ECO VINEYARDS
GROWING RESILIENCE NATURALLY

CASE STUDY

INCORPORATING INSECTARY PLANTS IN A NEW VINEYARD BLOCK AT QUEALY WINEMAKERS

By Sarah Saxton and Kathleen Quealy, Quealy Winemakers, Karen Thomas, Melbourne Water and Dr Mary Retallack, Retallack Viticulture Pty Ltd

Wine Australia
retallack viticulture
Melbourne Water

TRIALLING UNDER VINE GROUNDCOVERS AND SHRUBS ADJACENT TO STRAINER POSTS IN A NEW BLOCK

Background

Quealy Winemakers is located in Balnarring on the Mornington Peninsula, with 4 other vineyards located across the Peninsula. The Balnarring vineyard is approximately 16 ha with 7 ha planted to vines, which achieved organic certification in 2019. The vineyard is planted to Pinot Noir, Pinos Gris, Ribolla Gialla, Muscat, Malvasia, Riesling, Friulano, and Chardonnay. Quealy Winemakers consider themselves experimental, innovative and caring winemakers, making them a perfect collaborator to develop a EcoVineyards demonstration site.

Now we have some confidence on what species might work on a larger scale (which we are planning for Autumn 2025) and understand sowing rates for these native seeds a bit more. It's been a great experience to trial different sowing methods, different seeds, and it was rewarding seeing some successes!

Kathleen Quealy

What were you hoping to achieve and why?

Quealy Winemakers had a block ready for new vines to be planted, so this made for a great demonstration area to trial under vine groundcovers. They want to find ways to reduce the requirement for undervine herbicides and slashing by establishing native groundcovers.

They were hopeful that the establishment would be assisted by the cultivation work done to install the new trellis and vine stock, leaving the block bare and prepped for sowing. Timing was challenging as the hydroseeding not able to be done early on which meant that a cover crop and exotic grasses had already established and needed to be managed when the hydroseed trial commenced. Adequate preparation is a key learning of the project.

The new block was also designed with an adjacent insectary as well as native species planted at the end of each row. This is also a standard practice at Quealy's vineyards across every block.

