

Beverage Journal



AUGUST 2024

WINE SCIENCE

NEW USES FOR
CARBONIC MACERATION

WHY SOME WINES
SMELL SO PEPPERY



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Courtesy of
Quintessential Wines

**THE COMING IMPACT OF
ARTIFICIAL INTELLIGENCE**

Artificial Intelligence (AI) is poised to revolutionize the world. What can the on-premise side of the industry expect? From enhancing customer experiences to optimizing operations, AI offers a range of opportunities and challenges that owners/operators should prepare for.

In the short term, AI technologies will focus on improving customer interactions and operational efficiency. One of the most immediate impacts will be seen in personalized customer experiences. AI-powered recommendation systems will analyze customer preferences based on past orders and behavior, enabling establishments to suggest personalized menus and promotions. This level of personalization can significantly enhance customer satisfaction and loyalty.

Operational efficiency will also benefit from AI applications such as predictive analytics for inventory management and demand forecasting. AI algorithms can analyze historical data and real-time factors like weather and local events to optimize inventory levels and minimize waste, thereby improving profitability.

Looking ahead, AI integration in the restaurant and bar industry will be more comprehensive. Automation will extend beyond customer service to include kitchen operations. AI-powered cooking systems will maintain consistency and quality, even during peak hours, by adjusting cooking times and temperatures based on real-time conditions.

Moreover, AI will play a pivotal role in enhancing safety and compliance. Automated systems can monitor food safety protocols and hygiene standards, alerting staff to potential issues before they escalate. This proactive approach not only ensures regulatory compliance but also safeguards the reputation of your establishment.



Customer insights derived from AI will become more sophisticated, enabling businesses to anticipate trends and adapt their offerings accordingly. AI-driven analytics will identify emerging food preferences and dining trends, allowing restaurants and bars to innovate their menus and marketing strategies proactively.

Preparation Strategies

To harness the potential of AI effectively, operators should adopt several strategic initiatives:

Invest in AI Education and Training: Equip staff with the necessary skills to leverage AI tools effectively, from customer service automation to data analytics.

Collaborate with AI Developers: Partner with AI developers and startups to customize solutions that meet specific business needs, such as menu optimization or predictive maintenance.

Embrace Data-Driven Decision-Making: Implement robust data analytics frameworks to extract actionable insights from customer data, operational metrics, and market trends.

Focus on Customer-Centric Innovation: Use AI to personalize customer experiences through targeted marketing campaigns, loyalty programs, and menu recommendations.

Prepare for Ethical and Regulatory Challenges: Stay informed about ethical considerations surrounding AI use, such as data privacy and algorithmic bias, to build trust with customers and regulators.

By embracing AI as a transformative force rather than a disruptive threat, on-premise owners can position their businesses for sustained growth and competitive advantages. ■

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1. TORABHAIG

Torabhaig's Legacy series continues to unfold with Chapter No. 3, the limited-edition Cnoc Na Mòine. For the first time, the Isle of Skye distillery has experimented with Oloroso and Pedro Ximénez sherry casks, and pairing them with former American bourbon barrels has resulted in a smoky, 92-proof peated single malt that also exhibits notes of pepper, leather, and subtle spice.

\$ SRP: \$65 per 750-ml bottle
torabhaig.com

4. KNOB CREEK

A pre-Prohibition-style 10-year-old rye is the newest addition to Knob Creek's permanent range. Thanks to extra years maturing in the barrel, the robust 100-proof spirit illuminates rich notes of caramel, vanilla, black peppercorn, oak, and char that culminate in a smooth baking spice finish.

\$ SRP: \$69.99 per 750-ml bottle
knobcreek.com

2. PLANETA

Culled from fruit planted in vineyards across Sicily, the Planeta family's 2023 rosé vintage brings together Syrah and Nero d'Avola. The fresh and lively wine, a choice accompaniment to summer barbecue spreads, expresses meringue and peach on the palate.

\$ SRP: \$20.99 per 750-ml bottle
planeta.it

5. BEAULIEU VINEYARD

With the release of its Georges de Latour Private Reserve in 1940, Beaulieu Vineyard inadvertently created Napa Valley's first cult Cabernet Sauvignon. Decades later, the winery has set its sights on Sauvignon Blanc. The inaugural easy-to-drink 2023 edition is laden with aromas of Meyer lemon, white peach, orange blossom, and pineapple balanced with hints of brioche and marzipan.

\$ SRP: \$40 per 750-ml bottle
bvwines.com

3. DIE DE LA SIRENA

Female-led Dia De La Sirena Tequila makes a splash with its double-distilled 100 percent Blue Weber agave reposado housed in a bottle that takes the shape of a golden crown-donning mermaid holding a trident. A portion of the sipping tequila's proceeds will be donated to Save the Children, supporting education and health initiatives in Mexico.

\$ SRP: \$79.99 per 750-ml bottle
lasirenatequila.com

6. LAGG DISTILLERY

With the 2019 opening of Lagg Distillery, Isle of Arran Distillers revived the island's heavily peated whisky tradition, and now its two core expressions can be found stateside. The 92-proof Kilmory exemplifies Lagg single malts with its fusion of smoke and vanilla notes, while the 110-proof Corrie cravie is an extremely limited edition that matured in bourbon barrels, before it was finished in Oloroso sherry casks for approximately six months to elicit a profusion of fruit notes.

\$ SRP: \$74.99 to \$99.99 per 700-ml bottle
laggwhisky.com



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7. BUFFALO TRACE DISTILLERY

An ode to Colonel Edmund Haynes Taylor, Jr., a champion of the Bottled-in-Bond Act of 1897 who purchased what would become the Buffalo Trace Distillery in 1869, the barrel-proof rye bourbon whiskey named for him is the latest addition to the Colonel E.H. Taylor, Jr. collection. The 126-proof limited-edition release is underpinned by pepper and dried stone fruit.

