

TOO MUCH OF A GOOD THING

Alcohol levels in wine have risen over the past couple of decades, and it's seen as a problem, not least because of the marked sensory effects. If we can understand why it's happening, then perhaps this will give clues as to how to counter it. The answer could lie just as much in the vineyard as the winery, writes Dr. Jamie Goode.

I recently tasted through the Cape Mentelle range with Dr Tony Jordan. As we got to the 2004 Shiraz, he asked me to guess the alcohol level. It was 15%. 'We did some de-alcing this year,' reveals Jordan, 'and there's no doubt in my mind that the wines are better. Fifteen percent is too high, but that's what nature did to us.' As I write, I sip a very nice Brampton Shiraz from South Africa, which is also 15%: would it be even better just a degree or two less alcoholic? Recent samples include three table wines from Australian producer Mollydooker, all of which weighed in at 16%. I could go on.

In many markets there's a reaction against these rising alcohol levels. A recent news report reveals that a major UK supermarket, Marks & Spencer, has decided to try to source more wines at 12% alcohol, rather than 14%. The same report quotes some figures: average alcohol levels have risen in Australia from 12.4% in 1984 to 14% in 2004; in California reds, average alcohol reached a record 14.8% in 2001, compared to 12.5% in the late 1970s. But while the problem is more acute in the New World, it also concerns wines from the classic regions, with 14% classed growth Bordeaux not unheard of, when typically they were closer to 12.5%.

'Wines that 20 years ago had 12% or 12.5% alcohol may pack a punch at 14.5% or 15% or more,' writes Hugh Johnson in the latest edition of his annual eponymous guide. 'But excess alcohol blurs the aromas and the flavours so that you lose definition and complexity.'

'I heard something recently, which absolutely shocked me,' reveals Randall Gram of California's Bonny Doon,

referring to the level of Brix at which grapes are typically harvested: "28 is the new 24." He adds that 'wineries are now going for extreme levels of maturity, which are very popular with certain critics, and then going back to

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Clark Smith

Clark Smith of Vinovation offers producers the opportunity to find the "sweet spot" for their wines at different alcohol levels.



fix the other elements of the wine: potential alcohol, acidity, and perhaps tannin as well. Certainly, we are now in the realm of the confectioner, rather than the vigneron.'

Sweet spots

Some commentators don't see the problem with high alcohol-levels, beyond the fact that wines are now more intoxicating. But for quality wines, the issue is a more complex one, influencing the sensory properties of the wines. This is perhaps best illustrated by 'sweet spot' tastings of the same wine at different alcohol levels. A portion of a particular wine is treated by reverse osmosis to produce a reduced alcohol component, which is then blended back into the original wine to create a series of wines at closely spaced

intervals of alcoholic strength. Clark Smith, of Californian company Vinovation, which offers this service to wineries, demonstrated this to me. We tried an Amador County Syrah at three of these 'sweet spots': 15.4%, 14.2%, and 13.75% (the original wine was a whopping 18%). The first was jammy and chocolatey, with notice-able alcohol. The second was sweet, forward, and fruity, with some noticeable tannin and freshness to the fruit. The third was fresh and peppery, with marked acidity and tannic structure. Three very different wines, with the only difference the alcoholic strength. 'We do sweet spot tastings with 2,500 wines a year,' says Smith, 'and we never get a bell-curve distribution of preference. It's Gaussian, like tuning into radio stations.'

Why are alcohol levels higher than they used to be? There are a number of potential explanations, and it is likely to be a multifactorial problem. The first is that there is a deliberate stylistic decision being made by winemakers to pick later. The claim is that they are just picking for flavour ripeness, and that this is occurring at high sugar levels, resulting in alcoholic wines.

As grapes ripen, a number of physiological processes are occurring in tandem. First, sugars accumulate and acid levels diminish. Second, there are chemical changes to various skin components: green, herbaceous-tasting methoxypyrazines, which act as defense mechanisms, keeping birds away from the grapes until the seeds are ready for dissemination, are metabolized, and tannins also undergo a transition to less astringent forms. Thus

grape ripening can be divided into sugar ripeness and what is known as physiological (or phenolic, or flavour) ripeness. The holy grail of viticulture is to achieve this transition in harmony, such that physiological and sugar ripeness coincide at a suitable harvest date. Very few sites will achieve this balance consistently. And given a choice, most winemakers will opt for picking at physiological ripeness above aiming for ideal sugar levels in their grapes. This is where winemakers are faced with the choice of either living with high alcohol levels, or doing something about it in the winery. If they could, most would opt to achieve this balance in the vineyard.

