Winemaker Trials

The Year in Review

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UNDERSTANDING THAT TRIALS are the embodiment of winemakers' and grape growers' pursuit of quality, the editors of **Wine Business Monthly** select more than 20 trials to feature during our annual **Innovation + Quality** (IQ) conference—a forum created for ultra-premium wineries that are interested in cutting-edge innovations that advance wine quality.

This year, IQ will be held on Feb. 27, 2020 at **The Culinary Institute of America** (CIA) at **Greystone** in St. Helena, Calif. During the conference, winemakers who have submitted trials have the opportunity to pour their wines for the more than 1,000 wine industry guests in attendance. It's a time to show off their work, share what they've learned and receive honest feedback from colleagues in a professional environment.

Additionally, WBM will continue to feature trials presented at IQ within the pages of the magazine, diving deep into the details of the experimentation and interviewing the winemakers about their scientific process and analysis.

Here, we present a round-up of trials covered throughout 2019 from those who presented their work at the 2018 and 2019 IQ conferences. This list is representative of just some of the innovative work being done in our industry. The WBM editorial team would like to encourage more winemakers to submit their trials for upcoming events and/or for publication in the magazine. For more information on how to contribute your work, please visit *www.surveymonkey.com/r/IQ2020ProductSubmission*.

JANUARY 2019

Sonoma Winemaker Learns the Pros and Cons of Using Perle Barrels for Pinot Noir

Winery: Virginia Dare Winery (part of The Family Coppola)
Winemaker: Humberto Berlanga

This trial was "Phase II" of a trial **Humberto Berlanga** first presented at IQ 2017 that compared barrel-fermented Russian River Valley Pinot Noir against a stainless steel-fermented control.From that experiment, he concluded that there was a noticeable difference in extraction and final aroma and flavor profiles between the two trialed lots and, in general, barrel-fermented wines show higher levels of extraction. This was corroborated by the reports from **ETS Laboratories**.

The objective of this second phase was to determine if the same quality improvement can be achieved with the use of oak alternative products, specifically oak chips.

Excerpt from Winemaker's Postmortem:

WBM: ***From the results of this second phase, what have you learned and how will you use this knowledge in the future?***

Berlanga: I learned that I can credit the darker, more concentrated color to the barrel ferment. Oak chips provided vanilla oak tones. It continued with fresh fruit richness, but the color was more comparable to the stainless steel control. The **Perle** barrels were a lot darker. The ones that we used with oak chips had color that was more comparable to the control [lighter], and that was basically confirmed by the ETS lab numbers. We've learned from this that when we use oak chips, we get a little bit of extra fruitiness, but the color is not going to go as dark as it could be with the barrel ferment.

FEBRUARY 2019

Velocity Winemaking via STARS-XF Technology Realizes Major Cost Savings

Winery: The Hess Collection Winery
Winemaker: Alison Rodriguez

When evaluating the use of **STARS-XF** technology versus cold-stabilization followed by cross-flow microfiltration, data showed that overall processing time was reduced from six weeks to just 12.5 hours in the case of Chardonnay and from 14 days to 12.5 hours in the case of a Pinot Noir. The main time savings were attributed to the long cold stabilization time.

When observing the resulting wine, the STARS-XF lots showed some color improvement in the Pinot Noir sample but no changes in the Chardonnay. It was noted that STARS allowed for greater adjustment of final pH level(s). STARS, combined with reverse osmosis, lowered water consumption by approximately 70 percent from 12 percent to 3 percent of total wine volume processed.

Excerpt from Winemaker's Postmortem:

WBM: ***Does the price of the STARS XF machine compensate for the reduced processing time and other possible long-term savings?*** ***(The price quoted is in the mid- to high-six figures.)***

Rodriguez: I think that depends on what your cost of labor is and what your individual days to stabilization are. I've worked at other wineries in my past where it took two weeks, and sometimes more, to stabilize a tank using traditional cold stabilization. Here at **The Hess Collection**, we can usually stabilize inside of a week. But commonly, I would say the industry standard is more like two to three weeks. For those wineries, it makes a whole lot of sense. Trying to cold-stabilize in the middle of summer for three weeks, for instance, if you're running cooling towers, you end up running a lot of water through your winery just to chill that wine down. There is that expense and the general environmental factors that one must weigh before making a final purchasing decision.

February 27, 2020
CIA at Greystone | Napa Valley

MARCH 2019

Finding the Right Temperatures on Barrel-fermented Chardonnay

Winery: Chamisal Vineyards
Winemaker: Michael Callahan

"For our Chardonnay program, we see ourselves leaning toward less primary fruit and more complexity," said former **Chamisal Vineyards** winemaker, **Michael Callahan**, who noticed a winemaking trend toward more "noble reduction," which produces a less fruit-driven and slightly more complex Chardonnay. "Without tweaking it too much, we wanted to check how slight changes in our fermentation temperature would add a bit more complexity."

