, including clearing brush and vegetation, adding sprinklers to buildings, and training staff to protect the properties and stay safe. Chappellet has even hired former St. Helena Fire Chief Kevin Twohey to help harden the 770-acre property. Twohey, who also ran Napa County's Office of Emergency Services, is now the Pritchard Hill fire chief, according to Chappellet.

Tim Schmelzer, vice president of California state relations at Wine Institute, never thought that insurance and wildfire would be among the 20 top issues he would have to address during his tenure at the trade association.

But then wildfires became more prominent. Member after Wine Institute member sought help with insurance and smoke exposure issues, Schmelzer recalled during a presentation at Wine Business Monthly's Central Coast Insights 2022 in Paso Robles this past March.

He said his colleagues first had to educate themselves about wildfires and insurance policies then come up with a plan to assist members seeking help. The team met with wineries, regional wine associations, lobbyists, state regulators, firewise councils and others.

Schmelzer had worked with Ricardo Lara when Lara served in the California State Senate. He did not think he would work with Lara after Lara's 2018 election as California's insurance commissioner. "Come to find out, that's one of my most important relationships I probably have to this day," Schmelzer admitted.

The team learned that the insurance market essentially receded because of "this massive uptick" in perceived risk from wildfires, Schmelzer noted. With only a few thousand wineries in California, "there just wasn't enough to spread the risk," Schmelzer said. Insurance companies fled the market.

"And the only way to deal with that really is to address this risk head on," Schmelzer continued, referring to wildfires. One of Wine Institute's goals is to be "more involved in Sacramento policymaking to prevent these fires in the first place," Schmelzer said. The trade association has sought more money for wildfire prevention, not just in forests but also in oak woodland areas, which are much more common in wine country. "We've been fortunate that there has been more money in the California budget to help with that."

According to a January 2022 Legislative Analyst's Office report, Cal Fire's total wildfire protection budget has grown by nearly two-thirds over the past five years. The budget went from $1.3 billion in 2017-2018 to $2.1 billion in 2021-2022. Its overall budget has increased by about 45 percent during the same time period, from $2.5 billion in 2017-2018 to $3.7 billion in 2021-2022.

Wine Institute also wants to boost insurance coverage. "This is something that isn't done overnight, we quickly came to understand," Schmelzer admitted.

In 2021, Wine Institute, the California Farm Bureau and others strongly supported a state bill to allow the state's insurance of last resort, known as the California FAIR Plan, to cover wineries and farm buildings instead of just homeowners. Last October, Lara ordered a boost in coverage from $4.5 million—$3 million for structures and $1.5 million for personal property—to $8.4 million—$5.6 million for structures and $2.8 million for personal property.

Still, that's not enough. While the coverage limit has nearly doubled, Schmelzer said the FAIR Plan is "wholly inadequate" to cover this market.

In the long term, the California Department of Insurance should develop rate structures that consider wineries' efforts to protect their properties from wildfires. Property owners who prevent wildfires should be rewarded with lower rates, Schmelzer urged.

"It is the hope that with these rate structures in place, we're going to start seeing more policies made available for our members," Schmelzer said.

Wine Institute and other organizations also have backed efforts to renew the Emergency Relief Program, typically activated during disasters. On Sept. 30, 2021, President Biden extended funding to the disaster recovery assistance program, which included $10 billion in aid for agricultural producers affected by wildfires, drought, hurricanes and other catastrophic events.

There are also efforts to fund research on smoke exposure, Schmelzer added.

Destructive Climate Events Push Rates Higher and Higher

How did we get here?

Brendan Wright, winery program manager for Paragon Insurance Holdings, explained that before the catastrophic fires of 2017, insurance rates were affordable. The industry did not model for wildfire exposure. "It really wasn't an issue," Wright remarked.

Insurance rates were below where they should have been, Wright showed during a presentation at Central Coast Insights 2022. Still, insuring wineries was profitable.

Since 2017, however, there have been consecutive catastrophic wildfires in wine regions and other climate change-related events, both nationally and internationally. Wildfires caused $12 billion in losses in 2017 and $4 billion each in 2018 and 2020.

In 2005, Hurricane Katrina cost billions of dollars in damage. But the insurance market was back to normal six months later, Wright said. What is the difference now? The difference, Wright explained, is that there have been consecutive years of damage from wildfires. "And we have basically what is now a prevalence of wildfires that we're dealing with on an annual basis," Wright noted. Nine of the top 10 costliest wildfires in the United States have occurred in the last five years.

According to Wright, the insurance industry is taking "a full step back from this marketplace" as it tries to develop a way to deal with wildfires. Some carriers have pulled out of the market while reinsurance companies—the entities that insure insurance companies—hesitate to provide "capacity and support," and there just isn't enough capacity in the marketplace.

> *"We're probably insuring a quarter of the value of our business. It's a heck of a lot better than people who aren't able to insure any of their risk whatsoever."*
>
> **Cyril Chappellet,** president and CEO, Chappellet Vineyard

"So even if an insurance company, like mine, would like to write insurance on a specific piece of property, we can't get a reinsurer to help support us with the type of limits that we're putting up," Wright explained. "We don't have the ability to provide that coverage to the insured, so it's a little bit of a domino effect."

Insurance carriers offer rates and coverage filed with state regulators. Any change is a "long, drawn-out process," which includes legal and Department of Insurance review, Wright said.

There is more scrutiny on wildfire exposure as well. Wildfire modeling products are now the "Bible" for insurance companies in California. These products use historical data, including trees and brush on a given property, hillside slopes and wind patterns, to develop a wildfire "predictive model," which is then used to make decisions on coverage. Insurance companies also consider construction materials and the age of the buildings, as well as brush mitigation efforts, fire suppression resources, access to water and hardening techniques, Wright added.

Carriers are also cautious about how much insurance business is written in a given area and concerned about oversaturation of risks, he said.

But the insurance market will come back with consecutive good years. There was not a lot of structural damage due to fires in 2021, despite the Caldor and Dixie conflagrations in Northern California. "So, a year like that is beneficial for the market to come back to what we feel like might be more of a normal setting," Wright relayed.

Programs Help Businesses Protect Themselves

Other potential solutions include investment in wildfire modeling tools and developing new reinsurance products for carving out wildfire risks.

The California FAIR Plan, while a short-term solution, "does help a little bit currently," Wright said. Also, the California Department of Insurance has proposed regulations to give the insured credit for mitigation efforts; there are also bills to prohibit carriers from not renewing policies.

Besides investments in wildfire mitigation and forest management measures, companies have invested in developing infra-red cameras for early fire detection, Wright noted.

