

## Wine and water - scary stuff

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Not for the first time, I am concerned about water and wine.

The first time I worried about our planet's essential and finite (depleting) food resources was purely for personal health reasons. Like most of us interested in wine, I had about the effect of its most potent ingredient on my body. I have therefore always preached the gospel of dilution – not in the wine glass itself, heaven forbid – but the policy of muting alcohol's effect on our brains by drinking at least as much water as wine in alternate sips. (I admit I don't always manage to practice what I preach but the intention is there, honest.)

The second time I became seriously interested in water for professional reasons was a few years ago when I realised how some winemakers were dealing with rapidly rising alcohol levels in wine. I realised, for example, that California wine laws had been amended to allow winemakers there to use so much water in winemaking that it would have the useful effect of diluting the alcoholic strength of the finished wine from, say, 16 to 14 per cent. Australian winemakers too have long cherished their 'long black water' (homage) as a conduit for a sometimes essential unmasking aid – which can always be referred to as deacidifying/degassing, or DUD.

But since our media are now so saturated with coverage of climate change and sustainability issues, I have started to think seriously about the amount of water used by the world's wine growers. And it worries me.

As David Graves of Skimbury in Carmel, one of California's most thoughtful wine producers, pointed out to me in a note on water use recently, to produce a litre of wine needs on average at least two and sometimes as much as 10 litres of water in the winery – simply for keeping the winery and all of its equipment as clean as modern wine drinkers expect it to be. Tanks, vats, barrels, presses, de-stemmers, reception hoods, taps, floors, walls and all pipes need extensive hosing with water, and that water should be pure enough to drink.

That's a lot of water, but represents a very small fraction of the amount needed to grow grapes. In many areas, especially in Europe, annual rainfall has, so far, been enough to supply the water needed for viticulture, but of course the great development in the last few decades has been the establishment of wine regions that depend for their existence on irrigation. Grapes cultivated in the hot areas of northern California, which has the sort of Mediterranean climate of wet winters and dry summers so suitable for wine growing, about 140 litres of irrigation water are typically used per litre of wine produced. And this represents much less than half the total needed. The rest, perhaps 200 litres of water a year, is supplied by the effects of rainfall on the soil. In really dry areas however, such as California's (and Chile's) Central Valley and some of Australia's inland wine regions, vines depend on irrigation for an even higher proportion of the moisture that allows them to survive. An average drought in now such a very real threat, the proportion can edge dangerously close to 100 per cent.

Australians in particular but Americans and Spaniards too need hardly be told about the increasing pressure on water supplies as the earth's climate seems to be consulting out of its previous predictable patterns. But even in wine regions that have traditionally depended entirely on the clouds above, wine producers are beginning to worry about the increasingly long periods of drought. Irrigation systems are still there in all but the most southerly parts of France, where supposedly they should be limited to very young vines. Every summer in the Langedoc I see some vineyards, whose produce I've seen with my own eyes in the European wine shops, being irrigated not by a sensible drip system but by overhead sprays. This is surely shocking – and anyway how about trying to learn that wine like any other? But as the world warms up and dries out, I can't help wondering how long it will be before France completely rewrites its rules on irrigation. Already irrigation systems have been introduced by some growers in the other parts of Germany such as the Rhine. Who would ever have imagined that only 10 years ago?

And while in agricultural mode, I should perhaps point out that it is not just drought that is having a serious effect on the world's ability to grow vines, open grapes and make wine. Evaporation is an important factor in any calculation of the amount of irrigation water needed. The drier it is, the more available water is lost to the atmosphere, putting an additional pressure on the planet's resources.

I have to confess that in all my years devoted to wine, I had never consciously thought about the fact that the vines I love so much need hundreds of times their volume of water simply to exist – a statistic I find absolutely jaw-dropping. It took a visit to Chateau Rock winery in the Stag's Leap district of Napa Valley to set me thinking. All over the place there are signs warning visitors that the water used in the vineyards is not potable. Doug Fletcher and winemaker Elizabeth Vannoy sensibly use reclaimed waste water from nearby Yountville to help irrigate their vines. Like many growers they have to equipment any farms or wells on their property with tough-to-use – a trend that is likely to increase as the level of supplies, already falling in Napa Valley and elsewhere, for example, continues to fall.

Reclaiming waste water may be a novel concept in some parts of the world. Certainly the US has some of the strictest rules on treating waste water, which can of course be contaminated by bacteria, viruses, harmful residues and all sorts of things we'd rather not even think about. But I would submit that it's now time to target such heedlessness. Unless the current meteorological trend suddenly goes into reverse, we could all too soon need every drop of water we can get. Certainly harvesting water as carefully as grapes does not seem tickles to me – provided of course that waste water treatments are properly implemented.

On the other hand, there is an argument that in an era of water shortage, some currently irrigated vineyards could probably be dry farmed. It would in most cases take a complete re-design and sometimes new plantings but even in the Napa Valley it would not be impossible. I am assured there are some dry farmed vineyards in the hottest part of the valley around Calistoga.

One thing is certain. In the near future anyway water supply is likely to become an increasingly fraught issue. Already in the US, states that were once happy to supply neighbouring states with water are suddenly becoming less keen to do so as they see their own supply-demand ratio change rapidly. California with its vast population and irrigation-dependent agriculture and viticulture is likely to be in the front line, pleading with Nevada and Arizona for as much as they can spare. The prediction is that we will soon be wearing not over-diluted but water.