ECO VINEYARDS
GROWING RESILIENCE NATURALLY

CASE STUDY

A NEW APPROACH TO VINEYARD FLOOR MANAGEMENT AND EMBRACING REMNANT WINDMILL GRASS AT SCARBOROUGH WINE CO, HUNTER VALLEY, NSW

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Wine Australia

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GROWING WITH AN ECOLOGICAL FOCUS

Background

The vineyard at 972 Hermitage Road, Pokolbin NSW consists of 65 ha with 35 ha planted to Chardonnay, Semillon, Verdelho, Pinot Gris, Pinot Noir, Gruner Veltliner, Tempranillo, Viognier and Shiraz. The vineyard is multi-aged with older plantings on own roots and newer plantings (2017 to 2020) on rootstock and new clones.

The vineyard was acquired by the family in approx. 2012. It has migrated from traditional Hunter Valley management of a clean monoculture with significant cultivation to one where a more holistic approach to the vineyard ecosystem is maintained. A mix of permanent multispecies midrows and annual cover crops is being strategically established to improve soil health, structure and to support a biodiverse mix of insect and arthropod species.

> ***"The EcoVineyards program has broadened our perspective beyond just the vines and vineyard floor, deepening our understanding of the entire ecosystem.***
>
> ***We've gained valuable insights into areas like soil biology and microbat activity, and the program has given us the confidence to explore alternative management strategies such as the large-scale release of predatory insects to help control mealybug populations."***
>
> **Liz Riley, Vitibit and Scarborough Wine Co.**

Project description

We have access to good commercial compost in addition to making compost from our own waste streams - upcycling marc and carboard from the business. We wanted to see what the difference were between the two sources and understand the impacts of compost tea as a comparison, noting that this is much cheaper to apply and would enable us to apply it across the entire vineyard.

We also tended our native insectary which continues to establish adjacent to the vineyard.

Figure 1: EcoGrower Liz Riley tending the native insectary planting [Photo: Mary Retallack].

What did you do?

Four zones were marked out, the commercial compost and waste stream compost were applied to the undervine areas with a control area was left, and an area for compost tea application.

- **ANL compost** – a commercial compost blend ex the domestic waste stream i.e. green bins, a mix of fine and coarse components, with additional trace elements and humus blended in.
- **SWC compost** – grape marc and earth (winery waste stream), cardboard (cellar door waste stream), straw and manure from local sources.

Prior to application soil penetrometer readings were taken when it was wet, earthworm counts carried out and a composite soil test done in the block.

The plan was to do similar assessment 12 and 24 months in plus complete soil respiration assessments with Solvita kits to see if there were different CO_2 levels reflecting the biological activity. The weather conspired against us to complete these activities with wet or very dry conditions every time we schedule time to do it.

Figure 2: General compost shot (left), ANL compost (middle), SWC compost (right) [Photos: Liz Riley].

If you changed your project, what was the reason for the change?

The compost tea application was not carried out – the reality was that making our own compost ring and tea didn't work for us. We will look at the option on purchasing product to use in the future.

Our sub-projects were to plant *Bursaria spinosa*, sweet bursaria or blackthorn in the tieback areas of a new block and to trial some native grass plantings undervine.

The bursaria plantings have not occurred due to other business activities and the trialling of formal undervine native grasses plantings have been deferred until Autumn/Winter 2025 due to the weather conditions. We did however make some changes to our floor management and some interesting observations about windmill grass.

The last two season have been a very similar with a dry period post vintage seeing us holding off on any seeding activities (midrow or undervine) and then when it has rained it has been either very late or very wet – to point where there hasn't been a window to seed with confidence.

While this was very frustrating it has turned out to be a blessing in disguise. The midrows were seeded to permanent sward mixes over the last 3 to 5 years there is now a healthy mix of ryes, fescues, clovers and medics present in this area which have been allowed to grow until around mid-October each year and set seed before being slashed down with a higher than normal cut.