SPECIALTY TREATMENT SOLUTIONS

REMOVE THE WASTE | REUSE THE WATER

Cost-Effective Wastewater Treatment Systems

COMPACT SYSTEMS

CUSTOM SYSTEMS

UNDERGROUND SYSTEMS

APPROVED

Meets and Exceeds Governing Agency Effluent Regulations

MULTI-ROLE

Treats Process Waste, Sanitary Waste or Combined Wastewater

SMALL FOOTPRINT

Compact and Efficient Integrated Tank Design

Contact industry experts and engineers for your

Winery Wastewater Treatment Solutions

(707) 373-7490

info@stswatertreatment.com | STSWaterTreatment.com

Fire protection also includes privately-funded firefighting resources.

Companies, like Wildfire Defense Systems Inc. of Bozeman, Mont., offer privately-funded, wildfire-related loss prevention services to dozens of insurance companies. Founded in 2001, the firm is the equivalent of the third biggest wildfire agency in the United States.

> *"It is the hope that with these rate structures in place, we're going to start seeing more policies made available for our members."*
>
> **Tim Schmelzer,** vice president of California state relations, Wine Institute

The federal government in the mid-1980s realized it lacked wildfire-fighting resources, such as water tenders and hand crews, according to David Torgerson, CEO at Wildfire Defense Systems. It began to hire private contractors under federal contracts. "And that was the birth of the wildfire contractor industry," Torgerson stated at Central Coast Insights 2022.

A qualified insurance resource, like Wildfire Defense Systems, is "in operation to the insurance industry, which is in service to the policyholders," Torgerson explained. Its limited mission is saving structures from wildfires.

More than half of California homes have a (Wildfire Defense Systems') "response service standard on their policy," according to Torgerson.

The company tracks thousands of fires in 22 states, all from its Montana headquarters. The company dispatches personnel to wildfires that threaten properties. "Our mission is to just increase structure survivability," Torgerson summarized.

In 2020, Wildfire Defense Systems' crews were dispatched to 161 fires, and 99.87 percent of the properties survived, Torgerson noted.

"The challenge here is living with fire, whether you're a producer, an owner or manager an insurance company, or reinsurer," he said. "It's living with fire and having the confidence to be able to stay in the fire environment."

Wildfire Defense Systems' crews prepare properties to survive wildland fires with tasks that publicly-funded firefighters do not have time to do as they focus on saving lives. Torgerson explained that it takes a crew 30 minutes to an hour to prepare a property. That includes sealing vents, spraying grass with water, applying fire retardant and removing leaves and other combustible materials.

During a wildfire, crews protect properties by removing combustible materials, clearing gutters, assisting in the creation of firebreaks, applying fire-blocking gels and deploying sprinklers.

One goal is to keep embers out. "If you can just keep the embers out of the structure, it's a little harder for that structure to ignite in the two to 10 minutes that the fire is present on the property," Torgerson said. "We prepare properties to survive, and then we secure them after the fire front comes through."

After a fire has passed, properties remain at risk. So, it's up to Wildfire Defense Systems' employees, post-fire, to put out hot spots and suppress embers, monitor flare-ups, clean up fire-blocking gels and remove vent coverings.

Conclusion

In the meantime, wine companies will continue to deal with insurance issues.

"It's been a real challenge for everybody, that's for sure," said Pat Roney of Vintage Wine Estates, the 14th largest wine company in the United States.

Will wildfire risks lessen? "I'm not optimistic," Roney opined, adding that he thinks state and federal governments are not doing enough to prevent fires. "I don't think we're doing enough on climate change. And that's what you've got here." **WBM**

Ardagh Glass Packaging

Collaboration from manufacturing line to bottling line

BOTTLES 100% MADE & SUPPORTED IN THE USA

As the largest producer of glass wine bottles made 100% in the USA, Ardagh Glass Packaging has the resources to meet your unique needs with flexibility, responsiveness and ease.

We're ready to collaborate with you — right from the heart of the major North American wine regions, helping things run efficiently every step of the way. Call us to learn more about our extensive bottle portfolio and the exceptional quality and support you can expect from your local glass partner.

★★★★ MADE IN THE USA

317-558-1585

ardaghgroup.com/wine2022

2022: INTERNATIONAL YEAR OF GLASS

Oregon Family Wineries: Planning for the Future

L.M. Archer

RICHARD DUVAL

Brooke Robertson of Delmas

COURTESY OF DOMAINE DROUHIN OREGON

Véronique Boss-Drouhin of Clos des Mouches

IT'S A BRISK, WINTER morning in southern Beaune. Soft sunlight spills across the limestone walls of Clos des Mouches, across the lane and into the conference room of Maison Joseph Drouhin's satellite winery.

Inside, Véronique Boss-Drouhin, snug in coral cardigan sweater, settles down to rows of neatly labeled wine samples arrayed along a linen-draped table. Across from her, daughter Laurène Boss, cozy in a white wool scarf, powers up the laptop.

It's Oregon winetasting time at Maison Joseph Drouhin (MJD), one of Burgundy's most prominent domaines. It's also one of the most pioneering. In 1987, the family ventured to Oregon, establishing Domaine Drouhin Oregon (DDO) in Dundee and Roserock Oregon in Eola-Amity Hills in 2013.

In doing so, the Drouhins joined a large cadre of family-owned wineries in Oregon. According to the Oregon Wine Board, family-owned wineries account for nearly 70 percent of all state wineries. But recent acquisitions

COURTESY OF DOMAINE DROUHIN OREGON
Laurène Boss of Clos des Mouches

by major brands, like Champagne Bollinger, Santa Margherita and Constellation, leave many such family wineries worried about the future.

Patrimoine

Fifth-generation Maison Joseph Drouhin plans for the future through the Burgundian philosophy of *patrimoine*. This concept honors past generations while safeguarding future generations—principles applied at Domaine Drouhin Oregon and Roserock Oregon, too.

Founded in 1880 in Beaune by Joseph Drouhin, the negociant house initially bought grapes and wine to blend and resell under their own label. Second-generation Maurice Drouhin expanded into land ownership; in 1921 he purchased the premier cru Clos des Mouches vineyards to create estate-grown wine. A World War II French Resistance hero, Maurice eventually entrusted the reins to third-generation Robert Drouhin, who pushed the family's holdings beyond the Côte d'Or into areas like Chablis, the Mâconnais and Oregon.

Today, Robert Drouhin's four adult children manage all aspects of the family business. Though originally slated to take over for his father as head of the family domaine, eldest son Philippe first attended Lycée Viticole de Beaune where he developed an interest in organic and Biodynamic vineyard practices. Other family members joined him, pursuing their own areas of interest within the company.

"For us, it was just great," explained winemaker Véronique Boss-Drouhin. "Philippe, Frederic and Laurent, we each have the field that we liked. Philippe is vineyards. For me, it's the winemaking. Frederic and Laurent are mostly in sales and marketing. So we share the duties, which are very demanding."

Interestingly, Véronique Boss-Drouhin recalls no pressure to enter the family business. She does recall feeling a pull towards honoring her family's heritage around the age of 13 or 14 when she started traveling and tasting with her father. "Then you realize you're part of a heritage, of a history, of a culture, of amazing wines. And that was when I said, 'Wow, it would be sad that this goes nowhere.' So, for me, it was really at that moment that I said, 'Well, I like it.'"

