Winemaker Trials

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

Artesa's winemaker, Ana Diogo-Draper, wanted to compare Chardonnay fermentation results between the 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.

Stacy Briscoe

Stacy Briscoe is the assistant editor of *Wine Business Monthly*. She has been writing about wine professionally since 2015, freelancing for multiple publications including The *San Francisco Chronicle*, *Edible Communities* and *Napa Sonoma Magazine*, among others. She also maintains her own website, *BriscoeBites.com*, dedicated to wine reviews and tasting notes. Outside of wine writing, she also contributes as a freelance editor for the independent publisher She Writes Press. Stacy has a Bachelor of Arts degree in English-language literature from the University of California, Santa Cruz.

ARTESA'S WINEMAKING TEAM IS led by **Ana Diogo-Draper**, director of winemaking. Born and raised in Portugal, Diogo-Draper moved to California in 2005 to join the team at **Rutherford Hill Winery**. In the course of her eight-year tenure she was promoted from harvest intern to lab manager and, finally, assistant winemaker. She joined **Artesa Vineyards & Winery** in 2013 and was promoted to director of winemaking in 2015. Known for her collaborative approach, Diogo-Draper thrives in the fast-paced winery environment and excels at a wide diversity of roles, from laboratory analysis and quality control assurance to creative applications, such as sensory analysis and blending. Diogo-Draper credits her professional success to a passion for agriculture and winemaking, nurtured from a young age in Portugal when she first planted vines with family and neighbors immersed in the European tradition of wine appreciation. Diogo-Draper holds a B.A. in agriculture engineering from the University of Évora, situated in the middle of Portugal's historic cork industry. Fluent in English, Portuguese, Spanish and French, Diogo-Draper brings an international perspective to the Artesa winemaking team.

WINERY: Artesa Vineyards & Winery

TRIAL OBJECTIVE: Besides the objective monitoring and comparison of all three lots, from a winemaking point of view this trial aimed to highlight distinct components from this vineyard, which is bottled as a single-vineyard Chardonnay.

TRIAL DESCRIPTION: Chardonnay grapes, Old Wente Clone (planted in 1979) on AXR rootstock from Hyde Vineyard, were harvested on the same day and whole-cluster-pressed. After cold settling for two days, the juice was racked into the three different vessels (each one corresponding to its own lot) and underwent native fermentation. Nutrients were added to each lot at the same Brix level (onset of fermentation and one-third sugar depletion). All three vessels were kept in a refrigerated trailer, set to 48° F and monitored daily throughout fermentation. The lots were individually analyzed post-fermentation, and SO_2 was added. None of the three wines underwent MLF.

Lot 1: New "NuBarrel" concrete tank (236-gallon square concrete tank)
Lot 2: One-year old puncheon barrel (132 gallons)
Lot 3: Stainless steel drum (85 gallons)

TRIAL CONCLUSION: 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.

The 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, in our sensory assessment we found greater differences between the wines.


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Winemaker's Post-Mortem

Why was it important for you to study the differences in aging vessels for your Chardonnay program? Were there specific issues you were looking to address or goals you were hoping to achieve?

Diogo-Draper: We got three new concrete tanks right before the 2018 harvest season; therefore it was important for us to learn how concrete "shaped" Chardonnay grapes when compared to other vessels we already use, namely for this unique block of Old Wente Clone Chardonnay we get from Hyde Vineyards.

Our main goal with this trial was to see how Chardonnay performed when fermented in three distinct vessels under the same conditions. At the end of the day, we hoped for three very distinct wines, with the vision/hypothesis that the most complete, wholesome wine would be the blend of all three components.

Were there any complications during the trial? If so, how did you address any problems that occurred?

Diogo-Draper: Not really—the trial went well. The biggest surprise was how much longer the concrete tank took to become RS dry when compared to the other two vessels (67 days versus 28 days in the stainless steel drum and 32 days in the puncheon barrel). We had read about the thermal ability of concrete tanks, but this trial clearly demonstrated that assumption.

What was your team's opinion of this trial? Did they see the value of conducting this study?

Diogo-Draper: The whole team was on board with this trial. We set it up together as a team and discussed it throughout, as we were keen on seeing the results, particularly since it was our first time working with concrete tanks. The team had a very scientific approach to this trial, as we really wanted to assess how these three different vessels shaped each of the wines.

Can you discuss the results of your trial? Were the outcomes as you hypothesized, or were there any unexpected developments? What winemaking lessons did you learn?

Diogo-Draper: On a sensory level, we found clear differences between the three lots, as we had hypothesized. The three people on our tasting panel were consistent with tasting notes, which was surprising, as we often tend to have different opinions when doing sensory assessments.

The post-fermentation chemistry panels of the three lots were similar except for the pH level. With the wine from the stainless steel drum and puncheon, the results were identical: 3.31 and 3.33 respectively. However, the wine from the concrete tank presented a pH of 3.66—considerably higher than its peers. We attribute this result to the alkalinity of the porous concrete surface and the ionic exchange between the fermenting juice and the vessel.

Based on your results, will you adjust your Chardonnay program? Did you prefer the wines that had aged in one vessel over the other two?

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.

What were some of the comments from the team? Which wine did they prefer?

Diogo-Draper: Our choice varied between the concrete tank and the puncheon barrel when doing a blind tasting of the trial. In my opinion the concrete vessel offered the most intense aromatics on the table, but also a unique verve. But when we did the composite blend of all three wines, that was the wine we all favored the most.

Do you plan to run this trial again and re-test your results?

Diogo-Draper: Yes, 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 in 2019, expanding to other reds such as Tempranillo.

The results of this trial surpassed my expectations. Moving forward we will be using all three vessels to ferment the Hyde 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. **WBM**