



VINTAGE REPORT
Napa 2014

Tuesday, January 20th 2015

In January 20th was held the **2014 Vintage Report**. Take home from speakers

The 2014 VINTAGE CONFERENCE organized by Fruition Sciences, took place on Wednesday January 20th in Napa. A total of 175 people attended this 5th edition. The goal of the conference is to bring together technical people from the wine industry (winemakers and vineyard managers) and scientists to take a look back at the 2014 vintage. Together we discussed and assessed the potential of the newest findings to keep improving practices.

"IN A GOOD BORDEAUX VINTAGE, LEAVES ARE YELLOWING DURING HARVEST"...WHAT ABOUT NAPA?

Christian Moueix, owner of Dominus Estate and keynote speaker of this 5th Vintage Report conference, highlighted the importance of using water conservatively in a context of climate change. As a strong advocate of dry farming, he encouraged people to implement deficit irrigation strategies more systematically when dry farm is not possible.

2014: A VINTAGE WITH A STRONG WINEMAKER FOOTPRINT

Thibaut Scholasch, PhD (*Fruition Sciences*) broke down the season into three different periods and analyzed their impact on vineyard production.

- **1st period - before budbreak:** 2014 was characterized by a period of high temperature accumulation and low rainfall. This mix is propitious to early season start and low nitrogen availability.
- **2nd period - budbreak to veraison:** Vine leaf area started and stopped growing earlier in 2014. Because full canopy size was reached earlier and was smaller in some situations, we observed more contrast in the amount of vineyard water use during the summer. It may sound counter-intuitive, but despite the drought, vines could experience less vine water deficit in 2014. In fact, when canopy size is smaller, vine may need less water to cool down and support its leaf area.
- **3rd period - veraison until harvest:** 2014 is characterized by earlier sugar accumulation in the fruit. Fruit maximal sugar amount was reached early August in some situations. As a result, all maturation processes unfolded under warmer and sunnier conditions. These early maturation profiles led to very fast fruit composition changes, thus harvest date decisions will have a very strong footprint on wine composition. Consequently, 2014 wines will emphasize the effect of human decisions (irrigation, crop load and harvest date). In that sense, 2014 is a winemaker vintage.

“ALL VINEYARDS WILL HAVE TO USE LESS WATER”, MARTIN MENDEZ-COSTABEL

Martin Mendez-Costabel, PhD (*E&J Gallo*) reported his key findings about the carry over effect from a drought during wintertime. During his research, Martin artificially imposed the conditions of a drought by installing large panels between vine rows, consequently preventing winter rainfall from refilling root reservoir. After 2 consecutive years, his conclusions showed that yield is significantly reduced despite significant increase in fruit to pruning weight ratio. Positive effects on wine sensory analysis were reported after the first year of drought; however if periods of drought during wintertime are becoming the new norm, extra care should be taken to maintain yield, while keeping a proper vine balance and avoiding over cropping.

Alexander Levin, PhD Student (*UC Davis*) shared his results regarding vine water use regulation and its effects on photosynthesis variations. By looking at stomata conductance under drying soil, his work highlighted different plant response as a function of cultivar. Different plant responses can be distinguished: one group with cultivars showed a rather high stomata conductance under drying soils while a second group showed a lower stomata conductance. This second group is also characterized by the carry over effect of early water deficit at decreasing harvest berry size.

Laurent Deluc, PhD (*Oregon State University*) shared his findings on berry ripening conditions. In particular, his work shows that high seed mass relative to berry weight can delay berry ripening process. However, some molecular mechanisms can advance the rate of ripening process with some subpopulation of berries, which in turn compensate for uneven ripening.

Hend Letaief, PhD (*CSU-Fresno*) discussed the texture of grapes and its links with color, tannin and aroma. Berry and skin elasticity is mainly affected by vine age and climate while skin thickness reflects the effect of many viticulture factors. More elastic skin produces less tannins, and can release less or more color according to varietal and vine age.

“ALL MODELS ARE WRONG, SOME ARE USEFUL”, GEORGE E. P. BOX

Walt Mahaffee, PhD (*USDA*) presented a new field approach to predict grape powdery mildew origin and spread. By detecting early spores inoculum in air samples, more than 2 fungicide applications could be saved per year in experimental vineyards. To improve disease management, forecasting models are being developed based on spore dispersion mechanism.



2014: THE WARMEST YEAR ON RECORD

Gregory V. Jones, PhD (*Southern Oregon University*) discussed the mechanisms of climate variability at global and regional scales. Over the last 120 years, analysis of growing season temperature distribution reveals that 2014 is almost 3 standard deviation higher than average. Current forecasting models updated mid January 2015 (using sea surface temperature) announce greater chances of warm spring (Feb-March-April) and high probability of being drier in March-April-May in 2015.

Gary Tilkian (*Metropolitan Water District of Southern California*) reviewed the current water storage situations and exposed the links between Southern and Northern California for water supply. Considering that 80% of California water use is dedicated to agriculture, a strong incentive exists to implement more efficient water use strategy for crop production, particularly in the context of drought, for the benefit of the entire state, including cities.

Bank of the West concluded the conference with the announcement of the Vintage Report Innovation Award winner. For this second edition, E&J Gallo family won the first prize for their work on assessing vineyard variability and water use efficiency through a variable rate irrigation system prototype. *"The goal was to decrease vineyard variability by increasing yield in the low yielding areas of the vineyard. By dividing the 10-acre experimental section of the vineyard into 140 irrigation zones we were able to irrigate each zone according to its average vigor or vine size (via NDVI) and ended up increasing water use efficiency"*, said Luis Sanchez PhD.





Conclusion

2014 was warmer and drier during the winter and spring time compared to other vintages. Plant development cycle and maturation happened earlier. Important variations in leaf area development led to smaller canopies in many vineyards and more spatial contrast within the vineyard. Water deficit was not necessarily more severe due to leaf area reduction. It is a winemaker vintage, bearing a strong foot print of human decisions onto fruit and wine composition.



ABOUT VINTAGE REPORT

Fruition Sciences created the Vintage Report in 2010. This annual conference aims at gathering winemakers, vineyard managers, and scientists to share innovations that could lead the way to better practices according to a vintage and a terroir. This conference has been held in Napa, California since 2010; Bordeaux, France since 2011; Narbonne, France since 2012; and since 2014 in Paso Robles, California.

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