Boss-Drouhin's daughter Laurène represents the fifth generation at Drouhin. "I never thought that it was something Laurène should do because she's the oldest child," said Boss-Drouhin, "even though she always liked to taste wine. So, between when I was growing up and when she was growing up, I wouldn't say there was any guidance difference. Whatever she was going to do, like me when I was growing up, you had to try and do it well."

But Laurène Boss also acknowledges the pull of *patrimoine*. She noticed it about seven years ago while working at LVMH (*Moët Hennessy*). "We are just passing through time," observed Boss. "But Maison Drouhin and DDO will stay. So yeah, I would say 23 to 24 years old, I really got hit by, 'Oh, I have something. The legacy is huge. And we have to keep this big history going.'"

Ultimately, Laurène Boss described the Drouhin business model as "co-existing generations." "It's more about transmission and heritage," she stated. "So that's a big thing. I think it's harder for me today because I'm the only one from the fifth generation. There were four of them, so you split the knowledge. Today, I have to learn about every step of the winemaking."

As a Millennial, however, Boss brings some valuable skillsets to the table. "LVMH is a really good school for that because they have years of experience in marketing, communication and teams," she noted. "And we're big–we have 100 people to manage, and it's not that easy to do, especially today. So, I'm bringing a little bit of that new, fresh eye and management and how to tell a story to people. If I'm the only one of the fifth generation, I cannot be everywhere at the same time. We need to structure how we can talk about the family, the vineyards, the wine. And also we have a big challenge, which is climate."

However, the cornerstone of Drouhin's family heritage rests on tasting and savoir-faire. "I think something important at Drouhin is [that] Joseph, Maurice, Robert, Véronique and [now] Laurène—we always have been connected with the wine production," said Boss-Drouhin. "Finding a really good finance director or a manager or a super-good marketing guy, it's easy. But the know-how and the legacy of the winemaking and the study you want to do, that's important."

Since 1988, Véronique Boss-Drouhin routinely ships Oregon wine samples via FedEx to her home base in Beaune for tasting. Laurène participates in the tastings, which typically span about two days. "Since there is always quite a lot to taste, I organize it by 'families'—DDO Pinot, Roserock Pinot, and both Chardonnay from DDO and Roserock together," explained Boss-Drouhin. She added, "Beyond 35 samples per session, our palates are tired and our tasting judgment not so accurate." Afterwards, Boss-Drouhin relays her findings to her assistant winemaker at DDO, Arron Bell, for follow-up.

Robert and Philippe Drouhin sometimes join the inter-generational tastings. "We still sometimes taste all together with my father and my brother Philippe, who runs all farming programs at DDO and Roserock," said

RICHARD DUVAL
Steve Robertson of Delmas

Boss-Drouhin. "Philippe is, of course, always very interested to relate what we find in the wines to what he did or what happened in the vineyards. This is how we built our experience and how we are nailing down nuances between the blocks and, little by little, revealing the best ones of both estates. Sort of similar to what the monks did in Burgundy in the 12th century (except they did not have to Fed-Ex the wines…)!"

In Their DNA

Other Oregon wineries carefully choreograph succession strategies based on models similar to those in Burgundy. "It was always our intention that this would be a legacy project," stated Steve Robertson of Delmas in the Walla Walla Valley. Robertson and wife Mary planted SRJ Vineyard in The Rocks District of Milton-Freewater in 2007.

Daughter Brooke, now 35, approached her parents about eventually assuming ownership while in her early twenties. "We worked with the lawyer and charted that course in terms of when the best timing would be for that formal financial obligation on her side," explained Robertson.

He also started including her in service provider meetings, check writing and tax paying. "It makes a whole bunch more sense to wrap every decision around that eventuality from the get-go," said Robertson. "It's not a responsibility. It's actually in her DNA."

To understand the viticultural aspect of the business, Brooke broadened her technical and educational experience with studies at UC Davis, stints in Napa and Master Pruner Designation training with Simonit & Sirich. Robertson believes his daughter's educational and technical expertise balances out his business savvy. "Where I can override her is just experience."

RICHARD DUVAL

Mary Robertson of Delmas

For Robertson, financial realities underpin every decision. "I understand the importance of money and dealing with money," he noted. "So many people in our industry come at it from the farming side or the science side. The thing that connects those two things is business, but they're not businesspeople. We want to focus on style; we want to focus on farming practices. But that's not the most important thing. The most important thing is the business that connects all of that."

Robertson's business savvy extends to marketing, too. "I knew early on, just from previous business models and looking at the Old World, that if you're a small vigneron, you better be good in terms of the quality of your product. And if you, as owner, are also selling the product…you have a different connection with your consumer, which builds loyalty, which is not vintage-related. It's producer-related. So we've always been 80 percent DTC (Direct To Consumer). Always."

Ultimately, Robertson strives to emulate Old World practices put in place centuries ago. "Again, the Old World model is really super-clear in this respect. There's an historical model that we can all look at, that gets you through the tough times," he said. "Because there will be tough times—people are dealing with it right now. But the big goal is always there, and it keeps us focused on the day-to-day. That's the issue. If you're not focused on that out there, you're not going to get there period because of the pandemic or whatever else is going on. It's the building of the DNA. That's the Old World lesson…. It's not complicated. And it changes your decision-making, even in the near term. If you're focused on something 50 years out, that's beyond you, that's not about you."

Flexibility

Some Oregon family winery succession plans evolve more organically. Pat and Joe Campbell of Elk Cove Vineyards belong to the first wave of pioneers who planted Pinot Noir in Oregon's Willamette Valley during the late 1960s and early 1970s. As with other "first families," the Campbells financed their vineyard and winery by working day jobs, sharing equipment and enlisting their children, friends and family as labor. In those days, succession plans simply involved surviving to the next vintage.

ACIC

CORK AND CLOSURES

The Perfect Balance

AN AUTHENTIC COMMITMENT TO QUALITY
WHILE MEETING THE NEEDS OF YOUR BUSINESS

ACIC Cork & Closures
255 Lombard Rd. Suite C
American Canyon, CA 94503
Tel 707.603.1380 | Fax 707.603.1399
acicclosures.com

ELKCOVEVINEYARDS
Early picking crew at Elk Cove Vineyards

Over time, the children of this initial generation stepped up to run the family enterprises. Pat and Joe's son, Adam Campbell, assumed winemaking and management at Elk Cove Vineyards from his parents in 1995. Quickly, Campbell realized he needed to get creative to maintain his parents' legacy. "So starting in the mid-90s, we leveraged our good relationships with lenders and borrowed money to embark on a vineyard acquisition development project that increased our vineyard holdings ten-fold," he recalled. "We increased production capacity and invested in our sales and marketing."