\$ SRP: \$77.99 per 750-ml bottle
buffalotracedistillery.com

8. MILAM & GREENE

Five years in the making, Milam & Greene's Bottled in Bond Straight Bourbon Whiskey features a mash bill of 70 percent corn, 22 percent malted rye, and eight percent malted barley. Distilled in Kentucky, the 100-proof spirit matured in 4 char oak barrels from autumn 2019, and then in spring 2024, 72 of them were brought to Blanco, Texas, for batching and hand bottling. With jolts of freshly baked bread, cinnamon, and spearmint, it's ripe for sipping neat or weaving into cocktails.

\$ SRP: \$64.99 per 750-ml bottle
milamandgreenewhiskey.com

9. CHINOLA

Passion fruit proved to be such a hit that Chinola Fresh Fruit Liqueurs has now followed it up with mango. This second tropical offering is made with eco-friendly practices in the Dominican Republic from a blend of Keitt, Kent, and Banilejo mangoes and a touch of passion fruit. Sweet, tangy, and tinged with vanilla and cacao, it's ideal for margarita, daiquiri, and martini variations.

\$ SRP: \$29.99 per 750-ml bottle
chinola.com

10. MAYENDA

Sipping tequila Mayenda's newest innovation is the Reposado Double Oak. Like the blanco, it's infused with roasted agave and honey before the final distillation step, but it is then aged for a minimum of six months in a combination of American and European oak that imparts the liquid with complementary sweet and spicy profiles.

\$ SRP: \$75 per 750-ml bottle
mayendatequila.com

11. KIKI VENDÉEN

France's Vendée region is home to Kiki Vendéen, an apéritif made with local wine and sap-coated shoots harvested from blackthorn bushes in the spring. Also known as Vin d'Épines or troussepinètte, this elevated take on typically homespun recipes is available in white and red versions, with the former showcasing pear juice harvested from the local Vendée farmers' co-op. It's best sipped in a chilled glass alongside a fruity dessert.

\$ SRP: \$19.99 per 750-ml bottle
heavenlyspirits.com

12. AMETHYST

Burnt Church Distillery in Bluffton, South Carolina, turns out vodka, gin, moonshine, and several whiskeys, but it's also found popularity with Amethyst, its low-calorie, sugar-free, non-alcoholic line bursting with fruits and botanicals. Joining the roster of blueberry-ginger-mint, lemon-cucumber-serrano, and grapefruit-basil varieties is watermelon-lime. Sweet, bitter, and sour, it can be invigorated with soda or tonic and enjoyed in mocktails.

\$ SRP: \$29.99 per 750-ml bottle
burntchurchdistillery.com

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GOOD BONES

Umani Ronchi's Historical Verdicchio dei Castelli di Jesi DOC Classico Superiore was produced from resilient vineyards in Montecarotto, in Italy's Marche region. More than 50 years old, the vines grow on a hill some 1,000 feet above sea level and yield layers of citrus, florals, and bracing salinity.

SRP: \$95 per 750-ml bottle



FALL PREVIEW

Summer will soon give way to crisp, cool evenings, and the Estate Cabernet Sauvignon 2021 from Napa Valley's **Larkmead Vineyards** promises warmth and complexity. Rounded out with a touch of Cabernet Franc, the wine opens with aromas of violet and mocha that lead to notes of bramble berry, vanilla, and cedar.

SRP: \$125 per 750-ml bottle



SUMMER BREEZE

The sunny Mediterranean climate leaves its distinct imprint on the **Côté Mas** Aurore Rosé 2023. A blend of Grenache, Cinsault, and Syrah, this refreshing Languedoc wine from Jean-Claude Mas is dominated by flavors of soft, candied red fruit that pair well with salads and grilled meats.

SRP: \$12.49 per 1-liter bottle

THE DARK SIDE

Among the Demeter-certified wines made at **Cowhorn Vineyard & Garden** is the Rhône-style Reserve Syrah 2019. The small bottling, born from grapes grown on the biodynamic estate in southern Oregon's Applegate Valley, is an especially lush, concentrated interpretation of Syrah that tastes of juicy blueberries, black raspberries, and sweet cherries.

SRP: \$75 per 750-ml bottle



GOLDEN ANNIVERSARY

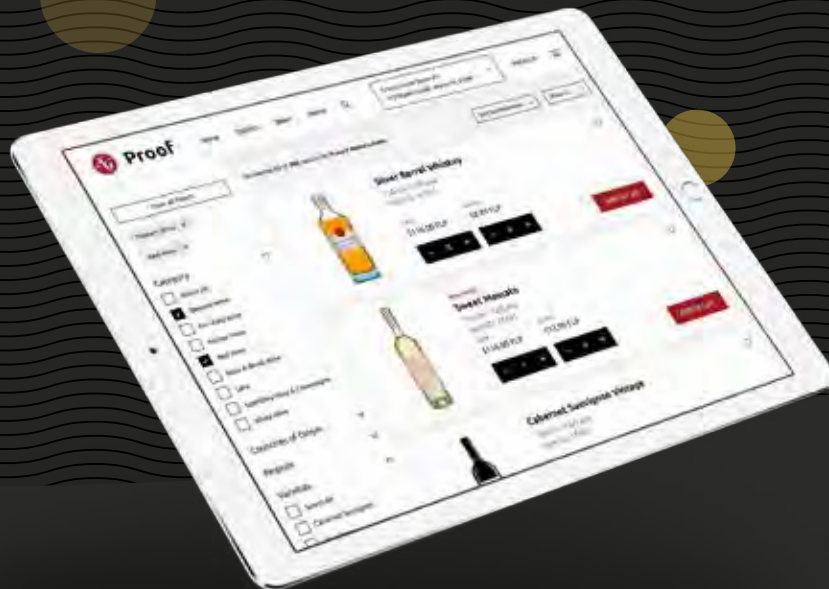
It's been 50 years since **Freixenet** unveiled its iconic Cordon Negro Cava. To commemorate the occasion, and celebrate the brand's 163-year-old roots, Cordon Negro's sleek black-matte bottle has been rejuvenated with a new logo. In addition to an updated Freixenet crest, the Cordon Negro label is now graced with a bold 'X' incorporated into the name that calls to mind the original Freixenet façade at its winery outside Barcelona.

