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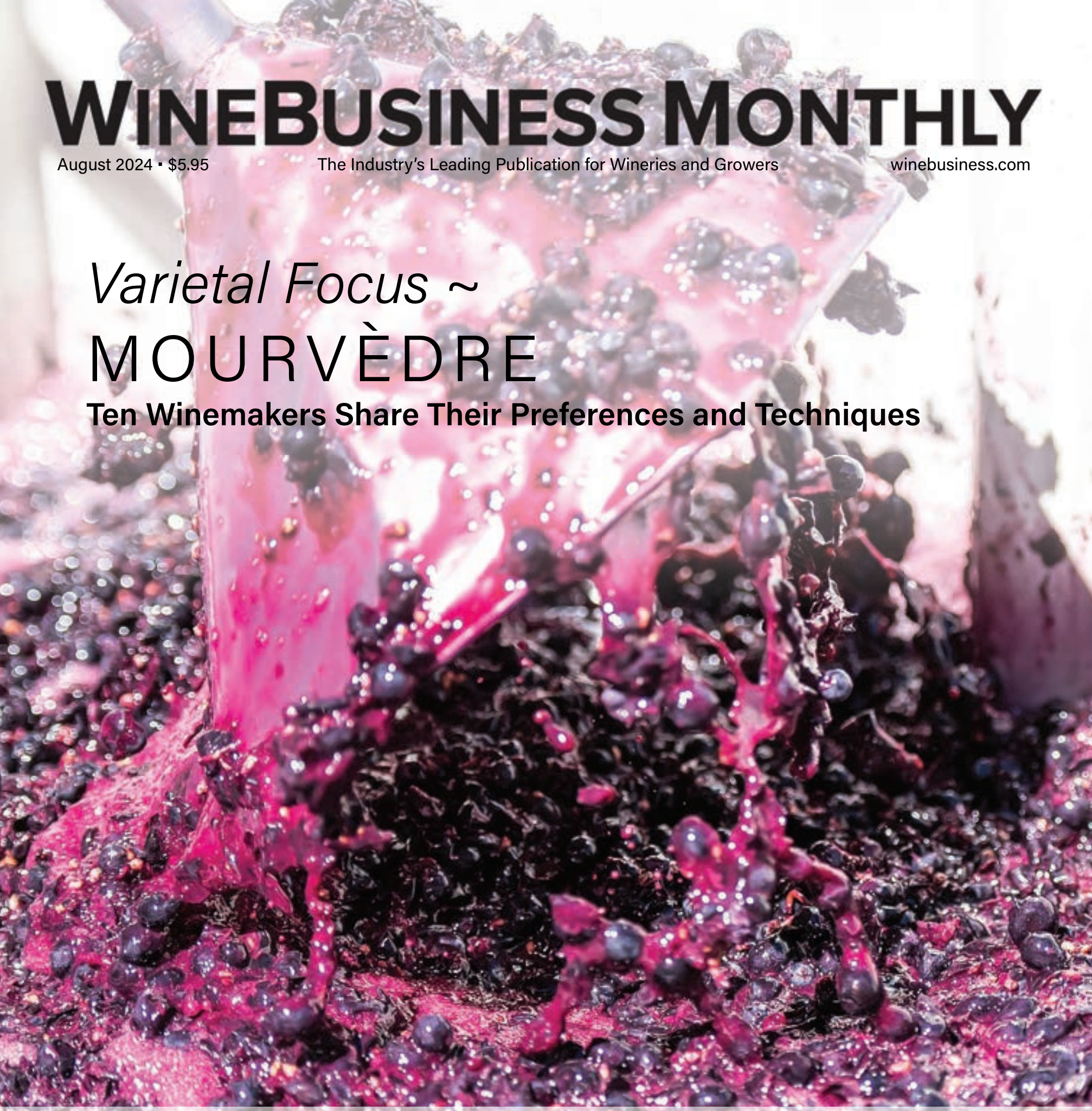