Excerpt from Winemaker's Postmortem:

WBM: ***One of the comments you noted in your conclusion was that you noticed there was better oak extraction in the newer barrels and, going forward, could use less overall oak. Was there a reason that you used both new and old barrels?***

Callahan: It was a trial split—we had eight barrels, eight barrels and 10 barrels for the three lots. That's how it ended up. It wasn't a perfect split, but that gave us the ability to do a 25 to 30 percent new oak program with each lot, so [the winemaking team] tasted the wines not only from neutral barrels but more as they would if it was an entire program.

From there, we were able to ask how it worked with the old barrels, how it worked with the new barrels and how it worked with the one-year-old barrels. We were able to get that to composite, and that pretty much tells a story of what the 18° C ferment tastes like, versus a 15° C, versus a 21° C. I guess it wasn't the thing that we were testing for. We're not trying to get more out of the oak program, but a lot of times when you start off with these experimental trials, you find something that maybe you weren't looking for pop up. That's part of the fun with doing trials, discovering something other than what you were looking for. Maybe in the future we spend less money on oak.

APRIL 2019

What are the Sensory and Phenolic Effects of Using Oxygen and Nitrogen as Flotation Gases?

Winery: Erath Winery
Assistant Winemaker: Karl Weichold

The goal of this experiment was to compare the sensory effects and analyze the phenolic composition of juice that was float-clarified with air and nitrogen. To do so, a homogenous press fraction of Pinot Gris juice was processed with a standard pre-flotation protocol (pectinase, bentonite, etc.) then split into two separate tanks. One tank was float-clarified with air and the other with nitrogen. Two stainless steel drums were collected from each tank, inoculated and fermented until dryness. Sodium metabisulfite was added once fermentations were complete, and the paired stainless steel drums were each racked out to individual neutral barrels.

Excerpt from Winemaker's Postmortem:

WBM: ***What was the overall opinion of attendees who attended the trial's IQ presentation?***

Weichold: At IQ and other symposia, the startling thing about this experiment was that there didn't seem to be a subjective consensus between the two treatments. This addresses my original point that this experiment isn't necessarily meant to show the right or wrong way to select gases for fermentation. It's simply a set of tools you might use to create a house style. To us, the nitrogen float was a little more closed but might have had flintier, crisper characteristics. The air float had a rounder, more tropical, more expressive pear and apple note to it. Our style is very fruit-forward, so we felt that the expression of the fruit that the air gave us was more appropriate for the wines we create. In our opinion, the experiment is certainly worth performing on your own wine just to confirm that you are making the correct choice for flotation gas to best achieve your stylistic target.

JUNE 2019

What are the Sensory Impacts to Sauvignon Blanc Following a Stimulated Thiol Release?

Winery: Scheid Family Wines
Winemaker: Casey DiCesare

Casey DiCesare and the **Scheid Family Wines** winemaking team wanted to evaluate the effect of a nutritional product on the release of thiol aroma molecules in Sauvignon Blanc wine to determine overall sensory impacts. A pectinase was added to pressed juice, along with a dose of bentonite and SO_2 at 50 ppm. It was then inoculated with *Saccharomyces* cerevisiae strain VL3. The juice was allocated into similar vessels for fermentation as the control juice, which received no nutritional supplement. The treated tank fermented significantly faster than the control and was dry in 15 days while the control took 34 days. The fermenting juice was racked to kegs at 7° and 9° Brix, respectively, to finish fermentation.

Excerpt from Winemaker's Postmortem:

WBM: ***During the trial, were there any problems that had to be addressed and how did you attend to them?***

DiCesare: The initial inoculation went well. Fermentation took a couple of weeks, and fermentation curves were very similar within both. We really didn't run into any real issues. Partway through the fermentation, however, due to the limitations of available tank space, we racked off into kegs to finish fermentation. That was just tank logistics at the time. But even with that, both fermentations went well.

JULY 2019

Using Leaf Pull to Increase Thiols in Sauvignon Blanc

Winery: Chemeketa Cellars
Winemaker: Scott Dwyer

Sauvignon Blanc is an uncommon variety in Oregon's Willamette Valley, so wine studies program chair of **Chemeketa Community College**, **Scott Dwyer**, decided to lead his students in a study to discover how, if at all, leaf pull at fruit set can increase the fruit's aromatic compounds.

His conclusion showed that the thiols were higher in his control group, those grapes that did not undergo leaf pull. However, those thiols seemed to lean toward "reductive thiols" rather than the boxwood/gooseberry component that was his goal. Thus, while the control may have more thiols in the true chemical sense, it had less of the "right" ones.

