Using a scientific approach to the art of wine blending - a case study to optimise warm inland Cabernet Sauvignon

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Modern Art or Science?

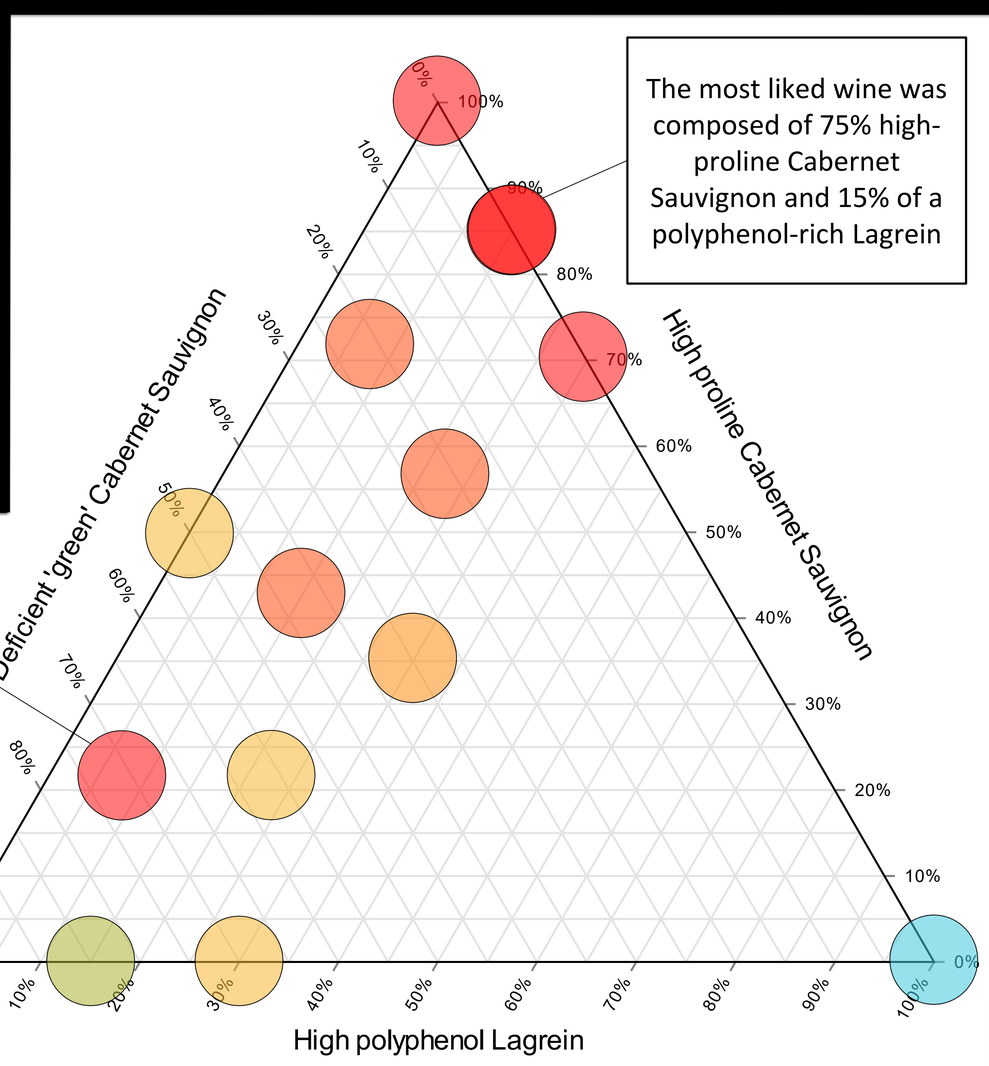
Background
Climate change is making grape growing more challenging in warm inland regions. Cabernet Sauvignon can suffer from flavour deficiencies resulting in unbalanced wines with 'green' aromas, poor colour and tannin, and low flavour. Some alternative varieties can grow well in Australia's changing climate and might be used to correct these increasingly common deficiencies by blending.

Why we designed the experiment
Recently, the amino acid L-proline has been shown to enhance wine viscosity, sweetness and flavour while suppressing bitterness and astringency (see poster 87). Since high levels of proline have been found in some warm inland Cabernet Sauvignon wines, the potential of such wines to improve a flavour-deficient Cabernet Sauvignon by blending was tested.

What did we do?
We blended three wines in different proportions using an experimental design. Two Riverland Cabernet Sauvignon wines – one 'green' and thin and other high in proline – were blended with up to 30% of a Lagrein wine. This alternative variety was low in proline, but high in tannin and colour. The 14 blends were subjected to chemical and sensory analysis as well as consumer acceptance testing.

Research highlights

- Proline-rich blends displayed increased sweetness, viscosity and flavour, lower astringency and bitterness
- Proline-rich wines were most liked by consumers
- A synergistic blend mainly composed of the flavour-deficient Cabernet Sauvignon was identified using this scientific approach
- Wines with overt astringency, 'green' aromas and pronounced bitterness were poorly liked



Most liked high proline blends - viscous, flavourful and balanced astringency

Moderately liked medium proline blends with lower flavour intensity

Less liked lower proline blends with 'green' aroma, poor colour and overt bitterness

Least liked and lowest proline wine with high astringency and bitterness

So what?!
Although blending can be described as an art, a scientific approach could identify synergistic flavours and consumer preferences, providing evidence of key compositional markers of sensory significance.

Blending high-proline and high colour/tannin alternative variety components can greatly improve a 'thin' red wine.

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The AWRI is a member of the Wine Innovation Cluster.