

Crop thinning of Merlot – a Queensland perspective

By Ursula Kennedy¹

Merlot is one of the major winegrapes 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 veraison 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 veraison, with the more distal bunch removed. All other typical management practices were maintained consistent for all treatments. At veraison, vine measures were recorded with fruit samples from all treatments taken at harvest and analysed for various fruit quality parameters. Small-lot wines were made to assess the 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 'under-cropped' when compared with recommended values for LA:FW (Dry *et al.* 2004). Target ripeness was 13°Baumé, however, an unusually cool and overcast season resulted in slow ripening while threatening inclement weather saw fruit harvested at 11°Baumé in the South Burnett and 12°Baumé in the Granite Belt. Fruit from both thinning treatments from the South Burnett showed significantly delayed ripening compared with the controls (pea size 1.9% and veraison 1.6% lower in TSS), as did fruit from vines thinned at pea size in the Granite Belt (4.75% lower in 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 veraison 5.6% lower) and phenolic concentration (pea size 14.4% lower and veraison 9.8% lower) at the Granite Belt, with no significant impacts on fruit from the South Burnett.

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



Tony Hassall and Cameron Playsted, of the Queensland Department of Primary Industry and Fisheries, carry out bunch-thinning in the South Burnett vineyard in January 2008.



The commercial Granite Belt vineyard involved in the crop-thinning trial.

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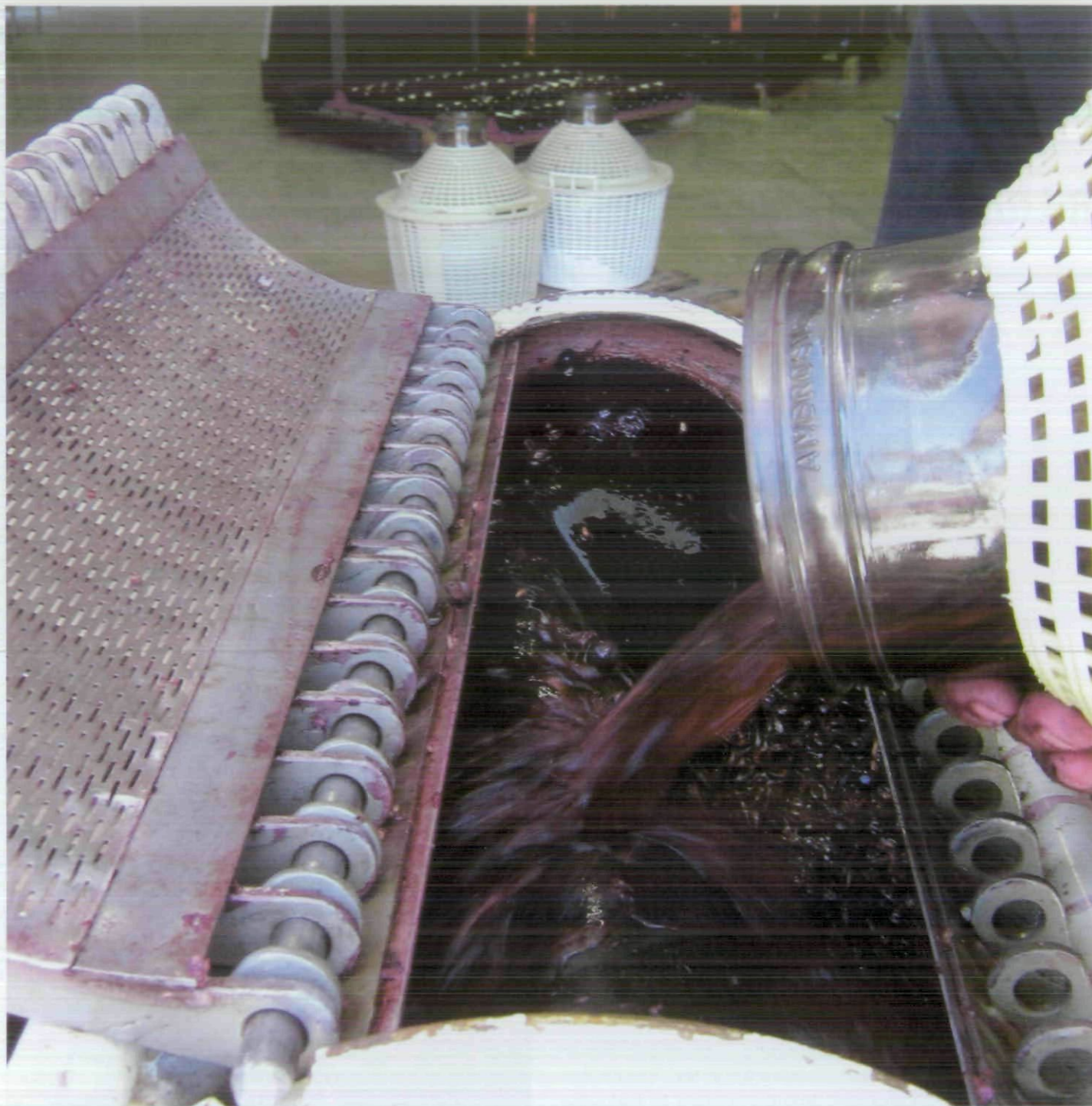
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Small-lot Merlot wines being poured into a mini air bag press at the Queensland College of Wine Tourism in Stanthorpe in April 2008.

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 the 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. The impact of thinning treatments on LA:FW led 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 over-cropped. 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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