SRP: \$15 per 750-ml bottle



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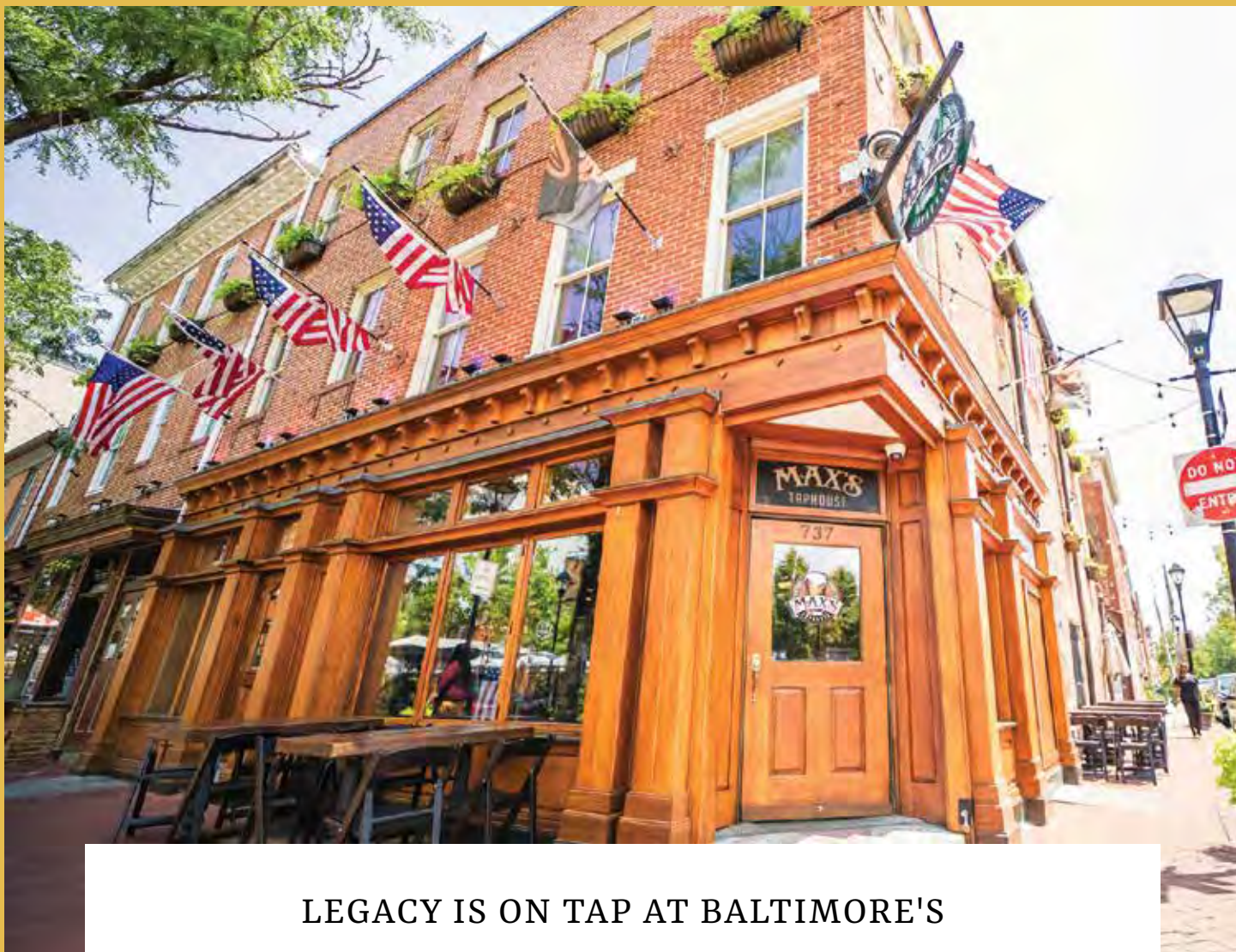
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LEGACY IS ON TAP AT BALTIMORE'S

MAX'S TAPHOUSE

WRITTEN BY TEDDY DURGIN | IMAGES BY ASHLI MIX PHOTOGRAPHY

Max's Taphouse in Baltimore's Fells Point neighborhood will celebrate its 40th year in business in 2025. Husband-and-wife team Ron and Gail Furman have run the business pretty much from the get-go. And when you have stayed in the bar business that long, you are sure to get many up-and-comers asking for your advice on how to succeed.

Ron Furman tells them all the same thing with great emphasis: "It's a business! It's not a party. While you are the host, you have a great responsibility to your patrons and to your employees. You also have a responsibility to your neighborhood, and you have to honor that. It's why my wife and I have been able to keep our business up and running for the amount of time we have. We've given back so much. We have worked with schools and other local organizations."

Max's started as Max's on Broadway to highlight its address and that it was initially a watering hole that offered nightly live music. Furman has always been a big music fan, and that was the kind of venue he wanted to operate as a younger man.

(continued on next page)



Ron and Gail Furman Max's Taphouse

(continued from previous page)

Max's customers enjoyed live music until 1994. "I just no longer wanted to be a patron of the arts," Furman said. "I wanted to build a bar that would stand the test of time. I was determined to put a draft system in, so I put 24 taps on the front bar. We had to hand-build that back then. You had to hand-wrap the shanks with copper lines that had glycol, and then you had to foam it and put insulation on it. It was very tedious. But we started selling beer almost immediately. So we said, 'Hey, that's working! Let's add some more taps!' That worked, so we then added some more. Today, I believe we have 113 beers on tap, five or six beer engines, and about 1,600 bottles! We're one of the top beer bars in the world."