ELKCOVEVINEYARDS
Mt Richmond Vineyard Spring 2019

Campbell's sister Anna joined him as creative director in 2012. Together, the siblings pushed boundaries further. "We now own and farm 400 acres of estate vineyards for Elk Cove, and we also have founded a sister winery called Pike Road," said Campbell. "We have two thriving tasting rooms, and sell our wines throughout the USA and in 15 export markets. In today's age of consolidation and out-of-state corporate ownership of wineries, we are so proud and happy that we are a family-owned and -run estate winery."

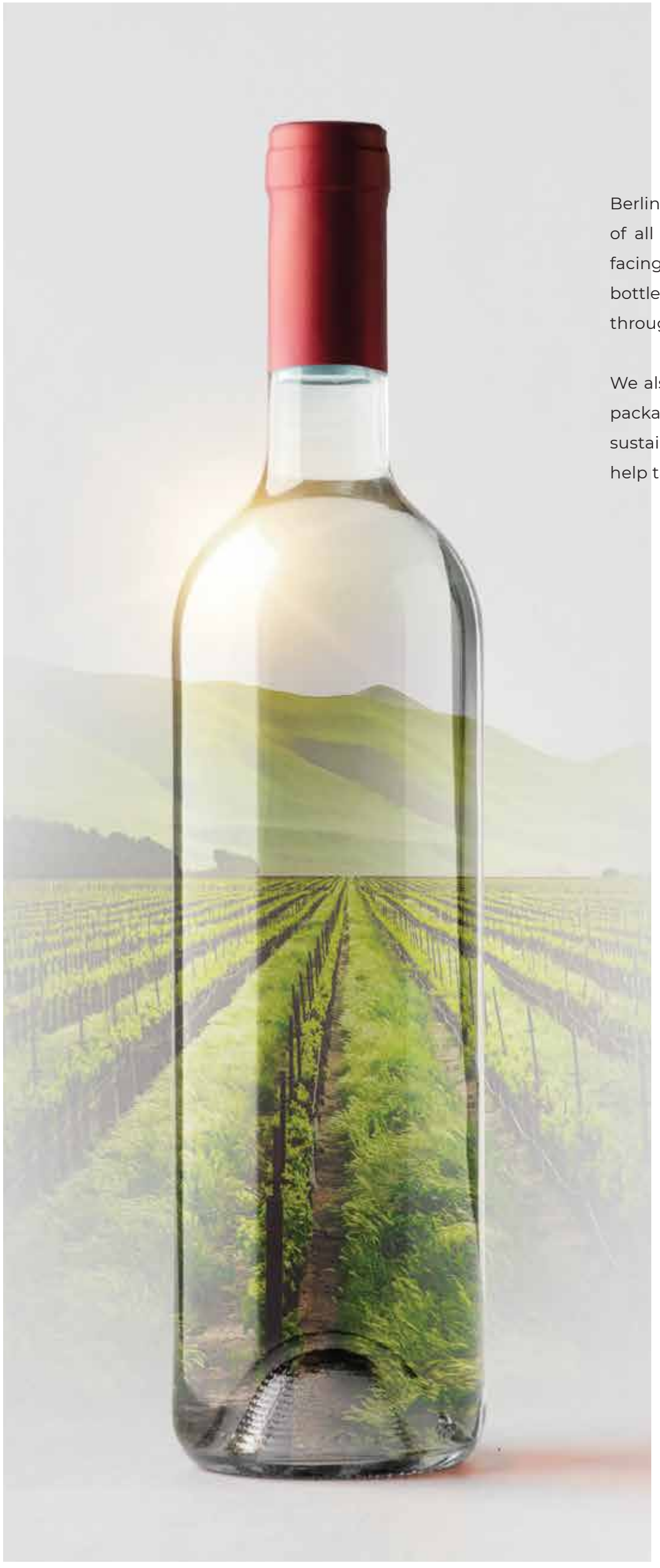
It took time away for Anna Campbell to realize she could add value to the family winery. "After a decade of working in commercial photography, I could finally see my place in the wine industry on the communications and marketing side," she explained. "I think the hard part was finding how I could best support the family business. We hadn't had a creative director previously, and our marketing was wrapped up in our sales department. We're now up to 50 employees; and while we all wear many hats as we grow, the jobs do get more specialized.

"I feel incredibly lucky that I get to work with my family," she added. "I have heaps of respect for what my parents did to help found the Oregon wine industry, starting a business with my mom's farming background, income from my dad's medical practice, and a passion for wine but not much else. And I have heaps of respect for my brother—his winemaking and skills, his management abilities and his viticulture instincts that have all helped Elk Cove grow year after year. Part of our shared family culture is that we enjoy working hard, and we enjoy working together—I think if we didn't have that work ethic and respect for each other, it wouldn't work."

"Anna brought so much to the table when she decided to come home to the family business," agreed Adam Campbell. "Anna is very creative, and she is an innovator when it comes to how we are able to tell our story as a pioneer Oregon estate winery with a focus on farming."

Clearly, unwavering generational support anchors Elk Cove's succession success. "My parents have always been supportive of my plans for growth and success," said Adam Campbell. "We own the business together, and I appreciate how much faith they had in my vision—always willing to support growth even when it meant big loans from our lenders. In the early days of the transition, we had some tough conversations; and while I am sure they were nervous, they were always willing to bet on me, and we took that leap of faith together."

But Anna Campbell also cites flexibility as key to the winery's survival. "Honestly, this is one of the things I love about working for a family business—we are very family-focused—and being relatively small allows us to be flexible and dynamic," she noted. "Wine is, of course, a very traditional business, but we've had to adapt to new technologies, new trends in American wine consumption, and certainly, in the past two years, we've had to adapt in how we get our bottles in front of wine lovers during a pandemic. The fact that Adam has been able to have staff stay on for an average of 10 years each has really helped us stay dynamic—we have a highly skilled and creative team. You can't be in this business unless you love it, but Adam understands that



Berlin Packaging is dedicated to serving wineries and distributors of all sizes, and we are well-positioned to meet the challenges facing today's wine industry. We have a wide variety of premium bottle and closure designs for all vintages and varietals available through our supplier partnerships around the globe.

We also have a broad range of in-house services to meet all your packaging needs, including in-stock packaging, custom design, sustainability strategies, branding, warehousing, and more. Let us help take your packaging to new heights.

Elevate Your Wine Packaging

With Berlin Packaging, Anything Is Possible®

BerlinPackaging.com · 1.800.2.BERLIN

ELKCOVEVINEARDS

Pat and Adam Campbell of Elk Cove Vineyards

employees are also nurturing their own families, and their own aspirations and career trajectories."

What about the third generation? "When I think of the third generation's involvement in Elk Cove, I do worry a bit about this pattern of young people flying the coop," admitted Anna Campbell. "My brother and I really grew up at the winery in a way this third generation did not. I remember when I was 11, I could finally lift a case of wine, and so my parents put me to work on the bottling line. We really were our parents' first source of labor. As a result, Elk Cove, more than any house, is the place I've always thought of as home. Even when I lived far away, that was true. The third generation doesn't have that experience (we now have adults bottle our wine!), and I'm sure some of them will have careers and loves and homes that take them other exciting places."

