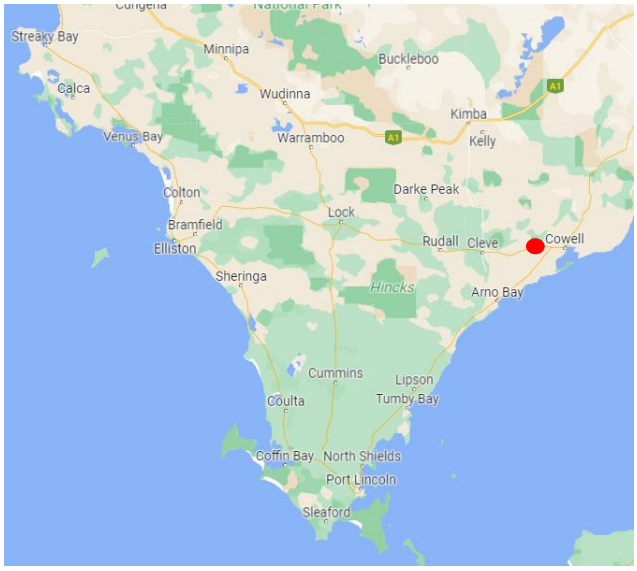
Regenerative Agriculture Program Mixed Species Case Study: Williams, Elbow Hill

Key messages

1. Maximise the opportunity to use the limiting factor – rainfall – through establishment of semi-perennial pasture species.
2. Change the thinking from a cropping perspective to a grazing one.
3. Make decisions based on what's happening, not on what you are hoping will happen.
4. More species provides greater biomass, improves soil cover and grazing potential.
5. Work smarter not harder.

Background

Greg and Shaana Williams and their three children (Scarlett, Maxwell and Annabelle) farm their property at Elbow Hill on eastern Eyre Peninsula. The farm has been part of the Williams family for over 100 years, with Greg's great grandfather and family settling and clearing the country.



The farm totals 2,600ha of mostly good sandy loam with areas of native vegetation. Average rainfall is 295mm per year, making it their most limiting factor to traditional production.

Traditionally, approximately 60% of the farm was cropped each year, but the Williams' are now moving toward only 25% cropping in the future.

The Williams' are currently running 1,500 self-replacing Dohne ewes, with 2% rams. The Dohne sheep have proved to be the best mothers, with twinning percentages high. They are also a good dual-purpose animal producing good wool and the equivalent to cross bred lambs.

How it began

Greg and Shaana came to farm the property in 2016. They recognised the difficulties in growing profitable cereal crops where rainfall was unreliable, so they decided to look in to changing farming practices.

The plan has been to crop less, increase semi-permanent pastures and reduce crop rotation with a greater focus on livestock instead. Livestock has become the priority and farming comes from a grazing perspective rather than a cropping perspective.

They also believe in working smarter not harder and plan to have more quality time for family and other pursuits as cropping is reduced; while also protecting their multi-generational farm with a change in business perspective.

The Williams' are committed to less chemical use and believe good grazing and pasture management will provide improved control.

The Williams' wanted to investigate better grazing management practices while developing more perennial / semi-permanent pasture. This started with re-fencing the first section of the farm into 30 hectare lots, with watering points in the middle. These paddocks can now be rotationally grazed.

Their plan is to build the flock to 2-3,000 ewes over time as part of their developing farming system.

What did they do?