Varietal Focus ~

MOURVÈDRE

Ten Winemakers Share Their Preferences and Techniques

Plus:

Packaging Survey Shows Little Support for Nutrition Labeling Among Wineries

Custom Crush Houses Adapt to New Styles

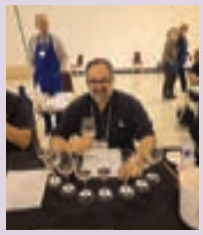
Infrared and Electromagnetic Frost Protection Hits the Market

TRIALS & TROUBLESHOOTS

Technical Barrels Beef Up Washington State Value Wine Program

J. Bookwalter Winery Describes their Process and Priorities for Adopting the Elevage Barrel System into Value Program

Bryan Avila



Meet the Author: **Bryan Avila** is a formally trained enologist, seasoned commercial winemaker, an ACUE Credentialed Educator and co-founder of the Vintners Institute, Guild & Academy. The Vintners Institute coordinates applied research trials with commercial growers and vintners through the Guild and teaches the language of winegrowing technology through the Academy. For more information, go to *www.vintnersinstitute.com*.

TRIAL LEADS

Cameron Parry
director of winemaking, J. Bookwalter Winery
Cameron Parry's winemaking philosophy strives to bring out the best of what the grape has to offer while minimizing the signature of the winemaking process. Parry has worked with most of the varieties commonly grown in the U.S. and a few less common ones, as well. His experience has focused on Cabernet Sauvignon, Merlot, Cabernet Franc, Zinfandel, Chardonnay, Riesling, Sauvignon Blanc, Syrah, and Petite Sirah though Parry has worked with Pinot Noir, most of the Rhone varietals, Tempranillo, and Charbono. Integrity of style is important to Parry as a reflection of his values and ownership.

Chance Cruzen
winemaker, J. Bookwalter Winery
Chance Cruzen is the winemaker for J. Bookwalter Winery. He's spent the entirety of his winemaking career at J. Bookwalter Winery. Starting as a lab technician in 2017, he quickly transitioned to the position of assistant winemaker in 2018 until he became lead winemaker in 2022. Cruzen holds a bachelor's degree in biology from Washington State University. He had a short stent in the microbiology research sector working for Pacific Northwest National Laboratories. Cruzen is a lifelong native of Washington state and a proud member of the Washington state wine community.

BACKGROUND:

Stainless steel and plastic tanks have long replaced large wooden and earthen vessels for wine producers for many applications. However, despite high marks in cleanability or portability, during wine aging, neither SS-tanks nor the ubiquitous 275-gallon, International Bulk Container (IBC tote) deliver the style winemakers expect when aging that same wine in a barrel. Wood barrels allow for the critical micro-oxygenation process that polymerizes tannins to soften the mouthfeel. Unlike a naturally porous oak barrel, stainless steel is not porous, making micro-oxygenation more difficult in the larger vessels commonly used to process value wines. On the other extreme, the far more portable, inexpensive and mainstream option, the IBC tote is too oxygen permeable for prolonged wine storage. Winemakers are acutely aware that too much oxygen will zap the life out of their wines, dumbing down key flavor characteristics that set good wine apart from bad wines in a blind tasting.

Most technical oak aging solutions have decoupled the three major elements that the oak barrel has to offer the winemaker; the container, toasted oak flavor, and the natural process of micro-oxygenation. Micro-oxygenation injection and control systems have been developed for stainless steel tank applications and mastered by many of the larger producers, but on the smaller scale, more portable and modular products such as Flex Cube, Flex Tank and now the Elevage barrel system seek to provide better value over traditional wooden barrel and rack systems.