In addition to that amazing feat, Max's Taphouse is being featured in this ongoing series of articles on bars, restaurants, and taverns in and around Maryland and Washington, D.C., that are named either after their owners or their family name because Max . . . was Ron's grandfather. Initially, he

thought Max's on Broadway sounded a LOT better than Ron's on Broadway.

"I was never a very good student," Furman remarked. "But I do remember going to a marketing class and the instructor saying, 'If you have an X in the name of your business, it's a good thing!' Being that my grandfather's name was Max, it just fit. When we were playing live music, I indeed called it Max's on Broadway. Years later when we got serious about the beer, we made the change to Max's Taphouse. The rest is history."

His grandfather wasn't a beverage biz man, but instead was a big success in the auto parts industry. He started a company called RPS Auto Parts, which was one of the first companies in the auto parts niche to trade on the New York Stock Exchange. Furman hopes he has lived up to the man's reputation for excellence.

He said, "The favorite part of my job is reinventing ourselves all of the time. Right now, for instance, we have the side bar that we closed during COVID. We're in the midst



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- Old Orchard Liquors
- The Liquor Store
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- Federal Hill Wine & Spirits
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of getting it reopened. It will have an identity that will be different from the rest of the bar, but that's top secret. Please come do a follow-up!"

Max's Taphouse and the Furmans have also enjoyed a strong and consistent staff over the years who have given the establishment a reputation for stellar customer service. Many of Ron's employees have been on the payroll for quite some time. "I have a doorman who's been with me for 26 years!" Furman exclaimed. "My manager, Jason, has been with me for at least 17 years. Maybe longer. I don't know. My memory ain't what it used to be."

And just as the business has been named after family, Max's Taphouse is a family-run business. Ron and Gail's three daughters work in various capacities at the Taphouse. Of course, Furman jokingly says there is a downside to that, as well: "I used

to be king. But now I'll say, 'This is the way I want to do it.' And I get the eye rolls. There's nothing worse than the eye rolls! One daughter is 32, and I'm still getting the eye roll!"

But all of the Furman family love the business. And they especially love the historic part of Charm City where they operate. Furman concluded, "Fells Point has had its challenges. Everybody knows that. But we are in a very diverse neighborhood and a very smart neighborhood full of entrepreneurs. You don't find a lot of corporate businesses in Fells Point. You have people here who are very passionate about what they are doing. A lot of us have a great number of years invested here. We'll work through whatever problems there are, and Fells Point will be here and prosper for the next century and beyond!" ■



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SUMMER COCKTAILS



BUSKER PALOMA

1 oz. The Busker Triple Cask Triple Smooth
Grapefruit soda to top

Method: Fill a highball glass with ice. Pour The Busker and top with grapefruit soda. Stir and garnish with a fresh mint sprig.



ANGEL'S ENVY BOURBON RENEWAL COCKTAIL

2 oz. Angel's Envy Bourbon Finished in Port Wine Barrels
¾ oz. fresh lemon juice
½ oz. crème de cassis
½ oz. 1:1 simple syrup
1 dash Angostura bitters

Method: Add all the ingredients into a cocktail shaker with ice. Shake vigorously. Strain into a highball glass and serve over crushed ice. Garnish with a lemon wedge.



FLOWER BED

1 oz. Revivalist Garden Gin ½ oz. elderflower syrup
½ oz. lemon juice 4 oz. chilled Champagne

Method: Add the gin, lemon juice, and syrup to a shaker with ice. Shake hard for 10 seconds. Double strain into chilled champagne flute. Top with Champagne. Garnish with a lemon twist.

ISLAND OF MISFITS

1 ½ oz. Skrewball Original
Peanut Butter Whiskey
¾ oz. amber or white rum
1 oz. orange juice
1 oz. pineapple juice
1 oz. cream of coconut

Method: Shake all the ingredients and then serve on the rocks. Garnish with nutmeg and a pineapple leaf.



JESSICA RABBIT

Created by Maggie Storer at Nanas, Durham, North Carolina

2 oz. Del Maguey Vida ½ oz. lime juice
Mezcal ½ oz. orange juice
1 oz. fresh carrot juice ½ oz. Ancho Reyes
1 oz. 1:1 honey syrup Chile Liqueur

Method: Mix all the ingredients and then strain. Serve on the rocks in a glass with a chili and salt rim.



THE SCIENCE OF CARBONIC MACERATION IN WINE

CARBONIC MACERATION IS KNOWN FOR CREATING LIGHTER, FRESHER RED WINES, ESPECIALLY IN BEAUJOLAIS, BUT RESEARCH POINTS TO EVEN MORE NEW APPLICATIONS FOR THE TECHNIQUE

BY JIM CLARKE

As wine drinkers increasingly look for lighter and fresher red wines, more winemakers around the globe are turning to carbonic maceration, a technique long associated with Beaujolais's juicy, fruit-forward style.

The technique relies on enzymes within the grapes to break down sugars and acids into alcohol inside the cells of the fruit—no yeast required. The process can result in lighter wines with a heightened fruit character, and brighten up wines that may otherwise might be too powerful and concentrated.

Research is finding other applications as well—from lowering a wine's alcohol to softening some hybrid varieties' foxy aromas—so it's no surprise carbonic maceration has become part of the toolbox for winemakers all over the world, even if they can't always agree on the exact terminology.

THE FUNDAMENTALS OF CARBONIC AND SEMI-CARBONIC MACERATION

"A lot of growers in Beaujolais say they do 'carbo,' as a shorthand," says Adrien Duboeuf-Lacombe, the grandson of Georges Duboeuf and deputy general manager for the eponymous winery. "But this is an abuse of the language." In fact, winemakers around the world are equally free with their language, but what often passes for carbonic maceration can be broken down into three distinct winemaking techniques.

