

## Crop thinning of Merlot – a Queensland perspective

Merlot is one of the major wine grapes planted in Queensland, however with the wine industry in Queensland being relatively new there is limited knowledge of best practice for production of quality fruit for wine production in the state. Timing of crop thinning has been shown to influence grape quality (Filippetti *et al.* 2007) and this practice is commonly employed by growers in the state to manipulate fruit and wine quality. A trial was thus carried out in the 2008 season to investigate the influence of pea size and véraison crop thinning on yield and fruit quality of Merlot in two commercial vineyards located in Queensland's Granite Belt and South Burnett.

At both vineyards approximately half the crop was removed from randomly allocated panels at pea size and at véraison, the more distal bunch being removed. All other typical management practices maintained consistent for all treatments. At véraison vine measures were recorded with fruit samples from all treatments were taken at harvest and analysed for various fruit quality parameters. Small lot wines were made to permit assessment of impacts on wine quality.

As expected crop thinning resulted in an increase in leaf area to fruit weight ratio (LA:FW), with thinned vines being 'undercropped' when compared to recommended values for LA:FW (Dry *et al.* 2004). Target ripeness was TSS of 13°Baume, however an unusually cool and overcast season resulted in slow ripening and threatening inclement weather resulted in fruit being harvested at 11°Baume in the South Burnett and 12°Baume in the Granite Belt. Fruit from both thinning treatments from the South Burnett showed significantly delayed ripening compared to controls (pea size 1.9% and véraison 1.6% lower in TSS), as did fruit from vines thinned at pea size in the Granite Belt (4.75% lower TSS). Pea size thinning resulted in fruit with lower pH and higher titratable acidity at both sites, also indicating delayed ripening. Thinning at both times resulted in decreased total anthocyanin concentration (pea size 21.7% lower and véraison 5.6% lower) and phenolic concentration (pea size 14.4% lower and véraison 9.8% lower) at the Granite Belt, with no significant impacts had on fruit from the South Burnett.

Small lot wines produced from all treatment were subject to sensorial assessment by a panel of judges at a national wine show, with no significant difference seen between any of the wines presented, although wines from the pea size thinned treatments did rank slightly higher than controls on the 20-point scale. The South Burnett pea size thinned wine ranked 14.9/20, compared to control wines ranking 14.2/20; while the Granite Belt pea size thinned wine ranked 14.3 /20 and control wine ranked 14.1/20.

It was concluded that under the seasonal conditions of this study, reducing yield by thinning did not result in an increase in fruit quality and that crop thinning at pea size may adversely influence quality of Merlot. Other authors have shown seasonal influences to override the effects of crop thinning (Keller *et al.* 2005), a factor believed to also impact on this study. Thinning also resulted in vines no longer having optimal LA:FW thus the findings may reflect vines being under cropped. Impacts of thinning treatments on LA: FW lead to thinned treatments having LA:FW greater than those recommended as optimal (Dry *et al.* 2004) Vines were therefore out of balance and under cropped, with implications for successful fruit ripening (Howell, 1999).

It is recommended that crop thinning be carried out with caution – particularly in the earlier phenological stages – and thinning only be conducted in situations where vines are known to be significantly overcropped. Yield estimation and canopy assessment prior to crop thinning are recommended as ways in which vine balance may be calculated and the need for thinning determined.

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