

Oak Alternatives Inch Closer to Replicating Barrel Impacts

New innovations in alternative products turn heads as wineries look to cut costs after a difficult year

Jess Lander

“OUR INDUSTRY WAS the dirty little secret,” said Cody Ewers, the U.S. sales and marketing director at Innerstave. “No one wants to talk about it.”

But all of that is changing, and the stigma surrounding oak alternatives is diminishing, albeit slowly. There’s seemingly an unending list of alternative options on the market—from staves to chips and beans and liquid—and the products are not only beginning to catch up to barrels in terms of quality, but they’re also more sustainable and, most importantly, cost-effective.

“You always want to look into alternatives to replicate what a barrel would give to the wine without the cost of the barrel. You always want to try to do that,” advised Napa-based consulting winemaker Jean Hoeflinger, “and by having diversity with these additives, you’re helping to fill more than just one component. These multiple solutions help you really zoom in with precision into what that particular wine is looking for.”

It’s no longer just the large, mass-production wineries that are buying and using oak alternatives. High-end producers are finding value in them, though not all of them will talk about it.

“Wood is kind of like a screwdriver, right? There are many uses for it. Sometimes, it’s not to unscrew a screw, but to pry or scrape something up,” said Steve Reynolds, proprietor of Reynolds Family Winery in Napa. “Oak is predominantly used for flavor character, softening the wine and accelerating aging, but it can also help stabilize color, and it can absorb things like a sponge. I believe, as a winemaker, you’re wise to have tried many of these things because Mother Nature doesn’t always hand you a sunny, beautiful day, and you need to know how to continue to work and still move along. I think that’s what wood alternatives are for: to help fix things along the way.”

For those who are still hesitant to use alternatives, a quick cost analysis can be too tempting to ignore. At the very least, a trial can’t hurt. “The cost input for oak alternatives is significantly less than barrels, and from a winery’s balance sheet, it’s just an easier thing for a winery to digest. It’s typically the second most expensive item on the balance sheet next to grapes,” said Drew Wolfe, Tonnellerie Ô’s sales director for the Bay Area, North Coast, Santa Cruz and international.

“Our company has gotten a lot of interest in the last year from iconic wineries throughout California to at least trial alternatives, simply because the cost of barrels continues to go up. You can’t replace a barrel on wine, but there are ways in which wineries have found out they can apply alternatives to some programs and get similar impacts. There are definitely wineries



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making \$80 to \$100 bottles of wine using alternatives that weren’t five to 10 years ago.”

So, while barrel sales suffered last year, alternatives are stepping into the spotlight, capitalizing on a time when belt-tightening is at an all-time high.

“It’s a big place where winemakers can save a lot of money without sacrificing quality,” said Ewers. “Winemakers are becoming more adventurous, more creative; and while some traditionalists would call that cheating and cutting corners and not being true to the original way of doing it, more liberal and adventurous winemakers say, ‘Hogwash! We’re just reimagining the way we’ve traditionally impacted our wines with oak.’”

These products are only going to get better, too. The alternative industry is constantly coming up with new, innovative ways to closely mimic the impact of barrels. Some of the most recent rollouts on the market include ultra-premium sourcing, new flavors, toasts and blends, and tools to make the production process quicker, easier and more efficient, without sacrificing quality.

Oak Bean. StaVin produced the first oak bean, a sawn cube of oak which extracts much faster than staves but in a much slower and more controlled manner than any type of oak chips. The Bean provided winemakers with a quicker method to introduce oak flavors and aromas, without the harsh characteristics often associated with oak chips.

Fire-Toasting. Invented first system to consistently fire-toast and perfect barrel alternative oak staves to truly replicate barrel flavors and aromas—without the barrel. A winemaking first.

Express Oak. Progressively refined and perfected the pure and concentrated essence of a three-year seasoned & fire-toasted French oak barrel into a liquid form. Express Oak's unique method of extraction allows it to instantly and elegantly integrate with wine or spirits. Typically used as a finishing tool, it can elevate a great wine to an exceptional one.

Barrel Fingerprinting. By way of qualitative and quantitative research & development, StaVin created a unique system to mimic and deliver the subtle aromatics and nuanced flavor profiles of whichever particular barrel a winemaker chooses.

Trial Packs. StaVin designed and introduced an easy to use trial pack which enables winemakers to optimize their particular barrel alternative needs for any wine, in one week.