Full carbonic maceration calls for hand-picked fruit, as whole, intact berries

are required. The whole bunches are piled into a vat, which is then sealed and filled with carbon dioxide, creating an anaerobic environment. The unbroken berries absorb the gas, which triggers enzymatic activity within the individual cells of the fruit. Two forms of dehydrogenase enzymes begin transforming both sugar and malic acid into alcohol, a process known as intracellular fermentation. Polyphenols migrate from the skin into the pulp, which darkens.

are required. The whole bunches are piled into a vat, which is then sealed and filled with carbon dioxide, creating an anaerobic environment. The unbroken berries absorb the gas, which triggers enzymatic activity within the individual cells of the fruit. Two forms of dehydrogenase enzymes begin transforming both sugar and malic acid into alcohol, a process known as intracellular fermentation. Polyphenols migrate from the skin into the pulp, which darkens.





The skin weakens as well, and splits once 2% ABV is reached. This process can last from a few days to over two weeks, but as more berries split open, traditional fermentation eventually takes over.

The big difference between full and semi-carbonic fermentation is the source of the CO₂. According to Duboeuf-Lacombe, in semi-carbonic fermentation, winemakers do not artificially add the gas to the tank. Instead, as the whole grape bunches are piled into the vat, the mass of grapes presses down upon itself. The skin of some of the berries breaks from the pressure, juice flows out, and, thanks to yeast on the skins of the grapes, begins to ferment in the traditional, yeast-driven manner. Fermentation creates alcohol, heat, and carbon dioxide; the closed-top fermentation vat traps the CO₂ gas inside. Unbroken berries then react to this CO₂, just as they would when the gas was pumped in.

“Semi-carbonic fermentation is a natural process,” says Duboeuf-Lacombe, contrasting full carbonic maceration’s artificial environment. In fact, one of the early advocates of semi-carbonic fermentation was Jules Chauvet, often called the godfather of natural wine. “Within France, [full] carbonic maceration is mainly used in the southwest with very strong varieties like Tannat and Malbec,” says Duboeuf-Lacombe. “There is no sense using it with Gamay because it’s already a light, juicy, low-tannin, low-acid wine.”

Adding to the confusion of nomenclature, Peter Stolpman, the owner of Stolpman Vineyards in Santa Barbara, says producers using whole-bunch fermentation often refer to the technique as “partial carbonic,” but it is actually another distinct method. In this case, some of the grapes are likely to go through intracellular fermentation, but the vat is not covered and no effort is made to contain the carbon dioxide in the tank; punchdowns and pumpovers continue, dispersing the CO₂.

WHAT IS THE IMPACT OF CARBONIC MACERATION ON FINISHED WINES?

Both full and semi-carbonic maceration create distinct aromas, albeit to varying degrees, most notably from compounds deriving from accumulations of shikimic acid. It breaks down into benzaldehyde, vinylbenzene, and ethyl cinnamate; these volatile aroma compounds manifest as aromas of cherry and almond; plastic; and cinnamon and strawberry, respectively. While strongly associated with carbonic maceration due to their presence in nouveau-style wines, the compounds continue to break down, so the aromas rarely appear in wines that are aged for more than three or four months after fermentation.

Carbonic maceration also affects the structure of finished wine. In general, these wines will have softer acidity and tannins, and a lighter color. During in-

ABOVE: Sebastian Hardy, pictured above, thinks that hybrid grapes can benefit from carbonic maceration as long as they aren’t too fruity.

tracellular fermentation, a portion of malic acid is transformed into alcohol, lowering this type of harsh acidity. The grape skins, which contain phenolics like tannins and anthocyanins, spend less time in contact with substantial levels of alcohol—a solvent—so less color and tannin is extracted.

Pressing the must after semi-carbonic maceration and fermentation yields different results than conventionally destemmed and crushed grapes. “When you’re pressing a ‘normal’ wine, everything is fairly uniform, and just gets more tannic as you go along,” says Sebastian Hardy, who makes wine in Australia and the Finger Lakes under the brand Living Roots. “But in these semi-carbonic wines, you get tannic and dry wine from the free run juice. Then the juice in the berry is sweeter, and very bright and juicy and not tannic. The end of the pressing gets back into the skins and it gets tannic again.”

Hardy keeps the three portions separate because they are so different, only blending them later when assembling the final wine. Hardy uses this technique for several Living Roots wines, including portions of their Adelaide Hills and McLaren Vale Shiraz and most notably the Tannat in their Cabernet Sauvignon-Tannat blend.

“I think the beauty of Santa Barbara carbonic wines is that we can get great complexity and a dynamic profile, even with that lighter touch.”

- Peter Stolpman of Stolpman Vineyards

MAKING LOWER-ALCOHOL WINES AND OTHER APPLICATIONS OF CARBONIC MACERATION

Research published in *Food Chemistry* in November 2023 suggests that this difference in cuts could offer a low-cost tool for wineries looking to make lower-alcohol wines. In three years of trials using Tempranillo and Graciano, portions of the pressing were as much as 3.7 degrees lower in alcohol than wine from the same grapes made without carbonic maceration. According to the report, the lower alcohol portion was “less affected in terms of color and aromatic losses than when other techniques are used to lower alcohol content,” and can be produced much more affordably.

The one drawback revealed in the study was that this lower-alcohol, free-run portion amounted to 25 to 35 percent of the total volume; the remaining, pressed wine showed more conventional levels of alcohol. Producers who opt to make a lower-alcohol wine this way would still have to use much of the production for a more conventionally alcoholic wine. This application, while promising, is yet to be adopted by many winemakers.

While any number of red grapes could potentially receive carbonic treatment of one sort or another, an academic review

RIGHT: Adrien Duboeuf-Lacombe of Georges Duboeuf.



LEFT: Research is pointing to new applications for carbonic maceration, like softening some hybrid varieties' foxy aromas.