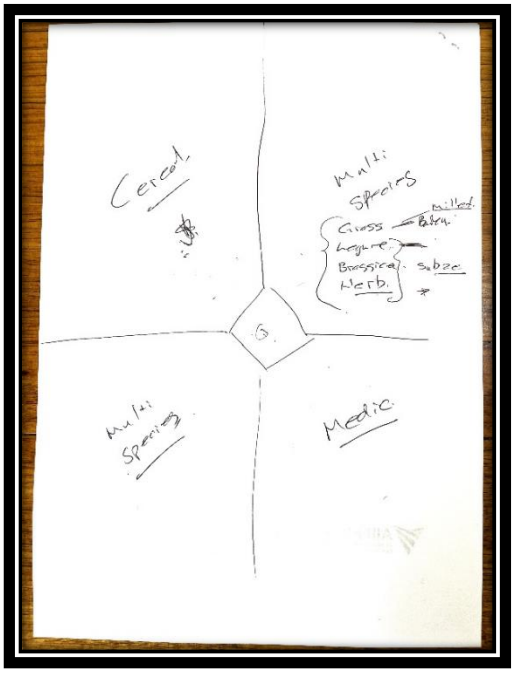
Greg participated in workshops run by the EP Landscape Board's Regenerative Agriculture Program (RAP) and take-away knowledge from these as well as working closely with his agronomist Geoff Rissmann from Cleve Rural Traders, helped him to establish improved multi-species pastures and demonstrate the financial and environmental value of these pastures. The William's successful change to multi-species pastures has seen their work showcased by the RAP as a great example of what can be achieved.

These pastures are able to make better use of the less reliable rainfall than annual crops.

As part of the rotation and building the pasture component of the paddocks, they planted two paddocks with a multi-species mix, with the intent to rotate this in future years.

The multi-species mix always includes at least 4 different plant families:

- Grass: millet/barley/oats
- Legume: peas/vetch/medic
- Brassica: Sub Zero/tillage or smart radish
- Herbs: plantain/chicory



Greg's plans for the new paddock setup with a watering point in the centre and rotational grazing.

What worked?

The results build on previous work through an EP Landscape Board project in 2021, demonstrating the value of a mixed species planting. The multi-species planting provides great flexibility and the legume will benefit future planting through nitrogen fixing.

The mixed species plantings in 2022 were based on 2021. Initially the plantain did not germinate (sown in April), but emerged in October. This provided long season feed and meant that the feed mix was available through summer.

Mixed species pasture & the Williams' grazing paddock during a Sticky Beak Day.

Having summer active plants reduced the emergence of weeds as well. This in turn reduced the reliance on chemical use to control summer weeds. As the soil health continues to improve more volunteer pasture species will establish and the need to replant will reduce. The plan is to have species that thrive for at least two years.

What didn't work?

Nothing really failed with any of the plantings. However, sowing a multi-species straight after harvest was not as successful due to competition from volunteer cereals – although even with the delayed emergence, it was still beneficial. The Williams' have found that it is harder to establish plants in summer months, establishing in the cooler months means they will persist better through summer.

In this environment, the rainfall/climate of each particular year has a big impact on success or failure. In 2022, with more rain than usual, the plantain appeared to do well. The chicory has not been a big performer but is still reasonable in the mix.

What would you do differently if you were to do it over again?

In future, the species mix may be modified, depending on what volunteer plants are already there and the early season conditions. In addition, barley or another cereal may be planted in the mix and reapt if the season is suitable. Alternatively, if cereal is planted and the season does not progress, it can be grazed.

What have you seen that you would be excited to try?

After seeing the plantain results, planting this with a wheat crop may provide multiple benefits in the future. If the plantain emerges in late spring, it will complement the maturation of the wheat crop. The plantain will then also suppress potential summer weed emergence, reducing the need for chemicals. The end result could be a productive crop, reduced reliance on chemicals and an improved pasture for livestock.

Plantain is also an herb and there are potential medicinal benefits for livestock. This is something Greg wants to investigate further as another step that may reduce the reliance on livestock treatments into the future.

What do you think about the roles of mixed-species/ regenerative agriculture approach can have in the environments we have on EP?

The Williams family believe there is a greater opportunity to farm sustainably and profitably through the inclusion of multi-species and perennial pastures in combination with rotational cell grazing in areas of low and unreliable rainfall like Elbow Hill.

Perennial pasture species, particularly native species, will respond to rainfall any time of year, providing an opportunity to maximise on that limiting resource. Combining this with a restructure of paddock sizing and grazing management will increase production while maintaining cover and greater plant growth.

This new farming system also reduces the reliance on chemicals, increases production and reduces workloads. A win-win all round.

Acknowledgements

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More information

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