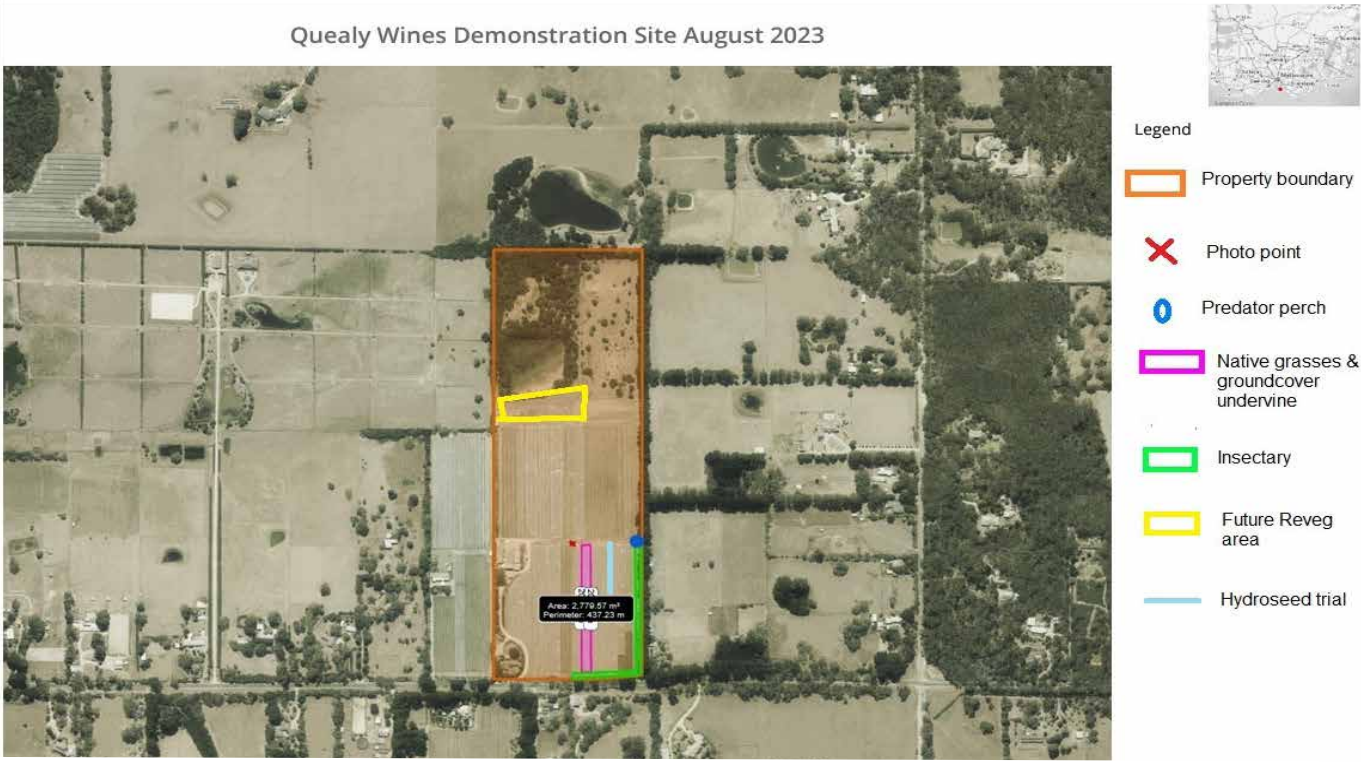

Figure 1: Yarra Yering, 4 Briarty Rd Gruyere 3770, Victoria, August 2023 [Image: NatureKit].

What did you do and when?

The vineyard was prepped and then planted with vines in 2023 and a summer cover crop was planted for groundcover. In autumn 2024 the hydroseed rows were established and additional rows were hand sown with native grasses and forbs. The undervine panels were monitored in spring and summer 2024 for germination and establishment of species.

A local ecologist showed us around her local native garden and how to harvest the *Linum marginale,* native flax seed to propagate from home grown seed on the vineyard. Seed was then collected from fluffy heads in the *Linum marginale* panels.

The undervine panels were slashed in summer 2024 to reduce weed competition for water during a dry season. Slashing was determined to be a good option given the diverse mix sown under many panels and the organic certification of the vineyard. With C3 grasses (winter/spring active) dormant (they had already set seed), it was also considered a good way to drop seed back into the undervine area so it didn't blow away.

The insectary area was planted in winter 2024 and the plants appear to be establishing well.

Insights

Although there was good ground preparation for grapevines, with the establishment of a new vineyard block, it has still been challenging to manage exotic species. The minimal under vine management over the 6 months after sowing meant that quite a few different species emerged that made distinguishing exotic from native challenging as these species weren't apparent in non-trial rows (i.e., continuously managed under vine).

Now that we can see the species that are establishing despite the competition under vine, we will focus on establishing these with additional attention under a smaller area and expanding over subsequent years.

Further trials are needed to master how to manage the under-vine panels as the native seeds germinate and establish, no matter the ground preparation beforehand, the seed bank in the soil will lead to exotic species still germinating. Panels with a mix of grasses and forbs can't be selectively sprayed with a broadleaf or grass specific spray as both have been sown together. However, establishing the entire area with native grasses and forbs before planting with grapevines or sponge wiping with a systemic herbicide on conventionally managed blocks may be an option to knock weedy species back.

A diverse under vine is desirable as an outcome so more work will need to be done demonstrating the process to manage emerging exotic species in a resource efficient manner.