Excerpt from Winemaker's Postmortem:

WBM: ***Did the outcome reflect your expectations?***

Dwyer: The trial and control were very different throughout fermentation; but as time progressed, they became more and more similar, sensorially. From the standpoint of making an aromatic and thiol-rich Sauvignon Blanc, we were successful with both lots. From the standpoint of demonstrating leaf pull as a tool to increase thiols, we fell short. Our results didn't exactly align with our expectations or previously published research on the subject. In fact, they were the opposite.

AUGUST 2019

Chardonnay Three Ways: Measuring Effects of Concrete Tank, Puncheon Barrel and Stainless Steel Drum

Winery: Artesa Vineyards & Winery
Winemaker: Ana Diogo-Draper

Artesa Vineyards & Winery's winemaker, **Ana Diogo-Draper**, wanted to compare Chardonnay fermentation results between her new 236-gallon square concrete tanks, a stainless steel drum and a once-used puncheon barrel. The goal: to find the unique characteristics each fermentation vessel imparts.

Fermentation times for the puncheon and stainless steel drum were similar (around 28 days for the stainless steel drum and 32 days for the puncheon barrel), but the concrete tank took 67 days to become RS dry. This is due to the exceptional temperature retention of concrete, which was clearly displayed in this trial, since all vessels were present in the same space during the fermentation period. Post-fermentation chemistry panels of the three lots were very similar, with the concrete tank presenting a slightly higher pH than the oak and stainless steel barrels. However, it was in the sensory assessment that Diogo-Draper and her team found the greatest differences between the wines.

Excerpt from Winemaker's Postmortem:

WBM: ***Based on your results, will you adjust your Chardonnay program?***

Diogo-Draper: This trial showed us the incredible power of fermenting in different vessels, which is something we already do in our winemaking program, both for white and red wines. If anything, it reaffirmed our stylistic goal of having distinct blending components and our ambition to add more concrete tanks to the program.

The results of this trial surpassed my expectations. Moving forward, we will be using all three vessels to ferment the Hyde Vineyard Chardonnay grapes [which we bottle as a single-vineyard wine]. I truly believe the best wine on the table is the blend of the three components.

We will continue to test the use of all three vessels on Chardonnay; this vintage focused specifically on fruit from our estate vineyard. We conducted similar trials on Pinot Noir and Cabernet Sauvignon last vintage and will continue to do so, expanding to other reds, such as Tempranillo.

OCTOBER 2019

Impact of Varying Intervals of Extended Maceration on Texas Mourvèdre

Winery: William Chris Vineyards
Winemakers: Tony Offill and Chris Brundrett

Wanting to create more complex layers in their single-vineyard Mourvèdre, **William Chris Vineyards**' winemakers **Tony Offill** and **Chris Brundrett** decided to experiment with various maceration times. The five-, 60- and 120-day macerations each offered unique aromas, flavors and textures, creating a more well-rounded, and interesting, final blend.

Excerpt from Winemaker's Postmortem:

WBM: ***What did you learn from this trial? Did anything occur during the course of the trial or in the results that were unexpected?***

Offill & Brundrett: We learned that we could use this across more of our varietal programs in order to add depth and mouthfeel with a bit more reductive strength. In addition, we would reduce volumes across the lots of extended maceration in order to make it a smaller percentage of the final blend.

The greenness on the 120-day lot was, and is, a bit challenging to blend. However, the positive attributes in mouthfeel far outweigh the aromatic components. The most surprising aspect was that there was virtually no change in pH the longer we macerated. We anticipated more changes in chemistry, which in the end proved not to be the case. However, the mouthfeel depth improved more than we anticipated, which is a positive.

DECEMBER 2019

Finding the Right Oak for Each Pinot Noir Clone

Winery: Terragena Vineyard
Winemaker: Chris Buchanan

Curious about the effects of new versus neutral oak aging on specific Pinot Noir clones, **Terragena Vineyard** proprietor **Chris Buchanan** decided to run a trial testing just that: Holding all other fermentation variables constant, this trial determines the sensory effects of new Hungarian oak versus neutral French oak on Pommard clone Pinot Noir.

Buchanan is also bottling these wines as individual selections in order to explore how each clone and oak treatment ages in comparison with a blend of clones from the same vineyard. This long-term project will help inform Buchanan and his winemaking team which clones or treatments may be better suited to longer aging and/or how a blend of clones could contribute to a wine that ages gracefully for many years.

Excerpt from Winemaker's Postmortem:

WBM: ***Did you encounter any problems during the course of the trial? If so, how did you overcome these issues?***

Buchanan: It took forever to hand-write all of the details on each individual bottle. Originally, we were going to write out the clone name and oak type on each bottle. After about one case we decided to switch to codes. "N" for neutral oak, "H" for Hungarian and "Pom" for Pommard. Clone 115, well, that one didn't need an abbreviation. **WBM**