Macro-Aeration. StaVin championed the use of macro-aeration during the fermentation and production of red wines. The natural presence of pyrazine-based compounds and small chain alcohols and aldehydes can give new wines distinctly green characteristics. These "green" compounds have extremely low aroma thresholds, and macro-aeration during fermentation reduces these characteristics by encouraging the dissolution of CO₂ dissolved in the must.

3-Year Seasoning. StaVin is the only company that seasons all of its oak in open air for a full 3 years. Through numerous trials we've found 3 years to be the optimal seasoning time for all staves before toasting. This minimizes harshness while maximizing flavors.

Fan Packs. By listening to feedback from winemakers and cellar hands StaVin conceived and developed the first oak stave Fan Pack, and easy to employ tank system. By way of C-rings welded to the walls of tanks the Fan Packs attach either directly or along a sanitary stainless chain, depending on tank size. Choice of type and amount of Fan Packs offer great convenience and control when loading staves in tanks.

Oak Calculator. Created an easy to use oak calculator, to assist winemakers with decision making. Using the StaVin Trial Pack, a winemaker can determine exactly the type of oak and percentage of new barrel impact desired for their vintage. The Oak Calculator can then be used to ascertain the amount of desired product needed for the volume of wine they need to treat.

Barrel Head. A wine industry first; StaVin innovated the combining of specially heated French oak with fire-toasted oak to effectively mimic high end French barrels without toasted heads. Barrel Head adds texture and mouthfeel to most wines, giving winemakers yet another tool to enhance their wines.

Optimal Stave Thickness. Working with the advice of Dr. Vernon Singleton, StaVin determined the optimal thickness of oak staves should be 10 millimeters (3/8") in order to best maximize extraction of flavors over a 2-year period. This recognized the fact that the average penetration of wine diffusing into a barrel stave was a depth of 4 to 6 millimeters.

Tank Systems. Developed two easy-to-use stave systems for use in small and larger tanks. The Modular system for small tanks and Matrix system for larger tanks. Both systems were developed to allow winemakers the expansion of wine programs without purchase of additional barrels.

Infusion Tube. Developed, fabricated and patented the Infusion Tube, a perforated stainless steel through-the-bung device. Quick and easy to reload, it delivers toasted flavors and aromas without the need to remove heads on old neutral barrels.

Metallized Bags. StaVin introduced the use of food grade metallized polyethylene bags. These hermetically-sealed bags lock in delicate flavors and aromas, while locking *out* oxygen and any undesirable external odors, such as TCA.

Snake System. Developed an automated system that can efficiently stir and mix yeast lees in most any tank. The StaVin Snake System is often employed in mixing tanks to improve white wine mouthfeel.

Barrel Replica. Another highly unique through-the-bung product, the Barrel Replica was created to impart flavors and aromas over longer-term maturation periods in old neutral barrels. The Replica offers the winemaker formidable flexibility. Depending on the amount of stave sections used (up to 10), and which type of oak(s) and toast level(s) are loaded, a 10% to 100% barrel impact and wide variety of flavor profiles can be achieved.

Savour Oak. Developed Savour Oak oven toast Barrel Alternatives. Initially for use in fermentation of red wines, this special toast promoted maximum development of aldehyde compounds, which would then infuse into the fermenting must. In turn saving acetaldehyde, produced by yeast, and directly reacting with anthocyanins to initiate stabilization of color. Further reactions with tannins may also help build mouthfeel.

In-Tank Bags. StaVin's versatile C-ring chain system enabled winemakers to attach food grade nylon mesh bags filled with oak Stave Segments and oak Beans to large tanks for wines which needed faster oak extraction than what oak staves could provide.

Barrel Insert. StaVin developed a simple yet effective system to insert and retain staves in barrels. This unique, easy to load system provided winemakers the flexibility of which and how much oak to employ to any lot of wine.

Micro-Oxygenation. StaVin created the OxBox Micro-Oxygenation System to enable hermetically sealed airtight stainless steel tanks to breathe, exactly like oak barrels. When paired with toasted and untoasted French oak, this system fine-tuned winemakers' control over flavors, aromas and maturation while mimicking the particular barrel of their choice.



Meticulous Sourcing of Oak

The quality of oak used in alternatives is always improving, no longer made from leftover barrel scraps. “We’re sourcing specifically for alternatives versus what didn’t make the cut for a barrel, and we’re not cross-blending with our other product lines,” stated Wolfe.