A local ecologist suggested growers collect samples of established ground covers at flowering, active and inactive growth phases to support learning identification in the field. This can be as simple as samples in an exercise book and covered with contact or tape to preserve the sample for ~2 years.

Figure 2: Mary Retallack hand sowing native seed in the undervine area [Photo: Melbourne Water].

Figure 3: Hydroseeding undervine area [Photo: Melbourne Water].

Figure 4: Hydroseeded row autumn 2024, *Linum marginale,* native flax [Photo: Melbourne Water].

Figure 5: Hydroseed row December 2024, *Linum marginale*, native flax [Photo: Grassland Films].

Pitfalls to avoid

Start with a small area in Year 1, even the single row of hydroseed and two rows of hand sown grasses and forbs was a lot to manage differently.

Begin with a single row and ensure there are waterproof labels and an ID booklet as once there is a mix of things growing, it's like finding a needle in a haystack during patchy establishment.

Where to from here?

Based on the spring/summer monitoring, species that were showing signs of good establishment such as

- *Rytidosperma geniculatum*, kneed wallaby grass
- *Microlaena stipoides,* weeping grass; and
- *Linum marginale*, native flax (which has performed particularly well)

These species have been re-ordered and will be sown in the same panels plus some new panels to see if they grow compatibly under vine for better groundcover between a native grass and forb.

Seed collected at the vineyard will be sown under a panel as well to check germination success.

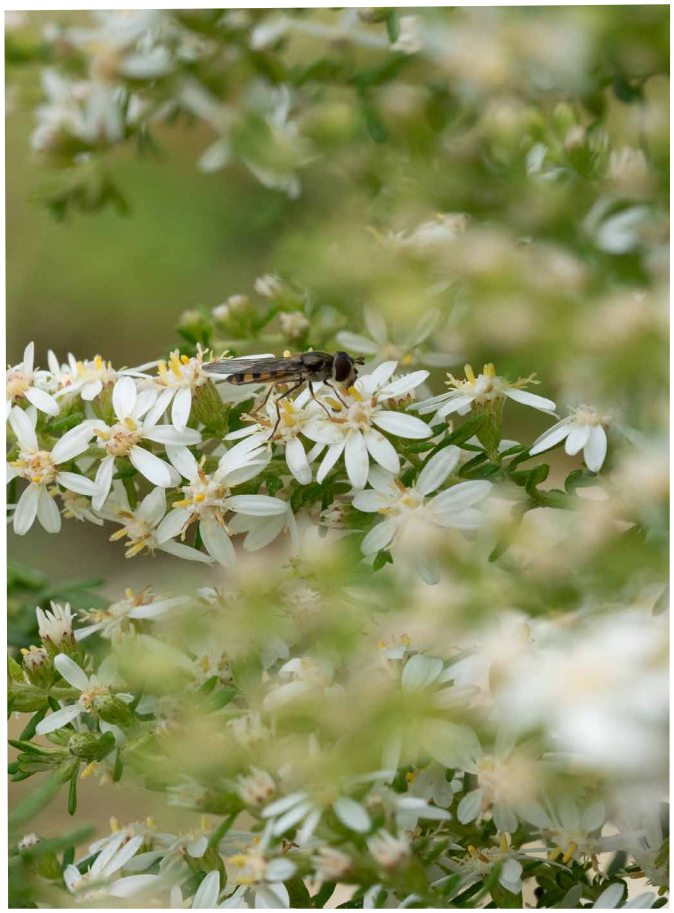

Figure 6: Hover fly on Oleria sp. flower, row end insectary plant [Photo: Grassland Films].

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

Figure 8: Hover fly on *Leptospermum continentale*, prickly tea-tree, row end insectary plant [Photo: Grassland Films].

Figure 9: Inspecting a Oleria bush, adjacent to the strainer post insectary plant [Photo: Grassland Films].

Are there any outstanding knowledge gaps you would like filled?

Q: How can we encourage existing seed banks to self propagate when in amongst introduced species (i.e., timed wiper snipping, mulching)?

