ECO VINEYARDS
GROWING RESILIENCE NATURALLY

CASE STUDY

GOATS, WEEDS AND GRAZING FOR GOOD DRAINAGE AT YARRA YERING

By Sarah Crowe and Andrew George, Yarra Yering, Karen Thomas, Melbourne Water and Dr Mary Retallack, Retallack Viticulture Pty Ltd

Wine Australia
retallack viticulture
YARRA YERING Est. 1969
Melbourne Water

GOATS FOR WOODY WEED CONTROL IN VINEYARDS

Background

Yarra Yering is a 32 hectare vineyard, located in Gruyere in the Yarra Valley, 28 hectares are planted to Chardonnay, Pinot noir, Shiraz, Cabernet Sauvignon, Merlot, Malbec, Petit Verdot, Viognier, Touriga Nacional, Tinta Cao, Tinta Roriz, and Mataro.

The vineyard lies at the foothills of Warramate Hills Nature Conservation Reserve, known for its highly significant vegetation and animal habitat

The Ecological Vegetation Class (plant community) is EVC128 Grassy Forest, part of the Highlands- Southern Fall Bioregion. This plant community is dominated by low growing forest species to 20m height with an understory of small and medium shrubs and a rich diversity of herbs and graminoids. Soils are fertile sandy loam, and average annual rainfall is 700 to 800mm.

The past few years have had wetter than average winter-spring rainfall due to La Nina and this has resulted in eroded internal farm tracks and overgrown drain lines between vineyard blocks. Remedial work has historically involved gravel and crushed rock to fill wheel ruts and replace eroded tracks.

A long-term solution will help to address underlying issues. A combination of improved drainage, weed control and re-vegetation was identified as a great EcoVineyards demonstration site project.