These specially formulated plastic vessels claim the following benefits:

- **The container is no longer a consumable good:** Once you buy the breathable plastic barrel, the winemaker only needs to purchase the staves reducing future costs to the purchase of the adjuncts only.
- **Consistency:** An exact number of staves can be added to the tanks to fit a brand's flavor profile reproducibly.
- **Maintenance and Durability:** Plastic requires less maintenance than wood containers, assuming they are not stored outside. Oak barrels must be kept moist to prevent leaking and are susceptible to microbial infections and boring beetles if not properly cleaned, sanitized, and stored.
- **Space Efficiency:** Cubed design fits more efficiently into storage spaces compared to round barrels and can be stacked more effectively, maximizing space in the cellar.
- **Sustainability and Carbon Footprint:** These vessels last longer and reduce the constant demand for new oak barrels filled to the bung with fine French sailboat fuel. A shipping container full of staves can treat a much larger volume than a container full of barrels coopered overseas.
- **Portability and Weight:** Plastic is lighter than oak barrels, making them easier to move and handle during the winemaking and sanitization process.

FIGURE 1 Elevage Barrel system (left), J. Bookwalter's Notebook wine (Top Right), BarriQ staves (Bottom Right).

- **Controlled Micro-oxygenation:** Plastic can be formulated to allow low, medium or high Oxygen Transfer Rates (OTR) through the surface that is controlled and predictable.

These practical advantages are particularly appealing in modern wine-making environments where flavor consistency, cost, environmental and efficiency are important concerns. The financial and operational benefits of these technical barrel alternatives can be massive; however, if the wine doesn't deliver on quality, the benefits are moot.

Wine buyers in the wine trade are acutely tuned into "chippy" or "disjointed" flavors in the value segment as these descriptors are markers of cheap wines that lack integration.

On the other hand, wine buyers insist that they only buy wines of a quality level that deliver well beyond their price point spurring winemakers to find the optimal solution between traditional and technical barrels. This story describes how the winemaking team at J. Bookwalter Winery went about adopting technical barrels into their value wine programs to satisfy the needs of their customers.

TRIAL OBJECTIVE:

J. Bookwalter Winery sets their process and priorities in adopting the Elevage barrel system into their larger programs.

TRIAL DESCRIPTION:

The J. Bookwalter trial builds on a prior successful trial that was carried out at Mercer Wine Estates, which does custom processing for wineries in addition to their own brands. Here, 2020 wines were aged in neutral and new traditional oak barrels and then compared to two Infiniti 1,000-liter Elevage Medium Oxygen Transfer Rate (MOTR) barrels. These Elevage barrels were dosed at a rate that is widely accepted to be a 100% new oak equivalent (NOE) at 15kg /1,000L of wine.

Mercer Wine's key interest was the promise of barrel-quality wine at a lower cost. Three wines, a neutral oak barrel, a new oak Tonnellerie de Mercurey barrel and the Elevage BarriQ were evaluated in a blind tasting by Mercer's staff in February 2022. Based on this trial, the Mercer winemaking team adopted the Elevage barrels for a Cabernet Sauvignon program. According to Elevage's president, Peter Steer, John Bookwalter later tasted these wines and wanted to repeat this trial at J. Bookwalter for its Notebook value wine program. Winemaker Chance Cruzen, and director of winemaking Cameron Parry are responsible for making this transition happen.

