Concrete vs. Stainless Steel Aging with Sauvignon Blanc (2014)

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Abstract:

Purpose: Explore the sensory effects of aging vessel material on finished wine. Methods: Identically sourced Sauvignon Blanc was harvested, pressed, and separated into two different vessels. The trial lots was put into a concrete egg, the control into a stainless steel tank. Both were identically inoculated and received identical additions throughout fermentation. Following fermentation both lots were racked off of heavy lees and then placed back in the original vessel after it had been cleaned. Results: There was a significant difference ($p<0.05$) between the trial and control. Descriptive data indicates the aging vessel has a significant and predictable effect on the finished wine. Discussion: Though concrete fermentation and aging vessels have been used for centuries, their use in Virginia winemaking is on the rise. It is important that Virginia wine maker's to be able to recognize and identify the qualities these vessels will bring to the wine. Conclusion: Aging in concrete "eggs" will impart a significantly different sensory quality to wine. This provides another option to winemaker's looking for ways to add character and complexity to their finished wines.

Presented December 8, 2015 at Early Mountain Vineyards

Keywords: Sauv Blanc, concrete, aging

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Introduction:

Sensory attributes of identically processed sauvignon blanc will be affected by the type of vessel where aging takes place. Concrete may add a fuller mouthfeel, while stainless steel could provide a sharper leaner mouthfeel. As concrete "eggs" become more popular in Virginia wineries it is important that winemakers are aware of what attributes they lend to finished wines, and how that compares to vessels of other materials.

Methods:

Identically sourced Sauvignon Blanc was harvested at 19.9 brix on August 24, 2015, filed sorted, and whole cluster pressed. At harvest 5g/hL SO2 was added as well as 30mL/ton Cinnfree enzyme during press. Equal volumes of juice were placed into a concrete "egg" for fermentation (Nomblot Egg) and aging and in a stainless steel container (VinQuip) of equal/similar volume for fermentation and aging. After pressing and racking both lots were inoculated with 20g/hL Zymaflore X5 on August 26, 2015 using 20g/hL of Superstart Blanc rehydration nutrients. At one third and two-thirds brix depletion 30g/hL of Fermaid O was added. Upon completion of AF (9/10/15), both received an addition of 50ppm SO2 to halt MLF.

Lab Results*:*

There were no major chemical differences between the wines.

	pH	TA (g/L)	VA (g/L)	%EtOH	Gluc+Fruc	Malic	TSO2	FSO2
Control	3.51	7.17	0.31	12.06	34	360	95	8
Trial	3.55	6.83	0.24	11.97	34	374	123	22

Sensory Results*:*

There was a significant difference ($p<0.05$) between the trial (egg) and control (stainless steel). There was no feedback data collected, however samples of both were sent for descriptive analysis.

Descriptive Results:

Sauv Blanc Trial (concrete)

Appearance:
Pale yellow, slight gold hues (less gold, less brown). Clear. Considerable amount of tartrates on bottom of bottle.

Aroma:
Bright fresh, stone fruit, Asian pear, creamy, herbal, floral, fruity, cleaner/more complex, lemongrass, grapefruit, cucumber.

Taste:
Tart and sour - like sour candies, cleaner, more flavor, green apple, herbal, some volume, soft entry, estery, creamy but tart finish, lingering flavors and spritzy.

Overall:
While still tart/sour, this wine seems fresher and more varietal with more complexity than the Control.

Sauv Blanc Control (stainless steel)

Appearance:
Gold yellow with slight brown tint. Slightly cloudy. CO2. Considerable amount of tartrates on bottom of bottle.

Aroma:
Nutty, evolved, oxidized, quince, bruised apple, floral, a bit dusty, lemongrass, faded flower.

Taste:
Tart and aldehydic. Lacks flavor. Sour finish and chalky/bitter. Citrus. Short. Kind of flat despite acid.

Overall:
Aldehydic, oxidized white that is both tart and flat in the mouth. Aldehydes overwhelm other possible flavors.

Discussion:

Fermenting wine in concrete vessels is almost as old as the invention of concrete itself. Recently the U.S. has experienced a resurgence of concrete, and an insurgence of the concrete "egg" of more recent invention. As they increase in popularity it is important to know if and how they impact the finished wines fermented or aged in them.

Concrete eggs are known for imparting a “creaminess” and volume to the wine counter to the sharpness and acidity pushed by stainless steel fermentation and aging. The shape of the egg is conducive for the continuous movement of fluid, similar to that of a barrel, causing and promoting stirring of the lees with theoretical control on reductive character.

As the use of concrete eggs increases in Virginia it will be important for Virginia wine makers to know what character they will impart on finished wine. Additionally, how that character interacts and changes in combination with the local terroir. Once this is understood concrete eggs could become a valuable and well -used tool throughout Virginia. Future research on the subject should include how the egg affects fermentation kinetics as compared to stainless steel and oak barrels.

Conclusion:

The use of the concrete egg for fermentation and aging imparts a significant and unique character and mouth feel to finished wine as compared to fermentation vessels of other materials. In this case the trial lot of sauv blanc had a bigger and creamier mouth feel when fermented and aged in concrete in contrast to the stainless steel.

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