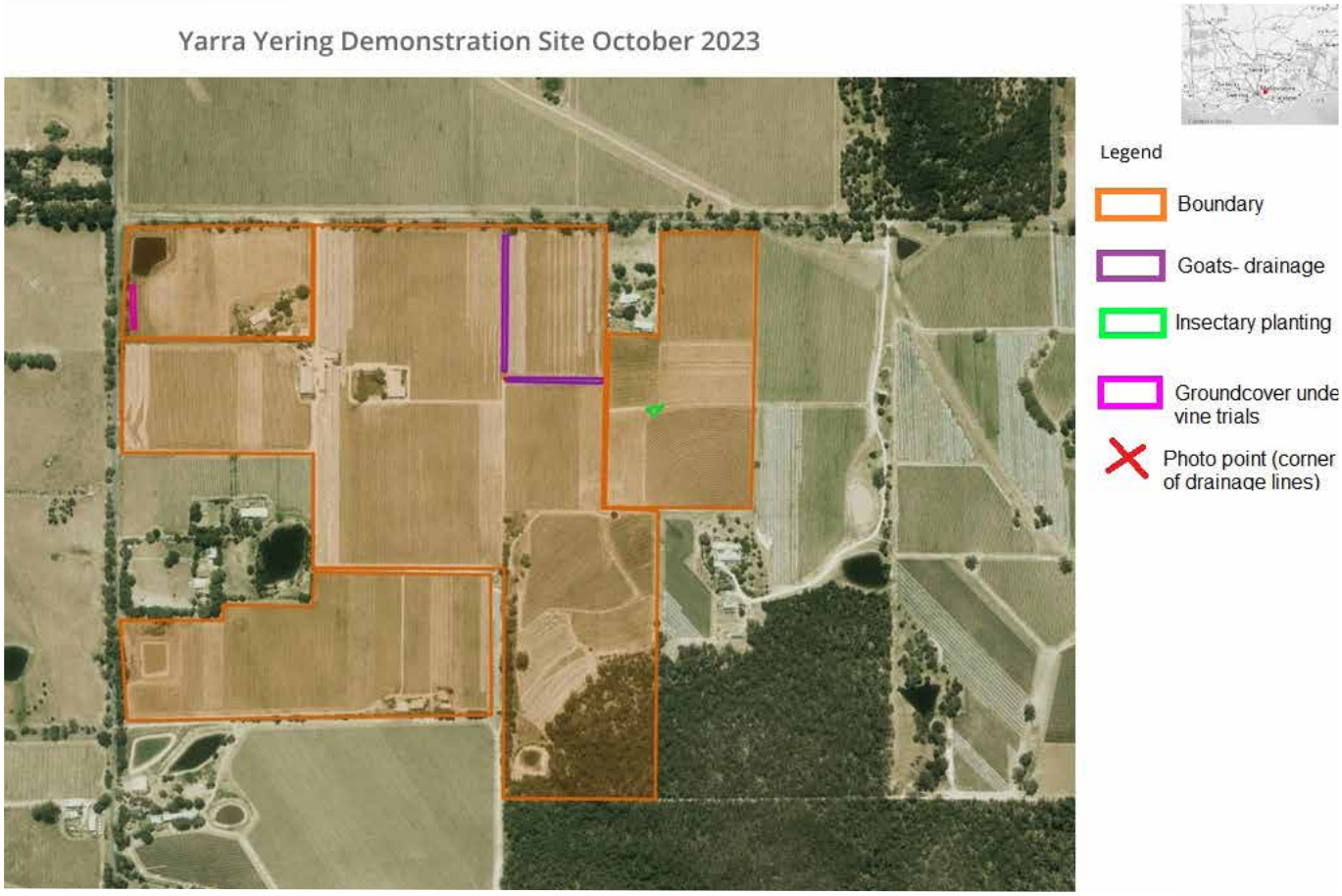

Figure 1: Yarra Yering, 4 Briarty Rd Gruyere 3770, Victoria, August 2023 [Image: NatureKit].

What were you hoping to achieve and why?

A drainage line down the slope at the vineyard was completely overgrown with non-native species and woody weeds. As a result, this disrupted the flow of water down the slope and weed control become challenging.

Under recommendation from EcoVineyards Regional on-ground coordinator, Karen Thomas goats were considered ideal for cleaning up the drain as the area could be fenced. It was hoped the goats would replace the need for herbicide intervention and over 12 months, strategically graze the area ready for re-vegetation.

The vineyard was also keen to trial some undervine groundcovers and plant a small insectary between vineyard blocks.

"This demonstration site is about finding innovative and cost effective ways to support our sustainable winegrowing credentials." **Sarah Crowe, Yarra Yering Winemaker**

What did you do and when?

Melbourne Water (EcoVineyards and Rural Land Program) alongside Agriculture Victoria and GrazeAway conducted a site visit to discuss options for clearing the drain and developing a long term plan to better manage the flow of water on the vineyard that would have less impact and resourcing to mitigate erosion problems.

A plan was developed and the vineyard was eligible for an additional grant through Melbourne Water which enabled a permanent fence to be installed.

The fence was constructed in December 2023 and the goats grazed the fenced drain for the next 6 weeks. Strategic grazing over the following months allowed for follow up weed management and a chain of ponds constructed to enable small ponds to fill and flow during wet weather events and slow the flow of water.

Native plants were strategically chosen that would be suited to a drainage area and less desirable to browsing by the goats. The sit was re-vegetated in winter 2024.

The insectary and undervine areas were planted in winter and spring 2024.

Figure 2: Photo of the site before grazing [Photo: Melbourne Water].

Figure 3: Photo of the site after fencing [Photo: Melbourne Water].

Figure 4: Goats grazing in December 2023 [Photo: Melbourne Water].

Figure 5: Photo of the site after goat grazing [Photo: Melbourne Water].

Insights

The co-funding that was available through the Melbourne Water Rural Land 'incentives' program enabled the demonstration site to be set up. Growers can check eligibility on the Melbourne Water website and consider a grant to support a permanent fencing set up.

Managing the goats is relatively easy if drinking water can be supplied and the fencing has been done to the correct standard so the goats don't escape. Yarra Yering used funding through EcoVineyards and Melbourne Water to implement a 12-month grazing agistment arrangement and this meant the goats could be strategically grazed as required to manage weed and grass growth.

Pitfalls to avoid

The costs to set up a permanent fence and grazing agistment needs to be considered, for many growers in the Yarra Valley, there may be grants available to assist with the costs.

