

Reducing fuel use in vineyards – Giggling Goose vineyards



Sam and Fiona Ward from Giggling Goose vineyards, Padthaway, SA.

Background

Fuel use is both a major cost and a source of greenhouse gas (GHG) emissions in vineyards. Giggling Goose vineyards, a 70 hectare vineyard in Padthaway, SA, first implemented an environmental action plan in 2011. The primary focus of the plan was to reduce fuel consumption. This has been achieved in two ways: by reducing tractor use and also by reducing irrigation.

Minimising tractor passes in the vineyard

The primary approach to reducing fuel use and GHG emissions taken at Giggling Goose

vineyards has been to minimise the use of tractors in the vineyard through changed weed control and mulching practices.

Weed control

Vineyard weeds are now managed using one application of herbicide per year and by grazing sheep in the vineyard in autumn and winter. Sheep grazing has been so effective that there is no longer a requirement for slashing the vineyard and there have been no negative impacts from the sheep.

Mulching

In many vineyards, the vine prunings are



raked into the midrow where they are mulched by the slasher or mower to enhance the aesthetic value of the vineyard and, to a lesser degree, to facilitate people and machinery moving along the rows. At Giggling Goose vineyards this is no longer done. The vine prunings break down on the ground over time and no detrimental effects have been experienced for machinery or people working in the vineyard.

Minimising irrigation

The irrigation system at Giggling Goose vineyards is pressurised using a diesel pump. Diesel savings can be achieved by reducing the volume of irrigation applied to the vines each year. A significant portion of the vineyard is planted on deep sand with underlying clay with a very high water holding capacity. Ten years after they were planted, the vines growing in this part of the vineyard had established a strong, deep root system

and were significantly more vigorous than in other areas of the vineyard. Several seasons trialling reduced irrigation volumes showed that these vines can be grown with minimal, and in some years, no irrigation and maintain good yields and fruit quality. The reduction of irrigation required in the vineyard resulted in Giggling Goose vineyards ranking in the lowest 18% of Entwine members in the region in terms of their water applied per hectare.

Recognising the differing needs of the vines has enabled significant water savings and associated diesel use for pumping.

Giggling Goose vineyards and Entwine

Giggling Goose vineyards began benchmarking their performance against other Entwine members in 2015. Figure 1 shows the greenhouse gas (GHG) emissions per hectare from Giggling Goose vineyards in 2014/15 benchmarked against other similar sized Entwine member vineyards. Giggling Goose vineyards ranks in the lowest 3% of vineyards for total GHG emissions. This low

Water (ML/ha)

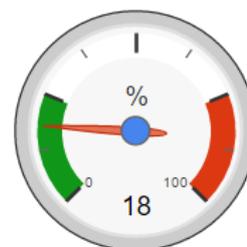


Figure 1. Ranking of Giggling Goose vineyards' water use per hectare in 2014/15, showing that Giggling Goose is ranked in the lowest 18% of Entwine members in Padthaway



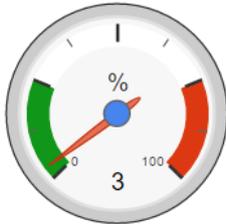
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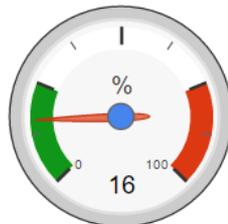
opportunities
in a new climate

Case Study
VITICULTURE

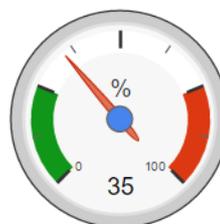
On-site total



Fuel



Fertilisers



Electricity

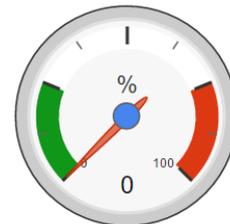


Figure 2. Ranking of Giggling Goose vineyards' greenhouse gas emissions in 2014/15, compared to similar sized Entwine members. On-site total greenhouse gases (left dial), greenhouse gas emissions from fuel use (middle dial) and greenhouse gas emissions from electricity use (right dial), showing that Giggling Goose is in the lowest 3% of similar sized vineyards for total greenhouse gas emissions, in the lowest 16% for emissions from fuel use and the lowest 35% for emissions from fertilisers.

ranking is driven by low fuel use, with Giggling Goose ranking in the lowest 16% of similar sized Entwine member vineyards, and no electricity being used in the vineyard (irrigation is pressurised with a diesel pump and there are no other electricity-using processes).

Acknowledgement

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Reference and further reading

[Grazing sheep in vineyards – Cumulus Vineyards](#)

Contact

For further information, please contact the AWRI helpdesk.

Phone 08 8313 6600 Fax 08 8313 6601

Email helpdesk@awri.com.au

Website

http://www.awri.com.au/industry_support/entwine/

Address Wine Innovation Central Building,
Corner of Hartley Grove & Paratoo Rd,
Urrbrae (Adelaide), SA 5064