"Both Anna and I feel that while we would love to have the next generation involved, it is really critical that they find their own way home, and that would probably include formal training and relevant work experience outside of Elk Cove," concluded Adam Campbell. "Lucky for us, they are all smart kids, and they will have many options for success in life...and if their passion leads them to Elk Cove, so much the better!"

Freedom

Sometimes, maintaining a legacy involves letting go. In 2021, Champagne Bollinger purchased Ponzi Vineyards in the Willamette Valley. Founded in 1829, it marks Bollinger's first purchase outside of France, which includes holdings in the Loire Valley, Burgundy and Cognac.

Bollinger's acquisition included Ponzi's 40,000-case winery and hospitality facilities, along with three vineyards, totaling 35 acres. These vineyards, all located within the Laurelwood District AVA, include Avellana, Abetina and Madrona. Conversely, the Ponzi family retained 100 acres of grapes, plus a long-term contract to sell them to Bollinger for use in the Ponzi Vineyards' brand.

Lauded as pivotal players in Oregon's premium Pinot Noir scene, Dick and Nancy Ponzi founded Ponzi Vineyards in 1970. Daughters Anna Maria and Luisa Ponzi assumed management of the winery in 2012. "We come from a background of two people who really believe in following their dream and their spirit and their drive," said Anna Maria Ponzi, past President and Director of Sales and Marketing. "Likewise, in my world, I didn't have a mother who was saying, 'That's not how we do marketing.' Quite the opposite. They were sort of like, 'You guys go and take it and see what happens.' So I think that makes our story perhaps a little bit different. They would never 'be there': it was always us going to them. There's a big difference there. And I think that what happens is you want to keep going back and asking and checking in. If they're riding on your shoulders, all you want to do is get them off your back."

This same easy, gentle touch helped smooth Luisa Ponzi's transition to head winemaker from her father in 1993, a job she retains post-Bollinger purchase. "My father was very generous," explained Luisa Ponzi, "and supportive. I think there's something special between the daughter and father transition, which may lack sometimes in the son-father in that he really just wanted me to succeed. But my father…I think he would say he's not a winemaker at heart. He's kind of a renaissance man. He likes to start things and figure out how to make them work, and then he's ready to move on. And so, I think, he was very willing to give me the reins pretty quickly after he felt like I knew what I was doing. I came back from Burgundy in '93, and by '96, he was off on vacation during harvest. It wasn't a long transition. He was ready to move onto his next project. He's a guy that likes to dream big and then see if he can make it happen, and then he's ready to go to the next thing. And so, when I came on, he was ready to pass it over. And it was fun. Really fun."

Ironically, this unfettered freedom informed the winery sale. A combination of 50 years of backbreaking work and COVID finally took its toll. Anna Maria and Luisa Ponzi realized they weren't having fun anymore. The sisters considered various options, with their parents' blessing, ultimately choosing to sell to an outsider. "Our folks allowed us to have this amazing freedom. And still with a sale, you know, they were very supportive of it. They're guiding, they're asking the right questions, and they never told us which way to go, ever. So it's very refreshing. It sounds a little cutesy and prettied up, but it's really the reality of it."

As new owners, Bollinger envisions no major changes at Ponzi Vineyard, save a greater focus on quality rather than quantity. They also bring a respect for terroir, and a robust international marketing and sales division. For Maria Ponzi, Bollinger's resources allow a wider audience to amplify her family's story. "I think that it's very important for the American culture that we keep some kind of normalcy around wine because I find it to be an amazing part of life, but it's not going to be for everybody if we keep it at this elitist kind of level," she said. "And I feel that there is so much to tell about this particular region that I'm so proud of, and I feel like more people need to really get it. And when they get it, they fall in love with everything all over again, right? They fall in love with the product but also the place and our ethics and everything that we're doing here: the values that we have."

For Oregon family winery stalwarts who want to keep their legacy intact, Maria Ponzi offers some final advice: "With the family dynamic in particular, I think it's very important that you're very true with who you are. And that you can work with people—your siblings, or your aunts or uncles, whomever they are—make sure that there's great synergy, and it's positive. Otherwise, man, it can be a rough place to live in."

Climate Change

Regardless of any succession plan, climate change looms large as an unknown variable. "I mean, the mega shift is climate change that we're all figuring out," Robertson confessed. Currently, Brooke Robertson has shifted her family's vineyard to MHT (Mini-Head Training). MHT involves keeping vines low to

the ground for easy cane burial, during winter, to prevent frost damage and plunging temperatures. Additionally, the lower vines benefit from their proximity to the region's cobbled soils that absorb heat, during the day, to protect them from nighttime diurnal temperature shifts. "As winegrape growers, we are on the cusp of some very large climactic and political realities that we have only seen the beginnings of so far," she observed. "Water availability, labor availability, varietal selection and much greater things out of our control, like the very real threat of fires, and extreme heat and cold on either side of the growing season…to say it is challenging is a gross understatement."

However, Brooke Robertson also envisions generational changes in vineyard and winery operations over the next 20 to 100 years. "We are open to rolling with the punches," Brooke stated. "And if it turns out that the MHT is not working anymore to secure vines as they age, we will change it and create something else that makes more sense, depending on what we face climactically in the future."

Other wineries adapt through clonal selection. "Luisa, of course, wanted to experiment with clonal selection, and so we created the clonal massale, and that has been extremely interesting," noted Maria Ponzi. "And I think that is something that we're going to see a whole lot more of in the next couple of decades, frankly, with global warming and all that's going on. I think that's one of those innovations that she really came up with herself. People were saying, 'What are you doing? You would never mix up to 22 clones in an acre: that's nuts!' So I think innovation, experimentation, taking risks is something that has kind of been a common kind of track for us."

Bollinger intends to continue this trend towards innovation. Recently, Luisa Ponzi visited Bollinger's headquarters in France to meet with the rest of the oenology team. Among the topics discussed were proactive viticultural practices to address climate change, with an emphasis on organic and Biodynamic farming.

As a Millennial, Laurène Boss brings a practical urgency to the topic that extends beyond the vineyard. "My thought on climate change is quite simple," she said. "I think today the question is not 'should we do something?' but 'what should we do today and tomorrow at DDO and MJD to reduce our impact and so protect the planet, humans and animals?'"

Longtime stewards of the environment, the Drouhin family first initiated organic and Biodynamic farming practices back in 1988. In 2008, they reduced bottle weight, one of the wine industry's biggest contributors to carbon emissions. The family also planted fruit trees and maintains native forests at Domaine Drouhin Oregon. In Burgundy, they cultivate ongoing plantations, with native fruit and trees in Clos des Mouches, and flowers and trees around the MJD winery.