It's not just global warming

'Alcohol levels are a vexed question,' agrees Australian wine guru Brian Croser. 'There are a lot of wines made from grapes that are past the use-by date, shrivelled and physiologically dying or dead.' Croser calls this phenomenon 'dead grape syndrome', and suggests that it 'pertains to the best regions of the table-wine world'.

The second problem is climate change: wine-growing regions have become warmer over the past few decades. This frequently brings harvest into a warmer time of year, where sugar levels are liable to rise faster in the days preceding crush. This makes it difficult to judge picking dates accurately: for example, a delay of three days could spell an extra degree or two of potential alcohol.

Third, we have improved viticulture. 'Viticulural practice has been revolutionised in the New World and sharpened up in the Old World,' continues Croser. 'We now have very efficient solar panels in our vineyards – as well as vertical canopies with good bud spacing, improved clones and rootstocks, good soil nutrition and water management – all leading to the highly desirable result of more rapid and complete ripening with more anabolic spill-over into flavour and colour and better retained acids.'

Croser also thinks that the size of the vine may have a role. 'In high-quality vineyards it is necessary to ensure the leaf-to-fruit ratio is adequate, but not

excessive,' he says. 'Many of the modern vertical canopy vineyards have much too much solar power for the crop load, exacerbated by crop thinning. Nor does just raising the crop level to achieve the lower ratio achieve the right result. Small vines with small crop loads are the answer.'

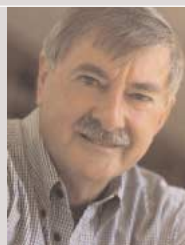
'You should ensure the daylight photosynthetic and net sugar accumulation time is matched by a night time anabolic phase ensuring optimum conversion of sugar to colour and flavour,' he continues. 'Low day-to-night differentials and low vines receiving ground warmth all night is one way to go, another is to allow daytime high temperature to limit the photosynthetic duration

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»» **Modern canopy vineyards have too much solar power.** ««

Brian Croser

Brian Croser has long exhorted winemakers to produce ever better regional wines. To make it there, he has closely followed viticultural research.



and efficiency and to use the cooler but still physiologically appropriate temperatures at night to allow optimum anabolism.'

Viticulural guru Dr Richard Smart also has a simple solution. 'Reducing alcohol is easy,' he states. 'Pick earlier. This whole thing of increasing alcohol is a fad due primarily to winemakers and wine writers.' He adds that 'physiological ripeness is a term that was developed by the marketing department of a Sonoma winery, and has no credibility as a rational viticultural term because it cannot be quantified.'

If you can't get the balance right in the vineyard, then there are remedial steps that can be taken in the winery to keep alcohol levels lower. Those that have received most attention are reverse osmosis and the spinning cone. The former

technique relies on cross-flow filtration to strip out a retentate composed of water, volatile acids and alcohol from wine. Then the retentate is either distilled or undergoes a process known as perstraction to remove the alcohol, and is then blended back into the original wine. This wine, now at a low alcohol level, can be used as a blending component to dial down the alcohol level of a larger batch of wine. The spinning cone is a rather different device which distils off various fractions from the original wine, which are then kept separate. The aromatic fractions are blended back into the wine, but the alcohol fraction is removed. As with reverse osmosis, the resulting low-alcohol wine can then be used as a blending component. Clark Smith estimates that 45% of premium Californian wines are alcohol-adjusted. Alcohol reduction is becoming a widely adopted tool throughout the wine-growing world, but it is not without controversy, simply because it's seen as a rather artificial technique.

There are, however, less invasive ways of reducing alcohol. 'In the winery, the most practical solution that we have found to keeping alcoholic degree in check has been the use of open-top fermenters, warm fermentation temperatures and, especially, the use of indigenous yeasts,' says Grahm. 'The "wild" yeasts tend to give us a much longer, more even fermentation. More-over, the fermentation process is far less efficient, owing to the successive populations and obscure yeast wars going on between species. They're essentially converting the sugar in the grapes into biomass rather than alcohol, and one ends up with very low sugar-to-alcohol conversion levels, in some cases approximately 0.52 Brix to % alcohol,' says Grahm. 'In the past, I confess to have removed alcohol from our wines, but I am now quite opposed to the practice, as well as of adding water – known as "Jesus Units" in the trade. If you are doing the right work in the vineyard, you should not be compelled to resort to these extreme solutions.'

This is an abridged article. Read the full text at www.wine-business-international.com