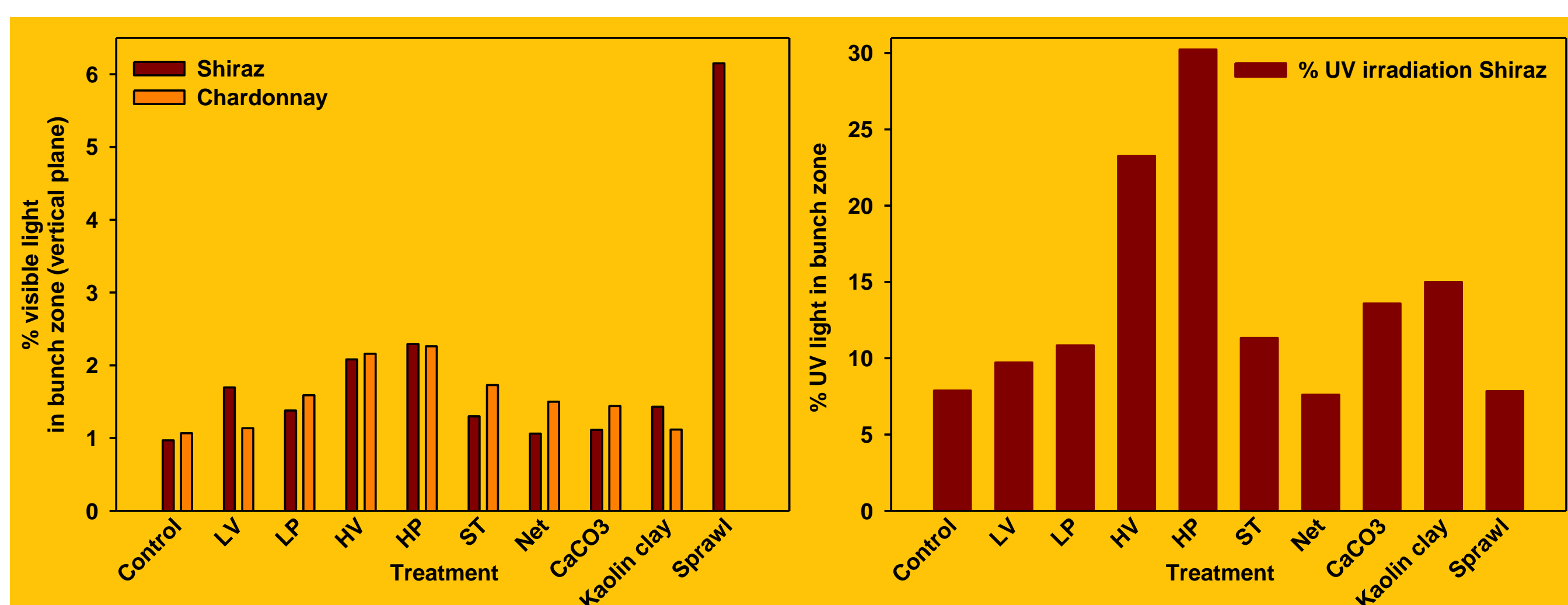


INTRODUCTION

Queensland wine industry development has relied upon adoption of viticultural practices from established winegrowing regions. Such procedures are not necessarily best practice under Queensland conditions. The wine grape growing regions of Queensland are climatically distinct from other Australian regions with relatively wet growing seasons, at times with severe peak heat loads. Queensland also hosts the most northerly and some of the highest altitude vineyards in Australia, with higher ultra violet radiation exposure than any other Australian grape growing region. Furthermore, fruit exposure may be exacerbated by regional management practices used to minimise risk of fungal infection. The Queensland wine industry has identified fruit exposure management as a critical issue to be addressed.

METHODS

An extension project was undertaken to demonstrate effects on fruit exposure of alternative canopy management practices for Chardonnay and Shiraz in vineyards in Queensland's Granite Belt, South Burnett and Scenic Rim. Growers inspected the sites in their regions prior to harvest, and fruit from the Granite Belt site was harvested, chemically analysed and processed into wine for sensory assessment. The wines were evaluated by judges at the 2010 RASQ Wine Show and sensory profiles determined. Findings were discussed with the Queensland wine industry and wines made available for sensory assessment by participants in the Queensland Viticulture Seminar in June 2010.



Fruit exposure was modified by fruit zone leaf removal from the most easterly (low - L) or both sides of the canopy (high - H); at pea size (P) or at véraison (V); a 50% shoot removal (ST); throwover bird net (Net); application of commercial 'sunscreen' products (calcium carbonate or kaolin clay); a non manipulated VSP 'control' (C); and 'sprawl' for Shiraz. The Granite Belt vineyard used for the demonstration was, unfortunately, subject to hail and frost events in late 2009, resulting in some damage to vines. This combined with late season water stress and disease pressures to impact on the results of this trial.

CONCLUSIONS

Differences were noted in exposure and sunburn of the Chardonnay grapes prior to harvest, although only marginal differences were seen in the measures of fruit and wine quality of either variety. We are wary of making inferences from this study over a difficult season where site and seasonal factors overwhelmed differences due to imposed management practices. Inconsistent additional fruit exposure occurred via defoliation relating to early season frost and hailstorms and late season water stress followed by fungal disease pressure. We plan to follow up with demonstration trials in vineyard sites with lower risk of unfavourable events.

