

What's that smell – is that Brett? Part 2

THERE HAVE BEEN a number of queries lately to the AWRI regarding *Brettanomyces*, or 'Brett', in wine, particularly the perception of Brett in different wine styles and at levels close to the sensory threshold. Here are some of those questions – other questions were explored in our January issue.

Do all wines have Brett?

At one time it was commonly thought that all red wines has Brett, just in different amounts. In the late '90s this was probably the case. At the completion of the AWRI's 10-year Brett Survey of Cabernet wines, the mean level of 4-EP in Australian Cabernet had dropped by a dramatic 90%, with a mean 4-EP of 107µg/L reported in 2005 vintage, and with 21% of all Cabernet wines measured from the 2006 vintage having 'not detectable' levels of 4-EP or 4-EG.

Are certain types of wines more likely to be affected by Brett?

Brett only needs 0.3g/L sugar to produce 1000µg/L 4-EP (AWRI publication #1227).

The average glucose+fructose levels in Australian red wines has increased to 2.1g/L (AWRI publication #1212) in 2008, from 0.5g/L in 1998. Increasing alcohol levels over time, stuck or sluggish ferments, or consumer-driven sweetness levels in reds, does mean red wines with some residual sugar are more at risk and might require filtration when previously they did not. Beware of unneeded or excessive use of yeast nutrient and nitrogen during fermentation which can leave residual nitrogen as a food source and might under some circumstances increase Brett risk, as well as increase the risk of other spoilage organisms growing.

The Brett zone is now known as that critical time from the end of primary and secondary fermentation until the point before sulfur dioxide (SO₂) is added. Leaving wines unsulfured for long periods of time, particularly during slow malolactic ferments (MLF), is the riskiest time for Brett growth. Ideally, MLF should be finished quickly. A molecular SO₂ concentration of 0.6mg/L is required to prevent Brett growth, and

is best achieved by one large addition of SO₂ post-MLF fermentation.

What is the best way to monitor or measure Brett?

You can routinely measure wines for the 4-EP marker compound, however this is expensive and only tells you once there is already a problem. A range of Brett sniff test kits are also available where wine is added to broths, and if the wine contains Brett yeast they will grow and produce 4-EP levels that can be readily detected sensorially. Routine microbiological testing is also costly and time consuming. An effective way of monitoring for Brett, and other microorganism growth during barrel ageing, is simply to measure the free and total SO₂ ratio. If Brett or anything else is active, then the ratio starts to increase. Ideal ratios of Free to Total SO₂ in a finished wine are 1:2 or 1:3 (e.g. 30:60 or 30:90). Once the level creeps up to 1:5, it suggests something is binding up the SO₂ and actions needs to be taken. Now that team AWRI has sequenced the Brett genome (AWRI publication

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