Taking this one step further, Tonnellerie Ô has launched single-forest alternatives (available in staves, bricks, square formats, and bung and head inserts) that are sourced from three of France’s most prestigious forests: Fontainebleau Royale, Jupilles Fleur and Tronçais Forte. Meant for longer-aging wines, these products are seasoned for up to 30 months of use, adding nearly an additional year of aging to their standard offerings, and have finer grains.

“They have a more elegant and delicate impact on the wine than is standard,” said Wolfe. “Ten years ago, with oak alternatives, you could taste the wine, and it was planky, and you knew it was on alternatives. The sourcing has gotten better, and the focus on quality of the raw material has gotten better.”

Moreover, Sequin Moreau has introduced the Exception Range (offered in chips, staves and blocks), for which they “identify trees with potentially higher oak compounds that provide sweetness and volume,” explained Marion Ghiringhelli, oak alternatives sales manager at Sequin Moreau. “We look for the oak compounds’ potential and not only for the grain or forest type. This very lightly toasted oak is bringing an incredible boost to the fruit volume and length, without adding any oaky notes. It helps the wine structure, highlights the fruit and preserves the identity of the wine.”

New Flavors, Toasts and Custom Blends

The most frequent and common innovations in alternatives are new flavors and toasts to add to a winemaker’s “spice rack.” One example is Oak Solutions Group’s newest flavor in their High Extract series: High Caramel. “This is used to target the caramel characters desired in bigger, bolder reds and creamier Chardonnays,” said Kyle Sullivan, Oak Solutions’ global managing director.

The company has also introduced four new tank staves that while originally targeted to the spirits industry, are being used in wine programs as well. These staves come in four flavors, Charred Barrel, Sweet Shoppe, Rickhouse and Spice Rack, and use a multitude of toasting technologies to focus on flavor and finish.

Yet while the sheer number of soloist flavors and toasts available on the alternatives market continues to grow, more and more wineries are seeking flexibility, creativity and new ways to set themselves apart from their competitors.

“One trend I’m seeing is we’re kind of moving away from singular oak flavors. That has been the dominant way of making wines for winemakers that are heavy alternative users, but I think there is more of a desire for a true blend,” observed Ewers.

“Let’s combine at certain percentages to create our own version of a High Caramel or High Vanilla. It creates more originality in the market. I think there’s a little bit more of a comfort level with alternatives: they’ve done it for a while now, it’s kind of second nature at a bigger company, and I think that with that comfort level comes a little more of a nuance where they can make their blends and have much more customizations that are specific to that winery or winemaker even.”



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Wolfe has noticed this shift too, confirming that Tonnellerie Ô has received several requests for customized toasts and flavors. “I think the more customizable you make it, obviously the more complicated it gets from a product standpoint, but it is also unique for a winery,” he said.

At StaVin, director of research and technical sales Dr. Jeff Murrell, Ph.D. works closely with many of his clients to deliver very specific profiles. “We have a handful of stock blends that have performed well, but we do really like working hand-in-hand with wineries. We get called in to replicate certain barrel profiles or find an aroma and flavor or texture profile that’s specific to a winery and what they’re looking for,” he stated. “People will send me a reference standard and the neutral wine, and we’ll try to replicate the standard they’re looking for, which is typically a barrel. Trying to replicate barrels with the price point of alternatives, I think, is the Holy Grail.”

One of the new ways that Innerstave is customizing flavor profiles is with spirits flavors. Innerstave has partnered with a company in Maine to use a machine that can infuse the fibers of the wood with the natural flavor components you’d traditionally get from a used bourbon barrel.

“Instead of sourcing bourbon barrels with unique life experience and flavor impact, we can mimic the mash bill, and then this patented Fiber Infusion Technology can replicate, through time, temperature and pressure, what happens naturally in the distillery,” explained Ewers. “It’s a flavor profile that we can scale and can be consistent year-to-year. So, instead of buying a thousand bourbon barrels a year, you can buy 100 or a few hundred and employ a hybrid program where some of the product is in tanks with staves.”

The key here is that these staves are unique to each customer. Ewers continued: “A lot of people will have a bourbon barrel stave, but we can create a unique stave for a thousand different customers based on mash bill. We can do 20-year or 12-year, French cask or American cask, we can raise or lower the toast level, and we can combine multiple elements together to create a unique, never-before-tasted profile.”