But Boss acknowledges the importance of ongoing analysis in order to remain ahead of the curve. "We are working on the strategy before taking proactive steps," she stated. "But the idea is to first realize a carbon footprint diagnosis then identify where we can improve and finally define the goals to have a clear path for the next years to come to lower our carbon footprint 'from the vines to the glass.'" **WBM**

Winemaking and Grape Growing

Ste. Michelle Wine Estates, the largest winery in the Pacific Northwest, announced changes to the winemaking team under Chief Winemaker Juan Muñoz-Oca. After 9 years as winemaker for Col Solare and 26 years with Ste. Michelle Wine Estates, Darel Allwine has retired. Allwine joined the team at Col Solare in 2006 as a cellar master before taking over as Head Winemaker in 2013. Stephanie Cohen, who was working alongside Allwine at Col Solare starting in 2020, has been named Winemaker. Cohen holds a B.S. in Chemical Engineering from the University of Michigan. She has held vineyard and cellar roles at wineries in New Zealand, California, Australia, and Oregon prior to joining Col Solare.

After nearly 20 years at the helm of one of Oregon's founding wineries, Gary Horner of Erath Winery has retired. Leah Adint has been named Head Winemaker for Erath. Adint is just the third Head Winemaker in Erath's 50-year history. She has held viticulture and winemaking roles at wineries in California, Australia, France, Switzerland, and Washington and has a master's degree in Oenology from the University of Adelaide. Prior to joining Erath in 2021, she was the traveling winemaker for Chateau Ste. Michelle.

Frederique Vion

Four Feathers Wine Services, a bulk wine producer in Prosser, Washington, promoted Frederique Vion to head winemaker. Vion joined Four Feathers in 2012. Prior to that, she spent 16 years as winemaker, assistant winemaker, and cellar master for Sagelands Vineyards in eastern Washington. She has worked at wineries in Australia and the Haut-Médoc region of France. A native of France, Vion grew up in Provence. She graduated from Perpignan University with a degree in agronomy and achieved a master's degree in winemaking and viticulture at Toulouse University in the southwest of France.

Michael Coode

Terlato Wines appointed Michael Coode as Winemaker for Rutherford Hill Winery. Coode's experience spans 18 harvests across four countries. His experience includes tenure at Chateaux Margaux in Bordeaux, Paul Jaboulet Aîné in the Rhône Valley, Inglenook in Napa Valley, Inniskillin in Niagara, and Wolf Blass in Adelaide. Prior to joining Rutherford Hill, Coode worked at Rombauer and E&J Gallo. Coode has a Masters of Wine Business from the University of Adelaide and Bachelor of Applied Science in Wine Science from Charles Sturt University.

Sam Mills is the new research viticulturist for Silverado Farming Company. She was previously with Silverado as soil health specialist. Mills has worked in the wine industry for 12 years. She started in wine by studying at California Polytechnic State University, San Luis Obispo, College of Agriculture, receiving her Bachelor of Science degree in geosciences with a concentration in wine and viticulture.

Joel Sokoloff has been tapped to lead the farm and vineyard management team for Soter Vineyards. Originally hailing from Illinois, Sokoloff adopted the Pacific Northwest as his home when he began studies at the University of Oregon. He later earned his AAAS in enology and viticulture from Walla Walla's College Cellars program and has been taking part in growing and producing wine since 2013. He spent seven years at Horsepower Vineyards as their Equine and Vineyard Manager, utilizing horses for cultivation and farming grapes for sought-after wines from Cayuse Vineyards.

Winemaking and Education

Andrew Waterhouse

Professor Andrew Waterhouse retired from the UC Davis Department of Enology and Viticulture. Dr. Waterhouse is well known wine chemist. His research has focused on phenolic compounds. Much of his work has involved wine quality, the effect of oxidation on wine chemistry, and how oxidation affects taste and color. His teaching has included wine analysis and wine chemistry. He served as department chair, Associate Dean of Graduate Studies, and, most recently, Director of the Robert Mondavi Institute for Wine and Food Science.

Stylianos Logothetis

Walla Walla Community College announced the new director of the college's Institute for Enology and Viticulture is Stylianos Logothetis. He has more than 25 years of experience in the industry, including work as an oenologist, university professor, and industrial consultant. He holds a Master of Philosophy and PhD degree in Yeast Physiology and Fermentation Biotechnology from Abertay Dundee University in Scotland. Logothetis is a member of the Scottish Microbiology Society, European Federation of Biotechnology, and International Wine Organization (OIV). Logothetis replaces interim director Sabrina Lueck who is heading to Germany to work for revered winegrower Weingut Keller.

Sales and Marketing

Judd Wallenbrock, previously president and CEO at C. Mondavi & Family, which also operates Charles Krug, joined a winery in the Red Hills region of Lake County. Wallenbrock will be serving as the chief executive officer for Boatique Wines.

Wine and Spirits Investing Platform Vint appointed Adam Lapierre MW as Director of Wine. Lapierre was previously with Vinfolio as President, and previously held roles including Chief Wine Officer and Director of Procurement, Fine Wine. He also served as Director of Purchasing at retailer Lidl, and before that, National Sales Manager at importer Frederick Wildman and Sons.

Santa Barbara County's Riverbench Vineyard & Winery announced changes to its leadership team following the departure of CEO Laura Booras, who joined her family's distribution business in North Carolina. Riverbench's Director of Hospitality, Danae Smith, has been promoted to General Manager, while Toby Goodwin, son of Co-Owner Steve Will, assumed the role of Facilities Manager. They join veteran Vineyard Manager, Jim Stollberg, and longtime Winemaker, Clarissa Nagy, to complete Riverbench's leadership team.

Michael Longerbeam

Balletto Vineyards, a family-owned, estate winery in Sonoma County, added Michael Longerbeam to its team as Direct to Consumer Manager. Prior to joining Balletto's team, Michael was with Dry Creek Vineyard as their Direct to Consumer Manager and also held a position as Direct Marketing Manager with Treasury Wine Estates.

Suppliers

Scott Ritter

Cork Supply USA announced the appointment of Scott Ritter as Vice President of Sales. Ritter has more than 20 years of experience in sales, winery hospitality, marketing, and production. Most recently, he served as Sales Director for Multi-Color Corporation in Napa, California. His professional history includes senior roles at Tapp Label Technology, Young's Market Company, Epic Wines, and Justin Vineyards. Scott earned a degree in Agribusiness from California Polytechnic State University.

In Memoriam

Josh Jensen

Josh Jensen, founder of the Central Coast's famed Calera Wine Company, a visionary leader in the American wine community, and the iconic pioneer of luxury California Pinot Noir, passed away peacefully at his home at the age of 78.

Jensen played a pivotal role in establishing Pinot Noir as one of North America's great varietal wines. While doing so, he built Calera into one of the world's most revered wineries—a captivating story that author Marq de Villiers told in his 1994 book "The Heartbreak Grape: A California Winemaker's Search for the Perfect Pinot Noir."

