



**Unravelling the Contribution of Soil Type, Soil Water Status and Plant Water Status in the Evaluation of Wine Composition and Sensory Attributes**  
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The response of grapevines to altered conditions of plant water status was evaluated in terms of wine chemical and sensory composition for different varieties, soil type, region, irrigation methods and cultivars. In single-vineyard studies on two cultivars, the sensory evaluation of wine colour was positively correlated with decreasing grapevine water status in Shiraz, but for Merlot, significant differences in wine sensory colour were only shown when extremes in irrigation were compared. For Shiraz grapevines, increases in wine colour were associated with increased monomeric anthocyanin and polymeric pigment in the wines, but not to tannin concentration. In Merlot, wine made from grapevines under water deficit showed increased tannin concentration, polymeric pigment and wine sensory colour, but not monomeric anthocyanin. In the Merlot wines, regression analysis showed polymeric pigment was positively associated with wine colour. In a study on the 'terroir' expression of Cabernet Sauvignon wines under different irrigation regimes, soil type was shown to more strongly influence wine chemical composition and sensory attributes than grapevine water status. In that study, no irrigation and continuous irrigation was compared on sandy soils were compared with sandy-loam soils in a range of different localities. Sandy soils produced vines of decreased vigour, as measured by shoot mass, irrespective of the amount of water applied. Irrigation had no effect on wine sensory attributes, but sandy soils produced wines with higher tannin concentration, wine colour and fruity aroma notes. Regression analysis showed that wine sensory colour was most strongly associated with the contribution of polymeric pigment, and natural wine pH, while monomeric anthocyanin and tannin concentration had a positive, but less significant correlation with this attribute. Decreases in wine tannin, colour and fruity aroma notes were associated with increased shoot mass per vine, and increased tannin concentration was positively correlated with increases in fruity aroma, as was the overall 'quality' ranking of the wines.