Ensuring suitable plant species are used, species need to be 'fit for purpose' to reduce browsing by goats and suitability for site requirements; don't plant large deep rooted trees and shrubs along drainage areas. Managing animal welfare and commitment to maintaining the site with goats needs to be considered over the long term.

Where to from here?

Yarra Yering are in the process of setting up a second enclosure and grazing goats for weed and grass control. This site will be planted in 2025 with insectary species and currently has a wildlife camera taking a daily photo to capture the change over time. Plant replacements and continued grazing will continue at this first site also.

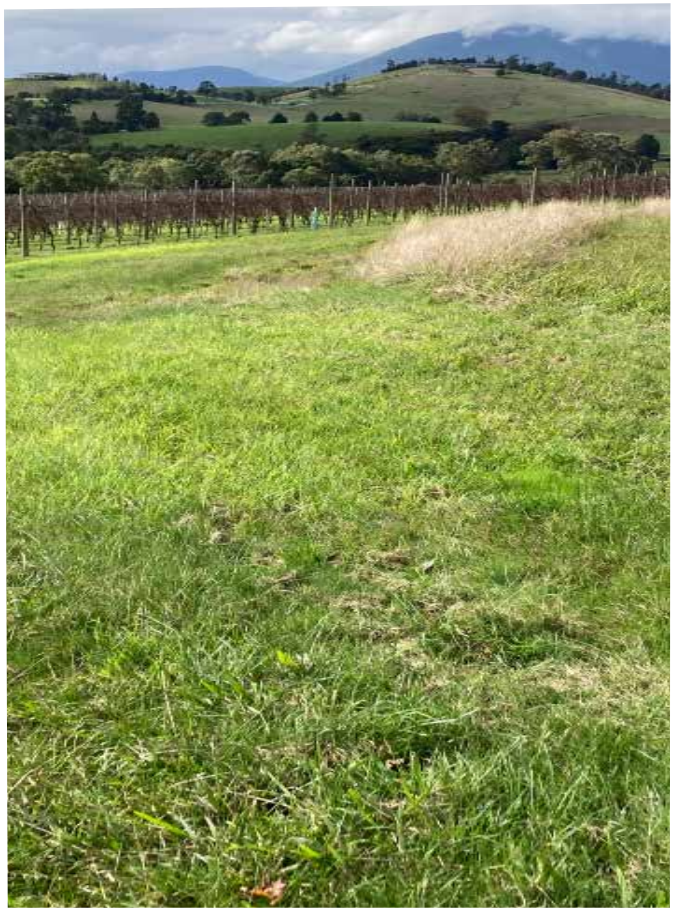

Figure 6: Insectary site before planting, June 2023 [Photo: Melbourne Water].