Jensen, founded Calera in Hollister, California in 1978 and sold his beloved winery to Duckhorn Wine Company in 2016. Jensen began tasting great wines when he was 13 and had tasted all of the great Bordeaux, and many great red and white Burgundies by the time he was 21. He was picking grapes at Domaine de Romanée Conti in 1970. Burgundian mentors said the key to great Pinot Noir was limestone soil, so Jensen returned to California in search of limestone. Returning to the United States, Jensen began a quest to create a style of Pinot Noir that had not previously been realized in the United States.

Sean Thackrey

Sean Thackrey, who had a dedicated following making unconventional wines in Marin County, passed away at 79. Thackrey's first career was as an art dealer, specializing in 19th century European photography. In 1979 he began to make wine, sourcing some of his first Cabernet and Merlot grapes from Stags Leap District grower Nathan Fay. Thackrey took to winemaking as a creative outlet, and approached it from an artistic viewpoint. He sourced fruit from Napa Valley, Marin County and Mendocino, and among other things, would let grapes 'rest' for 24 hours outside, fermenting under the stars. "Wine was just one part of what comprised Sean's incredible world, but it is the one that touched the greatest number of people," said a statement from Pleiades Wine Company, founded in 2019 to continue Thackrey's winemaking legacy.

Thackrey put his collection of more than 700 historical wine books and manuscripts up for sale for $2 million at the New York Antiquarian Book Fair in early 2021. That library includes scripts and documents dating back to the 6th century and is one of the world's largest private collections of wine texts. Comprising more than seven hundred titles, the Library includes all of the important works in oenology and viticulture from the 15th century to the phylloxera epidemic in the late 19th century. **WBM**

ADVERTISER INDEX

Thank you to all of our advertisers!

Company	web address	page
ACIC Cork and Closures	*acicclosures.com*	77
Ager Tank & Equipment Co.	*agertank.com*	27
Allan Hancock College	*hancockcollege.edu*	72
Amcor	*amcor.com*	33
Amorim Cork America	*amorimcorkamerica.com*	9
Ardagh Glass Packaging - North America	*ardaghgroup.com*	73
ATPGroup	*atpgroup.com*	31
Barrels Unlimited	*barrelsunlimited.com*	20
Bergin Screen Printing and Etching	*berginglass.com*	11
Berlin Packaging	*berlinpackaging.com*	79
Bin to Bottle Winery	*bintobottle.com*	63
Boswell Co.	*boswellcompany.com*	27
Bouchard Cooperages	*bouchardcooperages.com*	29
BSG Wine	*bsgwine.com*	45
Butch Cameron Trucking - BCT Solutions	*butchcamerontrucking.com*	72
Carlsen & Associates	*carlsenassociates.com*	41
Cork Supply USA	*corksupply.com*	5
Creative Oak	*creativeoak.com*	15
Duarte Nursery	*duartenursery.com*	43
ETS Laboratories	*etslabs.com*	88,OBC
Free Flow Wines	*freeflowwines.com*	51
Gallo Glass Co.	*galloglass.com*	13
Global Package	*globalpackage.net*	61
Gomberg, Fredrikson & Associates	*gfawine.com*	81
Guala Closures North America	*gualaclosures.com*	39
Gusmer Enterprises	*gusmerwine.com*	36,57,83
Hinman & Carmichael, LLP	*beveragelaw.com*	66
Iron Heart Canning	*ironheartcanning.com*	52
MA Silva USA	*masilva.com*	87,IBC
MUST Machining & Fabrication	*mustfabricate.com*	30
Oak Solutions Group	*oaksolutionsgroup.com*	69
Parsec SRL	*parsec.srl*	31
Phoenix Packaging International Corp.	*phoenixpackaging.com*	35
Portocork America	*portocork.com*	3
Prospero Equipment	*prosperoequipment.com*	41
Quality Wine Barrels Cooperage	*qualitybarrels.com*	19
Rutherford Equipment Rental	*rutherfordrental.com*	51
Saverglass, Inc.	*saverglass.com*	2
Scott Laboratories	*scottlab.com*	25
Shelco Filters	*shelco.com*	66
Spec Trellising	*spectrellising.com*	45
Specialty Treatment Solutions	*stswatertreatment.com*	71
Squid Ink Manufacturing	*squidink.com*	48
StaVin	*stavin.com*	53
TricorBraun WinePak	*tricorbraunwinepak.com*	59
UC Davis Continuing and Professional Education	*cpe.ucdavis.edu*	76
Unitech Scientific	*unitechscientific.com*	35
Verallia USA	*us.verallia.com*	6,7
Vicard USA	*groupe-vicard.com*	38
Vinventions USA	*vinventions.com*	19
Waterloo Container Co.	*waterloocontainer.com*	55
Wine Industry Financial Symposium (WIFS)	*wineindustryfinancial.com*	67
Wine Packaging by Naylor	*winepackagingbynaylor.com*	63
Winejobs.com	*winejobs.com*	49
Wines Vines Analytics	*winesvinesanalytics.com*	66
Wine-Searcher, Ltd.	*wine-searcher.com*	57
Winetech	*winetech.us*	21
Wonderful Nurseries	*wonderfulnurseries.com*	47
World Cooperage	*worldcooperage.com*	17
Zenport Industries	*zenportindustries.com*	63

Be What You Are

Jake Lorenzo

ILLUSTRATION BY BOB JOHNSON

DETECTIVES KNOW NOTHING LASTS forever, but there are some things you can count on. The Happy Dog was one of them. When Jake Lorenzo first moved to Sonoma, the owner of The Happy Dog hired high school kids to man the grill, mix the shakes, fry the potatoes and operate the cash register. He bought good meat, cooked his burgers on a gas grill and used fresh oil for his fries. The food was consistently good and reasonably priced.

Then McDonald's opened next door. Terrified, the owner bailed. He sold The Happy Dog to an Asian couple. To their credit, they kept the same good meat, buns and fresh oil. That couple worked hard every day, and the business thrived despite the McDonald's next door. Their menu had a list of items, but most locals went for the cheeseburger and an order of fries. It was a very good burger. The fries were crispy and always hot from the fryer, and the entire meal would set you back about $7. The good people of Sonoma appreciated the hamburgers at The Happy Dog and supported the new owners for more than 20 years.

Eventually, the new owners decided to retire. Years of spending long days on their feet, before going home with the stink of grilled meat and french fry oil on their clothes, took their toll. Their nephew assumed control of the business. Sadly, the food was not as consistently good under his tenure; and during the pandemic, he closed the restaurant. Sonoma had lost one of its iconic institutions.

> . . . The Happy Dog . . . was content to be what it was: a good burger joint. It had no pretensions, and it delivered almost every time.

Jake Lorenzo loved The Happy Dog because it was content to be what it was: a good burger joint. It had no pretensions, and it delivered almost every time. Today fewer and fewer producers are content with what they are. Everyone seems to be punching above their weight, chasing glamour, high scores and big money. This makes no sense to Jake Lorenzo.

