

Can colour influence our taste?

In our sensory perception of wine, colour tends to come in a distant third after aroma and taste. But is that justified? Richard Hemming reports...

If the wine world had a flag, it would be red, white and pink. After all, the colour of wine is something we can all agree on. Isn't it?

Well, except that it's never really white. Chablis is described as lemon-green, while Sauternes is burnished gold, whereas red wine ranges from the bright purple of young Argentinian Malbec to the faded garnet of classic Pinot Noir; it is never simply called red. Even rosé has 21 different hues, according to research from Provence.

Colour turns out to be as contrary and debatable as anything else in wine, making a big impact on expectations, winemaking and, perhaps most significantly, the gustatory perception of the drinker.

The first impression a wine makes comes from its colour – hence the importance of using clear glassware. In Wine Science, Dr Jamie Goode discusses the 'pre-attentive phenomenon', whereby automatic, subconscious assumptions are made about the taste of something based on its appearance.

Opaque reds naturally evoke an expectation of concentrated flavour, and perhaps higher tannin and alcohol. Goode quotes colour expert Professor Charles Spence of Oxford University, who explains that 'redness typically equates with the ripening of fruits in nature' – hence the natural association of deeper colour with fuller flavour.

But many red wines can defy these expectations. Beaujolais Nouveau, for instance, is typically bright purple but very light in body and tannin. The eye can also play tricks on the palate. In a 2001 experiment carried out by Bordeaux winemaker, wine consultant and oenology professor Denis Dubourdieu, tasters used terms such as cherry, prune and cocoa after tasting a white wine that had been dyed red using flavourless anthocyanins.

For white wines, those which are more golden inevitably suggest something particular about their taste – very often sweetness, skin contact or oak usage, or possibly all three. The recent vogue for whites fermented on their skins has birthed a genre called orange wines, instantly recognisable for their palpable tannic feel, often oxidative flavour profile and, of course, their orange colour. Generally speaking, however, most whites vary far less in colour than red or rosé.

A winemaker's influence

So far, so complicated – but there is at least one certainty. For wine of every colour, increased browning is a surefire indicator of oxidation, and is therefore an important sign of maturation – be it deliberate and intentional or otherwise, as white Burgundy devotees are well aware.

Knowing how important colour is in influencing our perception of wine, it is little wonder that there is masses of research on the topic – and consequently myriad options available to the winemaker. Manipulation of wine is nothing new: winemakers have always used blending, heating and other winery processes to alter a wine's style. Some of these impact the colour of wine deliberately, others do so coincidentally. In the latter category is acidity (more specifically pH), handling and maceration.

Adjustment of acidity is commonplace around the wine world, but it is more likely to be done for microbiological stability and palate balance than primarily for colour, where lower pH creates a brighter redness. Likewise, the merits of oxidative versus reductive handling are primarily associated with influencing flavour and tannin, although they will inevitably affect colour too. Maceration of reds – pump overs, punch downs and so on – is practised to extract flavour and tannin, with colour being an important if not primary concern.

Temperature of fermentation is another factor to consider. Inevitably, higher temperatures aid colour extraction from the skins of black grapes. As an extreme example, thermovinification can be used, with Languedoc winemaker Iain Munson saying that 30 minutes at 65°C extracts almost as much colour as a three-week classic maceration.

However, of all the deliberate actions taken to influence colour, blending is 'first and foremost', according to Munson. 'Down here in the Languedoc it is always good to have a tank or two of Alicante Bouschet. Even 10% in a wine lacking colour makes a world of difference,' he says, adding: 'It is rumoured that if you take a trip into Burgundy during autumn you can see a few rows of bright red leaves – Alicante among the Pinot Noir!'

Alicante Bouschet is a teinturier variety – one with red flesh as well as skin – and a widely used ingredient for colouring a final blend. Much more controversial is the use of Mega Purple. This heavily processed grape concentrate is made from the hybrid variety Rubired, and a small addition can hugely alter the colour of a wine (plus its mouthfeel and sweetness). Its use is generally kept quiet, but it is rumoured to be a significant ingredient of many less expensive reds in its native California.

Colour by numbers

Alternative techniques that help achieve the same end are less secretive, though no less controversial. Additions of enzymes, oak powder and tannin are all made to influence wine colour. Gavin Monery, winemaker at London Cru, explains: 'Commercial operations often use enzymes to aid colour extraction and add tannin to stabilise this colour (by forming pigmented tannins). Oak powder during the primary ferment also helps.'

Most of these techniques apply specifically to red wines, but the colour of white and rosé can be also be controlled in the winery. Monery mentions casein fining to combat browning in whites, and the use of activated carbon to strip colour from rosé to fit the current market preference.

Ken Mackay MW, wine-buying manager for Waitrose, explains: 'The vogue is for pinker shades – not too orange and not too dark', adding that 'this is particularly important for rosé wines in clear bottles, where the appearance of the liquid within can really help to sell the wine.' Consultant winemaker Nayan Gowda recalls one client who even presented him with a Dulux colour chart to specify the right shade of pink. With such an imperative on getting an exact hue, Munson hints that some producers might add small amounts of red wine to a pale rosé in order to get it exactly 'right' – even though this would be strictly against EU regulations anywhere outside Champagne.

Mackay notes that current trends seem to favour paler whites and deeper-hued reds, and Munson observes that 'the Chinese market equates darker colour with better quality'. However, Gowda thinks 'Less value is being put on colour density in France, Australia and the US. But this is also concurrent with a shift towards lighter, less-extracted wines, that the market currently seems to prefer.'

There is only one thing that can completely offset the influence of colour on your assessment of a wine: when it is tasted without seeing its colour at all. Many experiments have tried to investigate what difference this can make.

Sense and perception

Using black glasses (*pictured above*) is a favourite ploy of some competitions, for example. In the final of the 2012 UK Sommelier Of The Year event, Jan Konetzki of Restaurant Gordon Ramsay had to taste six drinks (not only wine) from black glasses and group them by common ingredient. 'It's tricky because you lose a reliable sense, but at the same time they strengthen your smell and taste,' explains Konetzki, who went on to win the competition.

Master Sommelier Xavier Rousset, of London restaurants 28-50° and Texture, agrees that black glasses make it extremely difficult. 'I've never mistaken red wine for white, but I've seen it done and can imagine myself doing it. It's especially difficult to distinguish pink and white Champagne.'

This idea was taken even further in a 2009 study for the Journal Of Sensory Sciences, where black glasses were used and the colour of the ambient light in the tasting room changed. The results suggest that a dry Riesling was considered to be better quality when tasted under red or blue light than under green or clear light.

Colour is often given only the briefest consideration when tasting wine, with far greater emphasis placed on the aromas as well as the flavours and structure on the palate. Yet research has shown that colour can greatly influence our perception of wine. As a logical extension of this, when a wine's colour is concealed, it becomes much harder to assess.

Whereas aroma, taste and quality are matters of eternal dispute, colour is perhaps the only facet of wine that is not subjective. It ranges from brown to purple, lemon to amber, from salmon to shocking pink, and every shade in between. Such diversity of colour can reveal a lot of truths about a wine, meaning it is a vital part of not only the science and understanding of wine – but also of its enjoyment.

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