

Precious liquid

California has been suffering from a drought for years. Cathy Huyghe assesses the effects on its wine production, from the vineyard to the glass

HERE IS ONE of the unexpected ways you'd know that California's drought is very serious business: when you're dining in a restaurant, you need to ask for a glass of water. It's no longer just brought to your table automatically. It's a small example, but it gives us pause. Every single time. And it leads to a long list of questions about environmental conditions in the state that also happens to be the world's eighth largest economy.

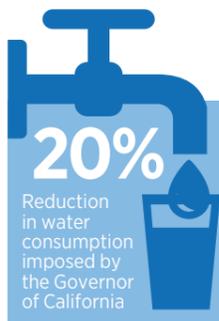
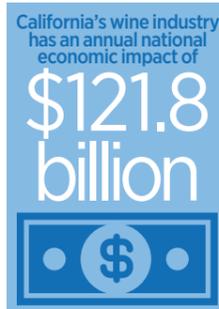
A related question is how California's years-long drought affects its wines – especially given that, according to the Wine Institute of California, its wine industry accounts for some \$121.8 billion in national economic impact.

The effects of the drought are seen up and down the value chain, and vary from region to region, depending on local microclimates and nuances of weather. In the vineyard, for example, shoots can show lower vigour, the leaves' colour can be less intense, and harvest can start weeks earlier. For winemakers, whose general rule of thumb estimates 19 litres of water needed for every four litres of wine produced, dramatically more efficient practices are both demanded and implemented. As for the consumers who may be curious about whether they can 'taste' the drought in their glass, they might expect more concentrated flavours, aromas and structure due to smaller berries from smaller crops.

Site matters

It's important to underscore the locality of the impact of California's drought on the wine industry. The effects in the Napa hills will not be the same in the Central Valley, which will not be the same on coastal sites. To start unpacking the implications, it helps to consider some additional facts.

Firstly, the Governor of California imposed water use restrictions last year, mandating a reduction in consumption of 20%. Given the generous amount of rainfall that has fallen so far this year, some are lobbying to remove those restrictions. Recycling or reusing wastewater is an alternative solution to water



conservation, though negative connotations of 'tainting' delicate vineyards persist.

Secondly, while 'dry farming' may be a trendy catchphrase – it means growers rely only on rainwater rather than managed irrigation – regions like the Napa Valley have already been using dry farming methods for decades. Today's estimates indicate that about 20% of Napa's wine grapes are dry farmed.

Finally it's important to remember that water management, and especially water rights, are long-standing concerns and predate the current drought. On the ground, so to speak, these issues play out in a variety of ways.

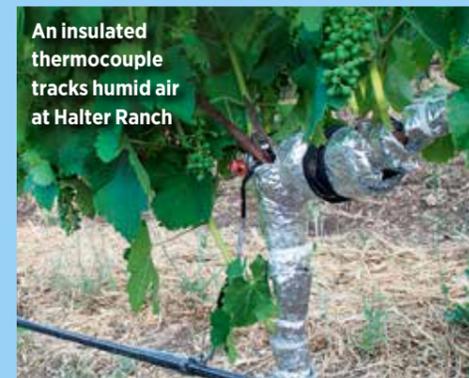
Vine health

Take Paso Robles, where the groundwater supply has nearly dried up. Here older vines – with well-established and very deep root systems – are managing, but younger vines are struggling to survive. For Lucas Pope, vineyard manager at Halter Ranch Vineyard in the Westside Adelaida District of Paso Robles, vine mortality is a concern.

Pope says: 'We've seen an increase in disease symptoms caused by drought. Stress is the driving factor in vine performance, but if a vine is infected with a virus, stress causes an expression of symptoms and lower performance or under-developed fruit. This can be a problem when a vineyard is dry farmed, as many are in California.'

In response to the prolonged period of low rainfall that Paso in particular has seen, Pope and his team at Halter Ranch are turning to new innovations in technology for insight into how much – or, more to the point, how little – water is necessary to grow premium wine grapes. They use sap flow sensors, for example, which track the amount of sap flowing in the vine. 'As the vines start to stress, they use less water,' Pope explains, 'and we can determine how far we are willing to take that stress level to reduce our irrigation needs.'

Halter Ranch also uses an instrument called a calibrated thermocouple, to track pockets of warm humid air above the vine canopy and



measure how much water is used. 'That's translated into a model similar to sap flow,' Pope says, 'and we can determine the vine stress level, again to determine how much stress and how little water is needed by the plant.'

Water sources

The Antica Napa Valley estate, located in the mountains east of Yountville, offers a different perspective, as it secured water rights in 1986 when the estate was established. Water rights mean that the winery is permitted to collect water during the rainy season (normally from December to April), store it in a water reservoir, and use it during the irrigation season. California no longer gives out water rights, especially not during a drought.

'We were lucky to get the rights, back in 1986,' he explains. 'The state says the water that falls on California today needs to be available to the people of California. It's a very different environment today than it was 30 years ago. We have to be a good steward of those rights, because the state could easily

take them away. We have to use the water on our property; we can't sell it to our neighbour.'

Wineries that don't have water rights need to rely on well water, which belongs to the property owner not the state. According to Salva, that has created a situation of chasing water, where some growers dig down over 600m just to find it.

The average rainfall during the winter at Antica is around 100cm; but 114cm had already fallen by April of this year. In contrast, Carneros, to the south, saw only half that amount. Unlike the groundwater supply in Paso Robles, the conditions further north in Napa County are significantly better – plus the supply is bolstered by the snowpack in the Sierra Nevada mountains. Even so, some areas like San Pablo Bay near Carneros are starting to see saltwater intrusion, which is a problem since vines don't tolerate it.

Salva isn't sure whether the drought is a result of global warming, or simply nature's cycle – either way, he's hoping for more rain. 'If you're good at rain dancing, come out to California next year!' he jokes. Considering the big picture, however, Salva believes the drought experience could have positive effects. 'If we're wise, maybe it will be better for us,' he says. 'Not only for how we use water in the winery, but also how we treat water overall.'

Cathy Huyghe is author of *Hungry for Wine* and writes for various US titles including *forbes.com*



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Glenn Salva, Antica Napa Valley



The reservoir at Antica Napa Valley estates