ECO VINEYARDS
GROWING RESILIENCE NATURALLY

CASE STUDY

ESTABLISHING NATIVE INSECTARY PLANTS UNDER-VINE TO OUT COMPETE COUCH GRASS AND BOOSTING SOIL BIOLOGY AT MARGAN FAMILY WINES, HUNTER VALLEY, NSW

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GROWING WITH AN ECOLOGICAL FOCUS

Background

Margan Family Wines is located on Milbrodale Rd, Broke, NSW and consists of 40 acres planted to Semillon, Chardonnay, Albariño, Barbera, Merlot and Cabernet Franc. There is a 1 ha vegetable garden which supplies produce to the winery restaurant. The rest of the property consists of dryland farming supporting a small herd of black Suffolk sheep and occasional thoroughbred spelling.

"The EcoVineyards program has encouraged me to think outside the box and explore alternative approaches to tackling persistent challenges in viticulture. It has broadened my perspective on problem-solving in the vineyard, prompting me to trial new methods and adopt more regenerative practices.

The program has not only provided valuable insights into sustainable farming techniques but also given me the confidence to experiment and adapt in ways that support long-term soil health, biodiversity, and vineyard resilience."

Nick Looby, Vineyard Manager, Margan Family Wines

Project description

We focused on the following areas of change:

- The first was the introduction of under-vine plantings aimed at outcompeting problematic couch grass
- The second focus of the trial was to boost the biological activity within our soils
- We also extended ground cover insectary plantings to the side of a dam wall and adjacent to strainers.

Figure 1: EcoGrowers Lucy Hordern and Nick Looby, Margan Family Wines 2023 [Photo: Mary Retallack].

What did you do?

As we transition from a conventional to a more regenerative farming approach, we have been exploring methods to manage couch grass while maintaining ground cover and reducing reliance on tillage and chemical control in our under-vine areas.

We set up a trial over 15 rows which were initially treated with herbicide during winter, followed by a pre-planting application of herbicide in spring. The seeded rows will be maintained using hand weeding and a whipper snipper, while the control rows will be managed using the FMR undervine knife and/or mower, with hand weeding as required. The block also received two applications of compost tea on alternate rows, with the remaining rows treated using Island Biologicals' bio-stimulant product.

Trial rows			
Row	Undervine		Midrow
	Scientific name	common name	
1	*Lobularia maritima*	sweet alyssum	green manure blend
2	*Lobularia maritima*	sweet alyssum	
3	*Dichondra repens*	tom thumb	
4	*Dichondra repens*	tom thumb	
5	*Trifolium pratense*	red clover	
6	*Trifolium pratense*	red clover	
7	control		pollinator blend
8	control		
9	control		green manure blend
10	*Anthosachne scabra*	common wheat grass	
11	*Anthosachne scabra*	common wheat grass	
12	*Microlaena stipoides*	weeping grass (var. Burra)	
13	*Microlaena stipoides*	weeping grass (var. Burra)	
14	*Rytidosperma geniculatum*	Oxley wallaby grass	
15	*Rytidosperma geniculatum*	Oxley wallaby grass	

Tom thumb

Dichondra repens, tom thumb established well, providing strong ground cover and, in most cases, effectively outcompeting the couch grass (see photo below).

Given the performance of tom thumb and minimal impact on vine health, we are now considering expanding its use more broadly across the vineyard.

Figure 2: *Dichondra repens,* tom thumb planted in the undervine area March 2025 [Photo: Mary Retallack].

Sweet alyssum

Lobularia maritima, sweet alyssum performed reasonably well in establishing ground cover and has the added benefit of supporting insectary life in the under-vine areas.

While it hasn't proven to be a strong competitor against couch grass on its own, we believe sweet alyssum may be more effective when planted in combination with *Dichondra repens,* tom thumb potentially offering both biodiversity benefits and improved weed suppression.

Figure 3: *Lobularia maritima,* sweet alyssum planted in the undervine area March 2025 [Photo: Mary Retallack].

Unfortunately, the native grass plantings have not performed as expected, with the areas quickly being overtaken by couch grass (most likely due to poor soil preparation). While the red clover established well and showed strong growth in the first two years, it appears unlikely to be suitable for our goals, as its growth is predominantly limited to the autumn through spring period and does not provide the year-round coverage we're aiming for.

Soil biology

Initial soil testing revealed that our soils were predominantly bacterial-dominated. Our goal was to shift this balance toward a more fungal-dominated profile to support regenerative practices. In 2023, we had the trial site tested through AgPath, which confirmed that fungal activity in the soil was very low to non-existent. We conducted a follow-up test in 2025 through Metagen, and the results indicate that we are making gradual progress.

To support this transition, we applied compost tea in both spring and autumn, along with biostimulant and fish emulsion treatments delivered through the dripper lines during spring.

The subsequent data (Autumn 2025) showed an increase in plant-beneficial fungi and a general improvement in overall soil biological activity. While the results aren't yet where we'd like them to be, the improvement suggests that our current approach is having a positive effect.

What are you more aware of now?

There are a few things I would approach differently if running the trial again.

- Firstly, I would consider using a selective herbicide to reduce weed competition to help establish the desired cover crop species more effectively and give them a better chance of success early on.
- When we first planted, the trial coincided with a dry period, which caused a slow start and limited early establishment. In hindsight, a second round of overseeding in the following year would have helped to re-establish and reinforce the original plantings.

Additional insectary plantings

We also planted a range of low growing ground covers along the banks of the dam and blue flax lily adjacent to the strainer posts at the ends of rows.

#	Scientific name	Common name	# plants
1	*Dianella caerulea*	blue flax lily	8
2	*Erigeron karvinskianus*	seaside Daisy	6
3	*Scaevola aemula*	fan flower 'blue wonder'	5
4	*Westringia fruticosa*	coastal rosemary 'devon skies'	4
5	*Delosperma cooperi*	frailing ice plant	4
6	*Chrysocephalum apiculatum*	yellow buttons 'desert flame'	5
		Total	**32**

Figure 4: Preparation of te dam wall for planting September 2023 [Photo: Brent Hutton].

Figure 5: *Dianella caerulea*, blue flax lily and *Erigeron karvinskianus*, seaside daisy on the dam wall April 2024 [Photo: Nick Looby].

Figure 6: A selection of six different ground covers establising on the dam wall April 2024 [Photo: Nick Looby].

Figure 7: Transverse ldybird beetle near *Lobularia maritima,* sweet alyssum [Photo: Mary Retallack].

Figure 8: *Lobularia maritima,* sweet alyssum in flower [Photo: Mary Retallack].

Figure 9: *Dichondra repens,* tom thumb [Photo: Mary Retallack].

Figure 10: *Dianella caerulea*, blue flax lily planted at the end of rows adjacent to strainer posts [Photo: Mary Retallack].

Expenses

Date	Item	Number of plants	EcoVineyards costs (ex GST)	Co-contribution (landholder contribution)	In-kind (time)
13/10/2023	Humus compost		$785.00		5 hrs
14/08/2023	Native grasses		$531		20 hrs
18/09/2023	Worm biocast		$500		2 hrs
12/09/2024	Impact Ecology – microbat call analysis		$124		
5/10/2023	Hunter TLC – Supply 60m^3 of forest mulch		$1,500		2 hrs
28/09/2023	Heritage Garden Nursery		$459		8 hrs
	EcoGrower contribution			$3,000	
	Total	**124**	**$3,775**	**$3,000**	**37 hrs**

Figure 11: Dr Mary Retallack, EcoVineyards founder and National Program Manager and Nick Looby, Margan Family Wines [Photo: Brent Hutton].

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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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