When you happen upon something exceptional, there is a tendency to want more, to overload yourself with that particular pleasure. The first time I ate Jamon Iberico de Bellota was in Spain. The flavor of this ham from black pigs fed a steady diet of acorns was insanely appealing. I was blown away by everything about it, from the cured leg of pork sitting in its rack, to the maestro deftly using his long knife to slice thin pieces and arrange them on a plate, to the fat that melted on my fingers as I consumed each morsel.

I wanted to order that Bellota ham every time we were in a restaurant until I realized there were dozens of different jamons available in Spain, and each one had a special texture, a different amount of aging and a distinctive flavor profile. By trying as many different jamons as possible, this detective learned about jamon and gained an appreciation of what it is. Now, on those rare occasions when we splurge on Bellota ham, we are reminded of what makes it so special.

This detective grew up on his Baba's chopped liver. I've always loved a good pâté, whether it was coarse country or creamy liver. A lifetime of chopped liver and all sorts of pâtés did nothing to prepare me for my first taste of foie gras. Here was a familiar flavor raised to a creamy, textural, flavorful level that was otherworldly. As much as we loved foie gras, we didn't eat it often. It wasn't the fatty richness that put us off. Jakelyn's mother and I loved it so much that we wanted to keep it special. We'd only serve foie gras when we had guests and wanted to share an extravagant treat.

When it comes to wine, Jake Lorenzo has been treated very well by my friends. I have tasted Romanèe-Conti, Chateau d'Yquem, Vega Sicilia Unico and Ornellaia Masseto. I've drunk bottles of Screaming Eagle, Harlan Estate and Marcassin. Each of those wines is indelibly etched into my memory, and I am thankful to my generous friends for sharing them. On my own, I am just as happy with an Artadi Viñas de Gain, a Rosso di Montalcino or any number of favorites from Côtes du Rhône. I take real pleasure in Navarro Pinot Noir, Marietta Zinfandel or a dry Riesling from the Finger Lakes. I don't need ridiculously expensive, rare wines to be happy. Any wine that is well made and represents what it's supposed to be gives me pleasure.

For almost two months, this detective has been carving on a 14-pound Serrano jamon that sits on my kitchen island. I've become proficient at cutting the perfectly thin slices and arranging them on plates for our guests. Is it Jamon Iberico de Bellota? No, but it is a delicious example of Serrano jamon from Spain, and our guests are loving it. It tastes exactly like good Serrano jamon should.

Last night, while rummaging around in my wine cellar, I happened upon a bottle of 2011 Cune Gran Reserva Rioja. An hour after decanting, we had it with our dinner, which we started with some of the Serrano jamon. The wine exhibited plenty of mature black cherry in both the aroma and flavor. There was a delicious savory quality and an impressive structure that carried the Tempranillo tannins, as well as the perfectly moderated American oak. It wasn't a life-changing wine, but it checked off every box for a Spanish Rioja. In short, it was a beautiful example of Gran Reserva Rioja, and that is all we needed it to be.

Very few things are truly special; so when you discover them, the experience gets seared into your memory. Jake Lorenzo has learned these experiences shouldn't be repeated over and over, lest they get diluted. Let them serve as a starting point to learn more about the subject. Appreciate lesser examples for what they are meant to be. They can still be excellent. The extraordinary experiences should be savored and pulled out only for special occasions.

For tonight, I've just fired up the grill. I divided up a pound of grass-fed ground beef into four portions. We're having cheeseburgers for dinner. I know from past experience that my cheeseburgers will be delicious, but they are just cheeseburgers done on the grill.

However, they will remind me of The Happy Dog, and that's enough. **WBM**

Megan Hughes, winemaker, Barnard Griffin Winery, Richland, WA

NAME & TITLE: Megan Hughes, winemaker, Barnard Griffin Winery, Richland, WA

WINERY NAME AND LOCATION: Barnard Griffin was founded in 1983 in the Columbia Valley by Rob Griffin and his wife Deborah Barnard, now joined by their daughter, Megan Hughes, as second-generation winemaker and enologist. This year, as Barnard Griffin looks forward to its 40th anniversary in 2023, the family is proud to launch Legacy, a collaboration with the Williams family of Kiona Vineyards. Crafted with 100% Old Vine Cabernet Sauvignon from their Red Mountain vineyards, Legacy honors the inaugural Cabernet Sauvignon planted on Red Mountain in 1975, and its first harvest and vinification by Rob Griffin in 1978.

Legacy also honors the history of the Williamses and Barnard Griffin in developing viticulture here: Today, Rob is widely considered "The Dean" of Washington wine for his unsurpassed knowledge of the region's various terroirs and decades-long relationships with some of the State's most respected growers.

ANNUAL CASE PRODUCTION: 50,000 cases annually

PLANTED ACRES: None. We work with many top tier vineyards around the state to ensure quality and consistency from vintage to vintage.

CAREER BACKGROUND: I graduated from the viticulture and enology program of Washington State University in 2010 and have been working in the wine industry ever since. I introduced our canned wine program and oversee all white wine production at Barnard Griffin. Earlier this year we released 2021 Gorge Sparkling Wine ($35), the first wine to feature my name on the label. I keep myself busy as a member of the executive committee for the Association of Washington Business as well as a Board member for the Tri-City Chamber of Commerce. I also stay involved as a member of the Washington wine technical group and member of the winegrower's association.

WHAT HAS BEEN YOUR BIGGEST PROFESSIONAL CHALLENGE? My biggest professional challenge is wanting to be involved in each area of the business and constantly running out of time. As a family owned and operated business, there is a lot to keep track of. We have such a great team full of hard working, creative professionals. I am very grateful to get so many years working along side my father who happens to have more than 45 years of Washington winemaking experience. I can't think of a better mentor.

VARIETALS THAT YOUR WINERY IS KNOWN FOR: Our Rosé of Sangiovese is widely known as our most popular variety. We are currently celebrating the San Francisco Chronicle Sweepstakes award win for our 2021 vintage. I believe it's the eighth time we have taken top honors, so it's safe to say it's a favorite nationwide. Chardonnay has also always been incredibly popular and in the '80s when Barnard Griffin became a brand, it was our flagship wine when Washington wasn't recognized as a top red producing state yet (we have since learned a lot!) One of my personal favorites is our Merlot.

WBM has a permanent spot on our community office table and has been a constant ever since I can remember (growing up in the industry makes it quite a long time). It gets opened by all aspects of the team. The diversity in articles speaks to its value and usefulness to a brand. I think I still have the t-shirt celebrating our place as a Hot Brand all those years ago. A few favorites from the current issue include the re-cap of the cool gadgets from the Unified tradeshow, as well as the piece on digital marketing as it's certainly fundamental in further growth.

Our Pursuit of Excellence

for Enhanced Natural Cork Quality

Like you, we understand the unique privilege of working with an agricultural product. In our pursuit of providing the highest quality natural cork stopper possible, M. A. Silva invests in research and constantly innovates at every step in the process.

LEARN MORE ABOUT OUR TECHNOLOGY & INNOVATION AT MASILVA.COM

ETS®

LABORATORIES

etslabs.com