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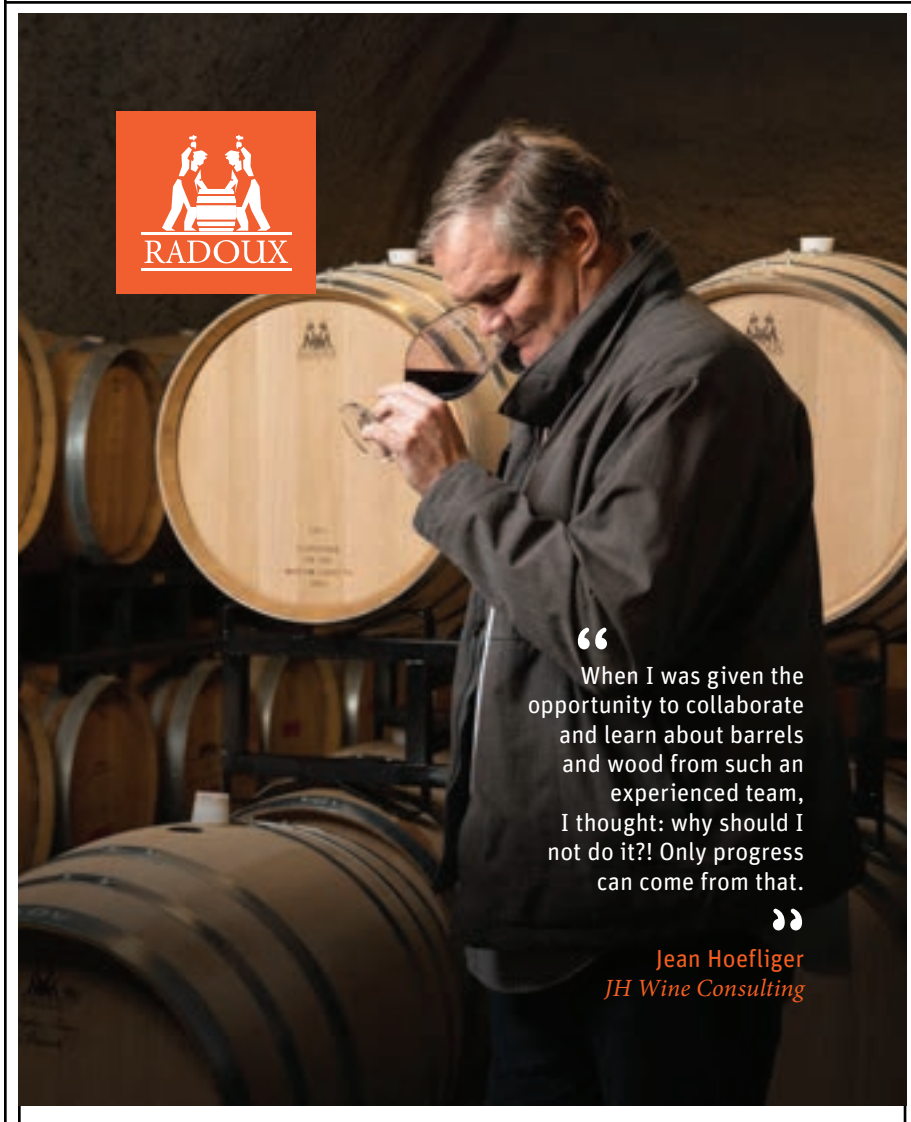

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The Notebook program had a set retail price until they were "hammered down" to meet a bulk sale for a famously large buyer. To achieve the same level of quality, J. Bookwalter winemaking looked to cut the cycle time to under one year by using less-traditional barrels.

Cabernet Sauvignon was sourced from two vineyards within the Horse Heaven Hills AVA in Washington state for use in the Notebook value and Readers programs. These wines were tank fermented, pressed and settled, before racking to tank as per standard production protocol then prepared for aging before transfer to the traditional oak and Elevage barrels. Using the highest oxygen transfer rate (HOTR) Elevage barrels with the thinnest staves (Sélect series), the trial, soon expanded to include oak options for the higher priced Readers program as shown below:

CONTROL: Barrel aged Cabernet Sauvignon

TREATMENTS: Elevage Barrel System with different stave combinations.

1. Sélect - (12mm, Burgundy) - Notebook
2. Sélect - (12mm, Bordeaux) - Notebook
3. BarriQ Classic Untoasted (22 mm, Untoasted) – Notebook & Readers
4. BarriQ Classic Toasted (22 mm, Untoasted) –Readers
5. BarriQ Jupilles (22 mm, Untoasted) - Readers
6. BarriQ Troncais (22 mm, Untoasted) - Readers
7. BarriQ Bertranges (22 mm, Untoasted) - Readers
8. BarriQ American (22 mm, Untoasted) - Readers

During a 12-month aging period, each lot was evaluated qualitatively by the winemaking staff for specific flavor attributes and particularly the integration of the oak with the wine.