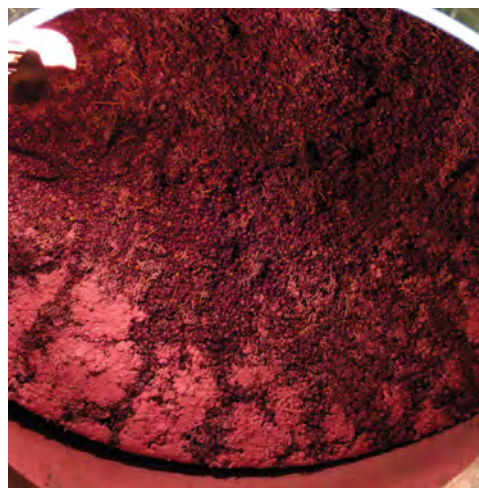
published in October 2022 suggests that red hybrid grapes are particularly strong candidates. Various studies found that carbonic maceration reduced some of the less commercially desirable, foxy aromas found in some hybrids and non-vinifera varieties, such as Concord.

Many hybrids also possess higher malic acid levels—so high in some cases that conventional malolactic fermentation cannot commence. Carbonic maceration was shown to be an effective and low-cost deacidification technique for these varieties. Hardy works with Marquette and a few other hybrid varieties in the Finger Lakes. “Carbonic is a good technique for hybrids,” he says, “but some of the early hybrids and native varieties can have so much fruitiness,” that carbonic maceration can be too much of a good thing.

Some winemakers have also turned to semi-carbonic maceration to increase the brightness and freshness of overly structured wines. When Stolpman Vineyards began lowering their use of irrigation in the vineyards, they found they got smaller, increasingly concentrated grapes. “We were getting these tannic, really big, rich, thick, dense wines,” says Stolpman. They began punching down less and less. “And with that evolution, well, eventually we said ‘what if we don’t punch down at all?’” Stolpman decided to employ semi-carbonic maceration, and the resulting Sangiovese called Love You Bunches took off. The first vintage was 2013; there are now several wines in the Love You Bunches lineup, as well as a semi-carbonic Syrah called Crunchy Roasty.

For Stolpman, the myth that semi-carbonic maceration only yields simple wines doesn’t hold up. “It’s a very naked expression, but I think the beauty of Santa Barbara carbonic wines is that we can get great complexity and a dynamic profile, even with that lighter touch.” ■

BELOW: Wines made using carbonic maceration tend to have a lighter color, softer acidity and tannins, and signature aromas like cherry, strawberry, and almond.





THE NABCA 87TH ANNUAL CONFERENCE COMES TO ARIZONA

BEVERAGE MEDIA BRING YOU THE HIGHLIGHTS FROM THE ANNUAL GATHERING OF BEVERAGE INDUSTRY PROFESSIONALS— AND A Q&A WITH NABCA CEO NEIL INSLEY

Nearly 1,000 government officials, beverage alcohol industry experts, media, and other affiliates from across the United States came together for the NABCA 87th Annual Conference at the JW Marriott Desert Ridge in Phoenix, Arizona, from May 19 to 23.

Organized around the theme “New Horizons, New Opportunities,” the keynote address, business sessions, workshops, and seminars covered topics including “Distilling World Diplomacy,” “Barrels to Boardrooms,” “Understanding Consumers’ Alcoholic Beverage Trends and Their Impact,” and “Experts in Modern Inventory Control.”

On the first morning, the event hosted meetings for the National Alcohol Beverage Control Association (NABCA) board and various committees, as well as with

control jurisdictions that need to connect with suppliers. The afternoon began with presentations from NABCA’s regulatory and policy staff providing updates on what they see taking place across the U.S. in beverage alcohol. A TTB representative addressed the agency’s overarching mission and its initiatives to foster a healthy alcohol business environment. NABCA operations staff detailed the timely data available from the association to help the beverage alcohol industry reach its goals.

Monday evening culminated with a dinner in the hotel’s Grand Canyon Ballroom, featuring dishes from NABCA Chairman Fred Wooton’s home state of West Virginia, as well as the opening of the Town Center, where almost 30 suppliers with decorated booths greeted attendees.

On Tuesday and Wednesday, incoming Chairwoman Becky Schlauch was in-

roduced and the lunchtime Trade Show, where over 60 beverage alcohol businesses showcased their products and services, opened to attendees.

The conference concluded with Chairman Wooton receiving a standing ovation before and after his final address during the Annual Banquet, in which he recapped some memorable experiences during his year and thanked the many people that trusted and supported him along the way.

Next year’s conference—its 88th edition—will be held at the Gaylord Palms in Orlando, Florida, from May 19 to 22, 2025.

During the conference, David Wojnar, the SVP of industry affairs and social responsibility at Provi, the publisher of Beverage Media, had the opportunity to sit down with Neil Insley, the CEO of NABCA for a conversation about its role today and in the future.

OPPOSITE PAGE: Close to 1,000 people attended NABCA's 87th Annual Conference.

DAVID WOJNAR (DW): What changes have you seen since you took the job in 2021?

NEAL INSLEY (NI): Jim Sgueo did an incredible job in his 28 years as CEO and 50 years with NABCA. But in this world you can't rest on your laurels. You always have to be looking at how we can move forward, how we can do things better. We've really concentrated on talking and thinking about what is NABCA 2030 or 2040? We've been around for 87 years; there's no reason to think that we're not going to be around for another 87. To be good stewards, that's how we have to think, that we're here for the long term.

DW: How would you describe NABCA's day-to-day mission?

NI: NABCA is very unique. We are a non-profit organization, but we do have a product that we sell, which is the data from the control states. It's very valuable and covers the spectrum. Organizations from public health all the way to large hedge funds purchase our data, for example, to look at the market or their individual acquisitions. The data is tied directly to our mission at NABCA, which is the sharing of information and collaboration, making sure that policy makers, decision makers, and businesses are using the best vetted information available to make good decisions on alcohol policy in business.

DW: NABCA provides educational material, but do you get into advocacy?

NI: We are a non-advocacy association. We don't lobby; we are forbidden, if you will. In those policy decisions and discussions, we bring the facts under the 21st Amendment, and then it's up to the states to decide how to do alcohol distribution within



Neil Insley (left), NABCA, speaking with Provi's David Wojnar.

their jurisdiction. We are here to support those decisions. Core to our mission is collaborating with various stakeholders.