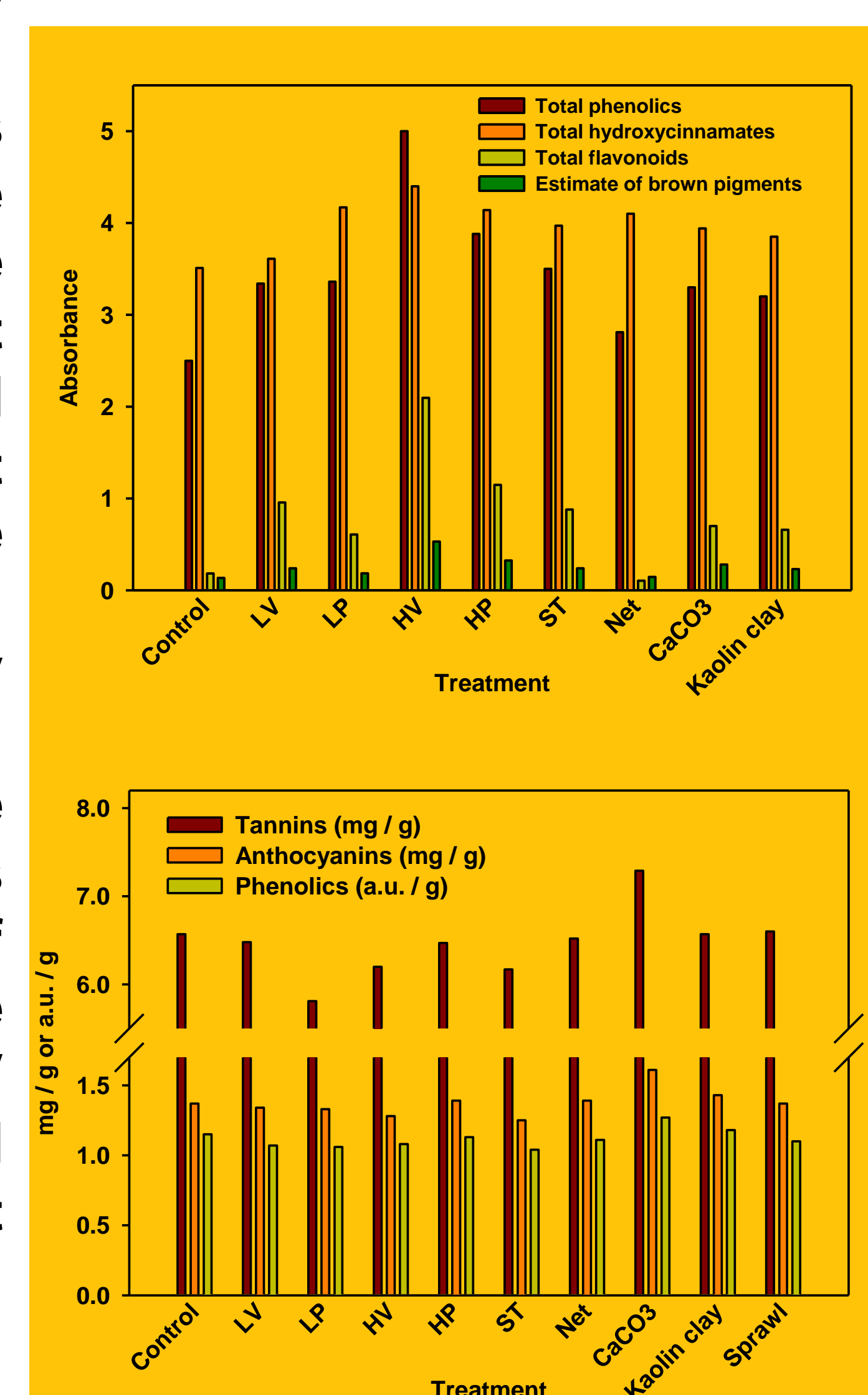
ACKNOWLEDGEMENTS

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RESULTS AND DISCUSSION

At pre-harvest vineyard walks, it was noted that the worst sunburn was seen in fruit with little canopy or leaf cover (leaf removal or shoot thinned). Little difference in severity of sunburn was seen between pea size and véraison leaf removal. In the South Burnett and Granite Belt sites, the severity of sunburn was equal or greater on fruit situated on the more easterly side of the canopy, anecdotal evidence suggesting this may be due to afternoon cloud cover typical in the region. Tasting fruit indicated better acid and flavour balance on unexposed fruit, with more exposed and sunburnt fruit showing overripe and 'cooked' fruit flavours and lack of acidity.

Overhanging foliage appeared to lessen sunburn in all treatments; fruit from control and netted vines had the greatest leaf cover and the lowest degree of sunburn. On the Granite Belt site ambient light measurements at véraison showed leaf-plucked treatments had highest exposure, data for the vertical plane showing low light penetration in most treatments with healthy canopy, except the sprawl which had little overhead cover. Over the season the overhanging foliage was progressively lost. Measurement of bunch zone UV radiation in the Shiraz indicated highest UV exposure in the high plucked treatments as well as slight increases in sunscreen treatments; while protecting the berries, overspray on leaves may reflect more UV radiation onto the fruit.



All treatments fell within recommendations for leaf area / fruit weight. Fruit analyses showed similar harvest yields and profiles of TSS, pH, TA. Marginal differences were seen in Chardonnay phenolic profiles and Shiraz anthocyanins, tannins and phenolics, and while slight differences were seen, the wines had similar sensory profiles.

