



## Reducing energy and water use in vineyards – Rymill Coonawarra



### Background

The effects of climate change pose a risk to the long-term sustainability of vineyard businesses. Options for mitigating greenhouse gas emissions and adapting to the changing environment are therefore key strategic considerations of vineyard managers.

Rymill Coonawarra is a 144 hectare vineyard located in Coonawarra, South Australia. A certified member of Sustainable Winegrowing Australia since 2012, Rymill is addressing climate change and its impacts by implementing a whole-of-business sustainability action plan with a key focus on minimising energy and water use.

### Identifying opportunities for reducing environmental impact

Electricity and fuel consumption are two of the biggest drivers of greenhouse gas (GHG) emissions and they represent significant costs to vineyard businesses. At Rymill, the sources and total energy consumption are reviewed annually. The business' sustainability action plan identifies energy efficient operating practices for machinery and equipment and, when possible, these are implemented or flagged as opportunities for future improvement. The focus areas for reduced energy use in the past two years have been reducing pumping of irrigation water and reducing tractor use.



In the past, over-watering and high rates of fertiliser application at Rymill produced vines with large canopies, which required trimming in summer. The vines also tended to have higher disease incidence and severity because of the large canopies and therefore required more spraying. To reduce vine canopy sizes, Rymill has implemented an irrigation strategy which is better aligned with the vines' requirements. The strategy includes a more intensive schedule of visual monitoring and assessment of leaves and growing tips during spring and summer and validating this against weather observations and forecasts. The business has also engaged an external consultant who provides real-time soil moisture monitoring using capacitance probes. By implementing this more careful observation and measurement of vine and soil moisture status, blocks with higher soil water-holding capacity are able to be given less water and, in 2018/19, some blocks did not require any irrigation at all. The overall impact of this has been reduced water use compared to the previous season, with an associated reduction in energy required to pump the irrigation. Rymill is continuing this strategy with additional attention to aligning irrigation applications with key phenological stages to achieve further water and energy savings.

Five years ago Rymill identified the use of sheep in the vineyard as an opportunity to reduce fuel use by removing the requirement for slashing and chemical weed control. Since then Rymill has grazed sheep across half of its vineyard area during winter. The cost savings from reducing the requirement for slashing the mid-rows and applying undervine herbicide have driven the decision to expand the grazing to more than 90% of the vineyard area in 2020.

## Sustainable Winegrowing Australia benchmarking data

In 2018/19 Rymill vineyards ranked in the lowest 12% of Sustainable Winegrowing Australia member vineyards nationally for water use per hectare and in the lowest 17% of member vineyards in Coonawarra (Figure 1).

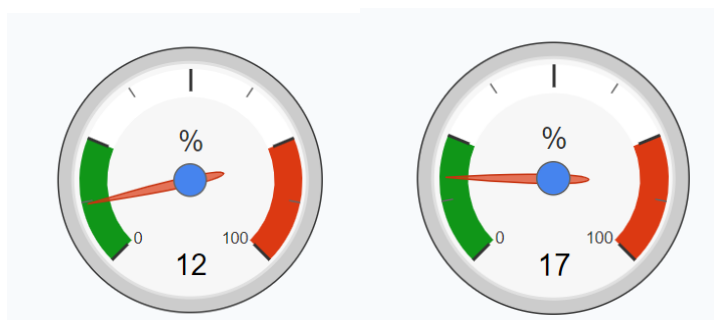


Figure 1. Ranking of Rymill vineyards' water use per hectare in 2018/19, compared to other vineyards in Australia (left) and in Coonawarra (right)

Since 2017/18, Rymill has achieved a 30% reduction in total on-site GHG emissions and shifted its ranking from being in the highest 28% of Sustainable Winegrowing Australia members in Australia in 2017/18 (a ranking of 72%) to a ranking of 52% in 2018/19 (Figure 2). This reduction in energy use has been achieved through a combined result of reduced irrigation application and grazing sheep in the vineyard.



Figure 2. On-site total greenhouse gas emissions at Rymill Coonawarra compared to other Sustainable Winegrowing Australia members in Australia in 2017/18 (left) and 2018/19 (right)

Rymill is continuing to monitor energy use and identify opportunities to improve energy efficiency of new machinery and equipment in 2020. The business is currently investigating options for the replacement of existing tractors with newer ones which are more fuel efficient or powered by electricity.

## The business case for sustainability

To monitor the financial impacts of the changes in management, Rymill has implemented an advanced vineyard cost management system which is now in its second year of use. Annually reviewing and re-assessing vineyard inputs and costs of production on a block-by-block basis allows the business to assess alternative activities, which may have a net positive impact on yield, fruit quality, cost of production, and environmental impact. The system allows the identification of underperforming blocks for short-, medium- and long-term attention and Rymill has used it to prioritise blocks for immediate attention in 2020.

The implementation of a whole-of-business sustainability action plan, including priority activities to reduce energy and water use, is expected to result in a healthier and more resilient vineyard able to deal with the pressures of climate change and other influences on the business. Over time it is expected that improved overall vineyard performance will increase the longevity of the vineyard business and reduce its environmental impact.

## Acknowledgement

This case study was undertaken as part of the 'Valuing nature in viticulture' project in collaboration with the Food Agility Cooperative Research Centre, Queensland University of Technology and National Australia Bank, and with the cooperation of Shannon Sutherland, General Manager and Winemaker, Rymill Coonawarra.



Case study  
SUSTAINABILITY

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## Further reading

AWRI fact sheet - [Grazing sheep in vineyards](#)

## Contact

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