In any regulated commodity, but certainly in beverage alcohol, there's always a push-pull. Anytime there's a shift, some stakeholder is affected. You have to have good collaboration within the industry to make sure that we don't polarize and that we can continue to move things forward in a safe and responsible manner, but also grow businesses and help economies, and for our control states, help put money back in the state coffers to ease tax burdens.

DW: How are the states and your members balancing their responsibility of being good stewards of responsible consumption while also serving the taxpayer, the consumer, and putting money back into the coffers?

NI: In my career and the various different viewpoints I've seen in the beverage alcohol industry—from a regulator to a private practice attorney, administrative law judge, running a state, and now in the role that I'm in—there is an inherent dichotomy in the alcohol market. I probably shouldn't quote Al Capone, but he did famously say, "When I serve it, it's a speak-easy; when my competitors do it on Lake Shore Drive, it's hospitality."

The control systems help that dichotomy. Enjoyed responsibly, it is a great

product and it's one that the people in the country want to partake in. But I think everybody has realized, and the industry included, it has to have guardrails around it. We have to have good, smart regulation that's equally applied and creates a level playing field, lest we have to learn the painful lessons from the past and revisit some of those concerns that come with an unregulated commodity and the affiliated harms it can cause.

The control systems are very good at balancing that. As we said in one of our amicus briefs that went to the Supreme Court, the state is the balance point between commerce and public safety, and that's where we need to be. We need the commerce, but we have to recognize on the other end, it has to be done safely and responsibly.

DW: It's been a great conference. Any final thoughts for your staff or members?

NI: We host numerous conferences throughout the year. We take a loss on all of them, because this is core to our mission: To make sure that we're bringing stakeholders together in an environment where they can do business with one another, where they can talk policy with one another, and have that collaboration on a grand scale. ■

This interview has been edited and condensed.



THE SCIENCE OF ROTUNDONE IN WINE

THIS TINY, COMPLEX CHEMICAL COMPOUND BRINGS PEPPERY NOTES TO SYRAH AND OTHER RED GRAPE VARIETIES, BUT MUCH ABOUT IT REMAINS A MYSTERY

BY AMY BETH WRIGHT

Researchers from the Australian Wine Research Institute (AWRI) describe rotundone, the chemical compound responsible for the peppery flavor in some grapes, such as cool-climate Syrah or Shiraz, this way: If you were to add just one drop to an Olympic-sized swimming pool, the water would taste of pepper.

The AWRI began trying to identify the origin of Shiraz's peppery notes in 1999. An extensive study of the 2002 and 2003 vintages sampled grapes from 18 vineyards across southern Australia, including the cool, mountainous Grampians region, where the oldest block of Shiraz at Mount Langi Ghiran winery mysteriously and consistently expresses profound peppery

notes. Damien Sheehan, the chief viticulturist and general manager of Mount Langi Ghiran, describes the grapes from this block as “a real explosion in the mouth.”

Now, much more is known about rotundone, yet there are a few lingering mysteries. In global wine regions where rotundone is present in grapes—in Duras from South West France's Gaillac region, in Graciano from Rioja, and in Vespolina and Schioppettino from northern Italy, for example—researchers have examined the impact of temperature, light, time, water, soil composition, clone selection, maturation, and foliage to try to grasp what spurs rotundone production in grapevines, and in turn, whether it's possible to achieve consistency in peppery notes in wine across vintages.

ABOVE: The distinctive peppery flavor in Syrah and Shiraz, among other grapes, is due to its rotundone content.

ROTUNDONE: TINY, POWERFUL, AND ENIGMATIC

In 1967, rotundone was first identified by researchers in Poona, India, in the bulb of a weedy nutgrass known as *Cyperus rotundus* (hence the name *rotundone*), which lacks a peppery aroma. It's since been detected in rosemary, thyme, marjoram, basil, chicory, grapefruit, oranges, apples, mango, and wine grapes, according to a 2020 study compiled by researchers Olivier Geffroy, Didier Kleiber, and Alban Jacques at The University of Toulouse's Purpan Engineering School.

RIGHT: Researchers have analyzed and manipulated the rotundone present in Noiret grapes.

“The swimming pool image is easier to visualize than a gas chromatograph-mass spectrometer,” says Tracey Siebert, Ph.D, a senior research scientist with the AWRI. The chromatograph pulls compounds out one by one during chemical analysis while a spectrometer tracks the amount of each. A researcher provides additional verification via an olfactory smell test.

Rotundone eluded detection for years as it’s present in grapes in mere nanograms, appearing in chemical analyses as a tiny bump rather than a peak; it’s also possible to have anosmia, or loss of smell, for rotundone, making it that much harder to detect.

In 2007, AWRI shared its major finding that rotundone was the source of peppery notes in Australian Shiraz, a result gleaned from extensive testing of the sample sets from 2002 and 2003. Alpha-guaiene, a sesquiterpene compound, is the base of rotundone, and isn’t aromatic on its own—but when alpha-guaiene is coupled with oxygen, rotundone is created. “The proper chemical name for it is as wide as a page, so we stick with rotundone,” says Dr. Siebert.

Sesquiterpenes are a substance of only carbon and hydrogen and can assume a variety of shapes. Siebert likens rotundone to other unmistakable aromatic compounds like 2,4,6-trichloroanisole (better known as TCA or cork taint) and vegetal pyrazine compounds in Sauvignon Blanc. For each, the shape of the molecule meets the shape of our olfactory receptors in a potent way.

Rotundone has since been identified in a diversity of grapes, including varieties from New Zealand, France, and the U.S. Given the many global microclimates where rotundone is expressive, it remains a mystery what exactly spurs rotundone production, or what exactly the plant



might be defending itself from that in turn accelerates rotundone production.