CONCLUSIONS:

Once Mercer winery proved that the Elevage oak aging system was on par with the flavor of traditional barrels, the two major explorations were between the different infinity lots and the stave types and the thickness of the staves. The Notebook oak treatments used the thinner Sélect staves (12 mm) in hopes to extract flavors faster while the Readers treatments used the thicker BarriQ staves and a longer aging period in hopes for better integration.

The J. Bookwalter winemaking team indeed noted a difference in these two product types. Especially important for the Notebook product line, at five months, the winemaking staff tasted the trials of the HOTR Elevage-Infiniti, and the thinner-cut Sélect staves were deemed ready to blend and bottle, meeting the 12-month cycle time goal set for the trial. The Readers lots were just beginning to come together at the nine-month mark and were also showing great promise that this technical barrel aging system was fit for high quality wine production.

This technology was enthusiastically adopted by the winemaking team and experimentation is still underway to continue exploring the system's capabilities.

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Post-Mort Q&A:

What was the motivation to study the Elevage barrel system? How did you decide on this product?

Parry: We were looking for a more economical way to introduce oak flavors, aromas and textures to our wines other than using traditional barrels, but we also wanted better integration than can be achieved when using tank staves, chips and most other oak-alternatives. An additional desire to achieve better integration was the introduction of small amounts of oxygen over time. While it is possible to do micro-oxygenation (MOX) in tank, using even miniscule doses of pure oxygen does not accurately mimic the oxygen exposure that occurs within the stave during barrel ageing. Besides that, the dimensions of these barrels maximize storage space in our limited cellar.

Cruzen: Also, unlike with traditional wood barrels, these tanks are separate from the wood, it allows us to dial-in new barrel equivalents and oak sources for each wine tier and for the programs within them. Why Elevage? Ultimately it was timing. Peter was at the right place at the right time. When we were looking into this technology, we realized that they had already done work with a neighboring winery, Mercer Wine Estates. At the time, we were a straightforward barrel program so these were not in our wheelhouse, but Elevage Barrels seemed to be ahead of the technical barrel game. When they offered us an opportunity to lease the Elevage barrels, that sweetened the deal for us nicely. Not having to buy the equipment outright helped us take the plunge.

How did you evaluate the success or failure of your trial? Which parameters/data did you measure?

Cruzen: Frankly, we took a pretty straightforward approach to evaluating whether these would work for us. Since our neighbor Cab from the same lot was put into barrels as a control and compared to a tank set up with MOX and the Elevage Barrel, each configured with an array of staves to mimic the barrel, they did a lot of the hard work. We just needed to figure out what worked for our brands.

Parry: We can look at success in two ways: Economic and sensory. Before we began with any sensory, we first needed to check that it would be worth the time and investment to look at the technology. Does this system cost less per gallon than traditional barrels? Is the organoleptic impact comparable to barrels? Decoupling oak extraction and flavor from the container allows us to be very efficient and precise with our use of new oak in barrels.

Cruzen: Bookwalter was already playing around with the technology when I came on board. Mercer Wine Estates had already done extensive technical trials at Mercer with their custom wines and John Bookwalter liked the results, so we were able to get a head start on dialing them in on our wines. We liked that they were using properly aged stave wood and not scraps. We also liked the efficiency of using thinner staves so that you get more toasted oak flavor per log. We could see that there were three different oxygen transfer rates, Burgundy- and Bordeaux-styled options as sources of oak as well as different forests to choose from.

We took a shotgun approach and used the Elevage barrels with the highest oxygen transfer level and tried several different types of oak blends to build familiarity with their product line. We tried each at a dose of 15 kilograms per vessel as suggested by Peter Steer as a new barrel equivalent. This really helped us narrow down which oak profiles worked best for our wines. We tasted with our team to decide which worked and which didn't. Peter of Elevage barrels helped guide our oak selection based on our comments and tasting notes of

each of the profile to continue refining the oak aroma profile. For the Readers program, we even dialed-in which forest we liked the best.