Unexpected insights

The midrows were left 'as is' over winter and into the new season and we noticed that there was an emerging population of *Chloris truncata*, windmill grass, both in the midrow and sporadically in the undervine area. We don't know if it had always been there but was constantly being slashed back so we didn't notice it, or if it has thrived under a lower intervention regime.

Either way we are happy to know the windmill grass is there and hope that it continues to thrive. It should be noted that we have changed our approach to midrow management over the last two years for several reasons including – desire to reduce emissions, to provide more food and habitat for beneficials and to allow desired species to set seed.

We are generally slashing less through longer intervals, different timing, and for part of the season only slashing three out of every four rows, keeping one longer to ensure that there is something that is flowering or about to flower. This cycle shuffles along with each subsequent pass. We also keep the midrows covered at all times.

The result is we have a thick mat of organic matter in the midrow 2-5cm deep which is keeping the midrow cooler, slowing water and allowing better infiltration and incorporation of organic matter to depth via the cracks that appear when it is very dry.

Figure 3: Wilder multispecies midrows allowed to grow longer and to set seed and undervine compost [Photos: Liz Riley].

Figure 4: Midrow organic matter, note snail medic seed pod (left), organic matter poised to be washed into cracks (right) [Photos: Liz Riley].

Where to from here?

Going forward we will continue to evolve our vineyard floor management with a desire to maintain green cover in the midrow and to build organic matter levels. We will explore undervine species with some trial plantings and continue to use compost as well, with trialling of commercial compost teas also on the agenda.

The most valuable part of this activity has been getting comfortable with doing things a bit differently, and being able to see a messy vineyard as a healthy vineyard.

We have really appreciated the resources that the program has given us access to both people via the workshops in our region and the online resources. Seeing other peoples projects gives you both ideas and confidence to have a go.

Plant lists

Insectary species			
#	**Scientific name**	**Common name**	**# plants**
1	*Acacia elongata*	swamp wattle	10 hiko cells
2	*Acacia falcata*	sickle wattle	10 hiko cells
3	*Bursaria spinosa*	sweet bursaria	40 tubes
4	*Dodonaea viscosa ssp. angustifo-lia*	native hop bush	30 hiko cells
5	*Hardenbergia violacea*	native sarsaparilla	10 tubes
6	*Leptospermum juniperinum*	prickly tea-tree	50 hiko cells
7	*Leptospermum polygalifolium*	yellow tea-tree	20 tubes
8	*Pultenaea spinosa*	spikey bush pea	20 tubes
		Total	**190**

Ground covers			
#	**Scientific name**	**Common name**	**# plants**
1	*Chloris truncata*	windmill Grass	40 hiko cells
2	*Dianella caerulea*	blue flax lily	40 tubes
3	*Dichondra repens*	kidney weed	40 tubes
4	*Echinopogon ovatus*	common hedgehog grass	20 tubes
5	*Glycine tabacina*	glycine pea	10 tubes
6	*Lotus australis*	Austral Trefoil	10 tubes
7	*Lomandra longifolia*	spiny-head mat-rush	70 tubes
8	*Poa labillardieri*	common tussock grass	60 hiko + 40 tubes
		Total	**330**

Expenses

Date	Item	Number of plants	EcoVineyards costs (ex GST)	Co-contribution (landholder contribution)	In-kind (time)
28/04/2023	Install microbat box				2
08/09/2023	Compost supply		1,871	1,874	2
24/10/2023	Compost supply		814	814	2
25/10/2023	Compost spread		-	1,134	9
02/11/2023	Compost spread		346	1,922	9
28/04/2023	Soil test		170	-	1
12/03/2025	Native plant supply	520	675	675	5
12/09/2024	Microbat call analysis		124		
	EcoGrower contribution			$3,000	
	Total	**520**	**$4,000**	**$9,419**	**30 hrs**

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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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