New Ways to Save Time and Effort

Consistency is one of the biggest pros of oak alternatives, but convenience is another, and new products are making the production process easier—and oftentimes faster—than ever.

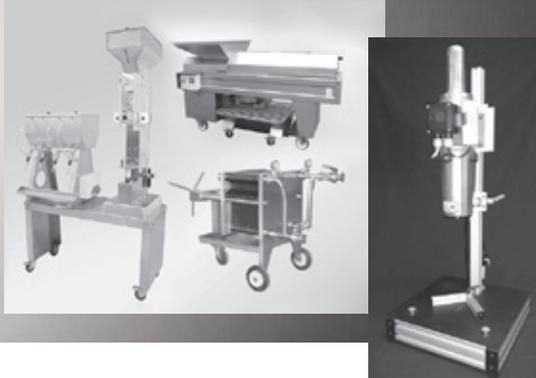
Cannadell’s High-Impact Chips, for instance, are targeted to programs going to market sooner than anyone had anticipated. “When winemakers get a call from marketing that says, ‘We need to go to market in six weeks,’ this is a great product in that it allows winemakers the flexibility to add a high impact of oak when finishing their wine, but yet integrates beautifully and is not disjointed,” explained Sarah Lanzen, oak alternatives consultant for Bouchard Cooperages, the exclusive supplier of the High Impact chips.

For these, the staves are toasted, crushed and toasted again. A lower rate of humidity causes the wood in the toasted staves to break irregularly, not uniformly, like untoasted staves. This results in a greater blend of surface area that adds complexity and mouthfeel. The second toasting breaks down the tannins and allows for a softer impact and soft aromatics.

Similarly, Seguin Moreau has released the Oenofinisher, a chip that’s meant for faster treatment (within one to two weeks), and comes in four recipes: Original, Vanilla Booster, Toast Booster and Freshness Booster. Ghiringhelli said that the Oenofinisher is comparable to liquid tannin, which is quickly becoming a winemaker’s secret sauce when on a time crunch.

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“Liquid form is extremely easy to use late in the game,” said Napa Valley-based consulting winemaker Jean Hoeflinger. “For me, every time you use chips or staves under a longer impact program, you have to use it earlier. Liquid is a late game-changer solution. You can kind of fill in the gaps of the blends with these liquid options.”

Stavin had already launched liquid tannins for finishing and aging, and in the last year rolled out liquid tannins for fermentation. “Liquid tannin products have been very popular, especially for fermentation and finishing. At fermentation, we see people replacing their solid pieces of oak with liquid products because they are a lot easier to deal with at the crusher, and at a time when there’s so much going on, to have ease of use at that period is really a good application for wineries,” said Murrell.

“The use of liquid oak is different in that it’s readily available up front. It’s already been extracted from the wood, you don’t have to worry about the temperatures or alcohol content or getting as much or as little oak out of it. It’s simply available. I think it’s something that’s going to evolve into a mainstay, replacing chips and dust during fermentation.”

Innerstave is rolling out a new technology for oak alternative users that makes micro-oxygenation (MOX) much easier. In partnership with a New Zealand-based company called Accuro, Innerstave is now offering wineries portable MOX units that hook up to the tank and update automatically every 15 minutes to ensure precision rate additions. “Micro-oxygenation units normally need to be hard-lined into the infrastructure of the winery, so this is a really interesting unit because it uses WiFi and has a phone app so you can adjust the rates of oxygen up and down from anywhere in the world,” said Ewers.

The technology also uses a different type of diffusion technology than what is typical. Ewers explained that this technology helps to get an even dispersion of oxygen throughout the target volume and better mimics the oxygen exchange in a barrel. “It dances around the tank and gives the oxygen directly to compounds within the tank, rather than simply dropping it at the top,” he stated. The result? Better oak integration and stabilization of color, decreased astringency and reductive aromas, and better mid-palate structure.

Reynolds started using these portable MOX units at his winery after learning that they could potentially counter some of the effects of smoke taint. “They had some results that had lessened the smoke levels in their wines. That was a key reason for me to try it on some of our 2020 wines, and we found some good results. It helped to accelerate the aging process, but I found that it did help to alleviate some of the smoke qualities as well. It was subtle, not a life-changing result but definitely notable,” he said.

“It’s very user-friendly. We’ve found the learning curve to be super easy and simple.” **WBM**



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