Who else worked with you on this trial?

Parry: It was John Bookwalter and, later, Chance Cruzen that decided that this system was worth pursuing. I am the late addition to this project, but I've been pleasantly surprised by the integration in terms of the Elevage system being able to mimic a barrel. Peter Steer of Elevage barrels has been a great resource. He's had a lot of experience with previous wine-tote formats and has been a great resource for making recommendations of their products based on our sensory evaluations.

What results were you hoping to achieve with this first trial?

Cruzen: We wanted to get the barrel aged sensory characteristics that you get with oak barrels but at lower cost. We were hoping to improve the wine's structure through predictable oxygen exposure during aging that you just can't get in a stainless-steel tank, even with staves and micro-ox.

Parry: We also enjoy the improved cellar efficiencies that come along with the fact that you only have to top one Elevage barrel rather than every four oak barrels for the same volume. You simply don't have to touch as many barrels. This saves a huge amount of time on topping labor when the crew can be doing other things. When you separate the functions of the aging vessel with the oak dosage, winemakers can reuse the plastic barrels over and over again and add a precise amount of new stave wood. The consistency of the Elevage barrel system versus a standard new oak barrel one in which you rotate a percentage of new oak barrels into a winemaking program eliminates the variability that comes from one, two three and older years of oak barrels which all contribute a decreasing amount of oak into the systems. The Elevage system delivers an oak profile that is on brand more consistency.

Were the results as you predicted? Did anything unexpected occur?

Cruzen: Oak sensory integration was better than expected. Overall sensory characteristics were much more similar to barrel aging than to tank aging.

Parry: I had not used this type of system before but after tasting the wines I'm a believer. While oak barrels and the Elevage systems barrel flavor profiles are not identical but the quality level between the two are the same. Not to mention, you can easily change out the stave selections without changing the subtle dimensions of the barrel stack. Barrels can vary in shape, from Burgundy and Bordeaux styles, and even between vendor to vendor for the same type of barrel style.

Did you encounter any difficulties during the trial? If so, how did you address them?

Cruzen: There were not many issues to speak of. We expected some possible reduction, however, it was never an issue. A touch of leakage on the tanks from a bit of expansion and contraction but that was minimal and easy to clean up and it didn't affect the wine quality. UV light is a known issue for storing plastic containers but we store our tanks indoors.

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

Parry: We found what we were looking for. A system which integrates oak flavors better than other alternatives at lower cost per unit, and lower labor costs than with traditional barrels. As a bonus, four 1000-liter Elevage barrels can be stacked in roughly the same footprint (square feet) as a stack

Technical Barrels Beef Up Washington State Value Wine Program

of 300L barrels allowing for more efficient space usage. This means you get 4000L with the Elevage system stacked at four high versus only about 3000L with puncheons stacked 5 high.

Cruzen: The Elevage system is also a lot easier to move around and access when it comes time to clean it. We save a lot of time and water cleaning these. We don't have to run the forklift as much. We have less barrels to top, especially since the staves don't soak up as much wine as a traditional wine barrel.

Parry: On the sustainability side, we aren't shipping empty barrels from France, the transportation costs are lower because the staves are flat and pack well into a container. It seems like a lower carbon footprint all around. OK, it may be plastic, but its not a single-use plastic. They last for a long time.

Did you make wines from this trial? What was the impression of the resulting wine quality?

Parry: Yes, we now have 47 of the Elevage barrels in service of our two value brands. The wines in these two brands punch well above their weight in terms of quality for their price points. We attribute this to the fact that we can deliver the oak integration of a barrel-aged wine at a price point consumers can afford.

Do you plan to conduct any follow-up trials? What will you be looking into next?

Parry: We have already adopted this technology and we will continue to refine the specific blend of oak with regard to forest selections and toast levels being used and the overall "new oak equivalents" for our various product lines. **WBM**

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