Plants make sesquiterpenes to defend themselves against herbivores, pests, predators, and fungi, or to signal insects they are ready for fertilization. Given rotundone’s intrinsic defensive properties, it could be relevant to how pests like the spotted lanternfly can be repelled through natural means, a focus at Pennsylvania State University’s College of Agricultural Sciences.

Alongside that, “It would be nice to understand how the variable weather conditions associated with climate change will impact rotundone production, especially early in the season, before the shift into rotundone production,” says Michela Centinari, Ph.D, an associate professor of viticulture at Penn State.

Dr. Centinari and fellow colleagues reached out to the AWRI in 2016 for assistance creating a detailed chemical analysis of Noiret, a hybrid grape planted widely in northeastern U.S. “We were first thinking, could it be that the peppery notes in Noiret are due to rotundone, even though there is no obvious, direct connection from a parent genealogy point of view with Shiraz?” Noiret is a hybrid of Steuben and NY65.0467.08. Pennsylvania’s growing season is also comparatively cool and short compared to many Australian regions, and there are differences in soil composition, sunlight, pests, and herbivores. Yet, analyses indicated that some

Noiret grapes exhibit more peppery notes than some Shiraz.

“The next question was, can we modulate the amount of rotundone in the grapes to affect the concentration?” says Centinari. As it’s unknown exactly what external stressor rotundone defends grapes from, it’s not readily viable to modulate or control rotundone production—but a cooler climate presents one throughline that can be leveraged.

FACTORS IMPACTING ROTUNDONE PRODUCTION

AWRI and CSIRO researchers sampled 177 Mount Langi Ghiran vines during three growing seasons—2012, 2013, and 2015—alongside others from Australia, New Zealand, France, and later, the U.S. They aimed to understand why some parts of a vineyard capture rotundone’s peppery flavor and aroma profoundly, while other vineyard blocks show no peppery character at all. This study resulted in a “pepper map,” or a heat map, showing what Sheridan Barter, a senior scientist with the AWRI, calls a “beautiful gradient” that describes consistent differences in the sections of the vineyard where rotundone accumulates across all three seasons, even when there are seasonal variations in the mean amount of rotundone accumulated. The study found that vineyard variations in soil and topography are the most driving factor in terms of differences in rotundone accumulation.

Barter also describes wide variations in rotundone accumulation between vintages, such that winemakers cannot anticipate the same concentration from year to year. For example, in 2013, rotundone reached 1,000 nanograms per kilo in AWRI's study, and in 2015, just 37 nanograms per kilo. It is again unknown precisely what accelerates rotundone production, but further study of the relationships between particular growing environments and grapes' subsequent chemical composition might inform how strategies like late harvesting (as rotundone appears toward the end of a cool growing season) can be leveraged to increase the concentration of rotundone in cool-climate Shiraz.

"We have a long, cool, drawn-out season, and get complex flavors where pepper stands out," says Adam Louder, the winemaker for Mount Langi Ghiran. Louder compares these notes with warm-climate Shiraz from the Barossa Valley or McLaren Vale, where, he says, "flavors of rich fruit, cloves, and baking spices are more prominent."

A few years after the initial study, Centinari and colleagues similarly noted that rotundone concentrations were much lower at warmer Pennsylvania growing sites. "We found cool regions produce 10 times more rotundone than sites in southeast Pennsylvania, where it's much warmer," says Centinari. "We don't know why, but it's a strong effect."

Researchers have also explored how sunlight and warmth affect rotundone

production. Centinari shares an example of a Pennsylvania grower who experimented with pulling leaves from around the fruiting zone, increasing sun exposure and finding a slight increase in rotundone production. AWRI researchers have also put alpha-guaiene on filter paper in differential light. "With no light, it takes a long time to form rotundone from the base compound," says Siebert. "In sunlight and laboratory light, it forms quickly then degrades quickly. With a shade cloth in place, it forms not as quickly and stays around for quite a while."

Siebert concludes, "Too much light probably breaks it down. So, it's likely made and then broken down by the bright light in the hotter, brighter part of summer. Or it might not be made until the plant needs to protect itself from something we don't know—and that part we can't ask the plant, unfortunately."

CAN ROTUNDONE BE COAXED IN THE WINEMAKING PROCESS?

Centinari distinguishes between the task of identifying rotundone and quantifying it, to possibly affect its concentration in wine. While some viticultural practices, like leaf removal, selective harvesting, and in some instances, irrigation practices, have led to a slightly higher concentration of rotundone, or hint at the possibility of affecting a wine's peppery character, vinification techniques like different maceration times, yeasts, enzymes, as well as cold soaking grapes, thermovinification (flash détente), and carbonic maceration have shown little correlation to increased rotundone.

Rotundone is primarily present in the grape skins, and extracts readily once alcohol production begins. "If you take the skins off quickly, you can get less rotundone," says Siebert. "But there's not much way of getting more out."

A research team at the Sensory Evaluation Center at Penn State concluded that heightened rotundone in Noiret could be off-putting, or, as Centinari says, "More



ABOVE: Adam Louder, Mount Langi Ghiran.

is not always better—it's better to a certain point." Previous studies of Duras and Syrah in the northern Rhône, conducted by Geffroy and fellow researchers, found similarly there can be a threshold between desirability and too much, particularly in Duras. All sensory studies of rotundone have confirmed that some consumers will not detect it at all, or have anosmia for this compound.

However, many people find rotundone's peppery notes to be an attribute in Australian Shiraz. "We love it when we get it, but we don't hold out for it," says Louder. In years when rotundone is present, Louder watches the temperature carefully during fermentation to "keep the integrity of the fruit profile and the spice profile." In Louder's experience, a cooler fermentation temperature can help hold onto the desirable spice flavor that rotundone provides in Shiraz.

When rotundone is powerfully concentrated, "It smells fantastic in the winery—that's the best smell you can get," says Sheehan. ■

BELOW: This "pepper map" illustrates rotundone's relationship with terroir.

Rotundone spatial variation 2012 - Mount Langi Ghiran 'pepper map'