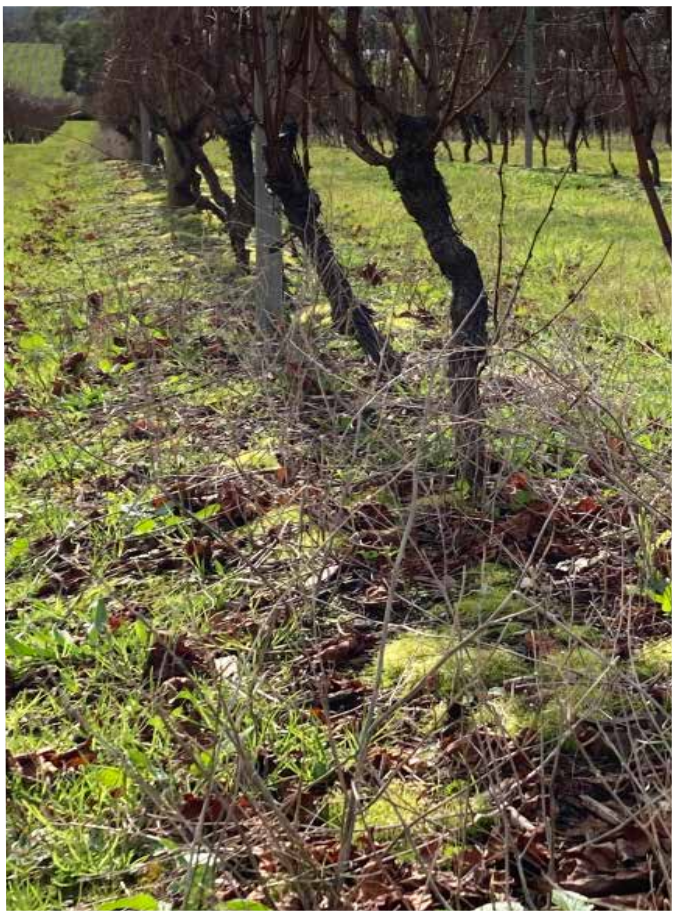

Figure 7: Under vine demonstration area before sowing native grasses and forbs, June 2023 [Photo: Melbourne Water].

Figure 8: Demonstration site in February 2024 [Photo: Melbourne Water].

Are there any outstanding knowledge gaps you would like filled?

- We still have an information gap on the best species to revegetate the stormwater drain with. The dry season has not helped the establishment of the tubestock, so year two will be important for this.
- A benefit of tidying this area will be the biodiversity/insectary possibilities for this area.
- With a second goat run installed that has some bigger grasses, we have noticed the goats appreciate the shelter/shade these bring.
- The dry season wasn't the best for the undervine cover crops for establishment and we were concerned about the drain on our dry grown vineyard, we are looking forward to trialling this again.

The drainage areas were up to the start of this project almost abandoned areas that I barely paid any attention to; I now look at similar sections of the property and wonder about how we can manage them to bring biodiversity to the vineyard.

Has your level of knowledge increased significantly since you became an EcoGrower?

We have been exposed to a lot of new information and stimulating ways of rethinking our management of the vineyard. Connecting with other growers and Melbourne Water has exposed us to bigger projects available in our area.

Plant lists

Insectary plant list:

- *Busaria spinosa,* sweet bursaria
- *Chrysocephalum semipapposum, clustered everlasting*
- *Goodenia ovata,* hop goodenia
- *Indegofera australis,* Australian indigo
- *Leptospermum continentale,* prickly tea-tree
- *Patersonia occidentalis,* purple flag
- *Stylidium armeria,* thrift-leaved trigger plant

Undervine ground covers:

- *Dichondra repens* , tom thumb, 1kg
- *Chrysocephalum apiculatum*, common everlasting or yellow buttons, 1kg
- *Rytidosperma geniculatum*, Oxley wallaby grass, 1kg
- *Vittadinia cuneata,* common New Holland daisy, 1kg
- *Wahlenbergia gracilis,* sprawing (or Australian) bluebell, 1kg

Goat enclosure/insectary plant list:

- *Acaena novae-zelandiae,* bidgee-widgee
- *Carex appressa,* tall sedge
- *Centella cordifolia*, centalla
- *Dichondra repens,* tom thumb
- *Juncus amabilis,* hollow rush
- *Juncus flavidus,* gold rush
- *Lomandra longifolia,* spiny-headed mat-rush
- *Microlaena stipoides,* weeping grass
- *Poa ensiformis*, sword tussock-grass
- *Pao labillardierer,* common tussock-grass
- *Runculus amphitrichus,* small river buttercup

Costs

Item	EcoVineyards costs (ex GST)	Co-contribution (grant and landholder contribution)	In-kind contribution (time)
Fencing and gates		$ 8,316	
Drinking water IBC			
Goat agistment (12 months)	$ 3,000	$ 4,000	40 hrs (includes planting)
Re-vegetation	$ 68		2 hrs insectary planting
Native grass and forb seed	$ 878		10 hrs
Bat call analysis	$ 124		
Total	**$ 4,070**	**$ 12,316**	**62 hours**

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ACKNOWLEDGEMENT OF COUNTRY

EcoVineyards proudly acknowledges the Aboriginal and Torres Strait Islander Peoples, and their ongoing cultural and spiritual connection to this ancient land on which we work and live.

As the Traditional Custodians of this land, we recognise their wealth of ecological knowledge and the importance of caring for Country.

We pay our respects to elders past and present and extend this respect to all Aboriginal and Torres Strait Islander Peoples.


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