A: Let native seed set seed and remove seed heads of weedy species where possible. Control weedy species early in the growing season (slash or sponge wiper), before native species start to emerge in early spring. Once native species establish they will help to outcompete weedy species

Seeing some biodiversity or other outcomes from the work that has been done – tricky but want to be able to demonstrate to others in the business that it's worth it. Ability for chosen grasses to be mechanically managed undervine (worried that the low growig flax might wrap around the wiper snipper when there is volumes of it).

What has been the most valuable aspect of the program for you?

Having a framework and forum for trying something that felt out of reach/unknown to start with. Getting others in the business thinking about it/involved.

Plant lists

Undervine ground covers, hydroseeded rows (* evidence of germination)

- *Atriplex semibaccata,* creeping saltbush
- *Brachyscome iberidifolia,* Swan River daisy *
- *Chloris truncata,* windmill grass *
- *Calocephalus citreus*, lemon beauty heads
- *Chrysocephalum apiculatum,* common everlasting
- *Dichondra repens,* tom thumb *
- *Disphyma crassifolium*, round leaved pigface
- *Leptorhynchos squamatus,* scaly buttons
- *Linum marginale,* native flax **
- *Microlaena stipoides,* weeping grass *
- *Ptilotus spathulatus,* pussy tails
- *Pycnosorus globosus,* billy buttons or drumsticks
- *Rytidosperma geniculatum,* kneed wallaby grass *
- *Vittadinia cuneata,* fuzzy New Holland daisy *
- *Vittadinia gracilis,* woollly New Holland daisy *
- Mixed seeding * *(mainly Linum marginale)*

Insectary plant list (adjacent to vineyard):

- *Acacia melanoxylon,* blackwood
- *Allocasuarina littoralis,* black sheoak
- *Busaria spinosa,* sweet bursaria
- *Eucalyptus ovata and obliqua,* messmate stringybark and swamp gum
- *Indegofera australis,* austral indigo
- *Leptospermum continentale,* prickly tea-tree
- *Melaleuca squarrosa*, scented paperbark

Undervine ground covers, hand sown, no hydroseeding:

- *Dichondra repens,* tom thumb
- *Chrysocephalum apiculatum,* yellow buttons
- *Microlaena stipoides,* weeping grass *
- *Pycnosorus globosus,* billy buttons or drumsticks
- *Rytidosperma geniculatum,* kneed wallaby grass *
- *Vittadinia cuneata,* fuzzy New Holland daisy
- *Viola hederacea,* native violet (tubestock)
- *Wahlenbergia sp.,* Australian bluebell

Costs

Item	Number of plants	EcoVineyards costs (ex GST)	Co-contribution (grant and landholder contribution)	In-kind contribution (time)
Native seed		$2,978		
Insectary tube stock	288	$733		
Arborgreen guards and stakes		$289		
In-kind prep and sowing native seed				12
In-kind insectary planting				20
In-kind harvesting native seed				1
Total	**288**	**$4,000**	**$3,000**	**33 hrs**

Disclaimer

For more information about the National EcoVineyards Program please visit www.ecovineyards.com.au @EcoVineyards

EcoVineyards
GROWING RESILIENCE NATURALLY

PROGRAM PARTNERS

Wine Australia

retallack viticulture
wine growing for the future

REGIONAL PARTNERS

Adelaide Hills Wine Region

Wine Grape Council SA

riverland wine

Clare Valley

A Drop Above
Orange Wine Region

Langhorne Creek Wine Region

wine. Yarra Valley

MPW Mornington Peninsula Wine

Margaret River Wine

Hunter Valley Wine and Tourism Association

The National EcoVineyards Program is funded by Wine Australia with levies from Australia's grape growers and winemakers and matching funds from the Australian Government.

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.


ECO VINEYARDS
GROWING RESILIENCE NATURALLY