PASTURE OPTIMISATION FOR DRY TIMES

CASE STUDY #2 KANE SCHUTZ

Kane Schutz operates a 5000 hectare mixed farming enterprise near Waikerie, South Australia, integrating broadacre cropping with a Merino sheep flock.

In 2022, Kane trialled a blend of medic cultivars and serradella to improve soil health, ground cover and feed availability, which yielded promising results in nitrogen fixation and pasture regeneration.

This case study examines Kane's innovative strategies to overcome environmental challenges and enhance farm resilience and productivity.

Name: Kane Schutz

Property: Waikerie, South Australia

Average annual rainfall: 225 mm

Existing pastures: Poor performing medic pasture with a reliance on sown pastures

Soil types: Sandy soils, stony flat terrain. 5.5-7.9 pH ($CaCl_2$) across the landscape

Enterprise: Broadacre cropping & self-replacing Merino flock

Trial area: 20 hectares

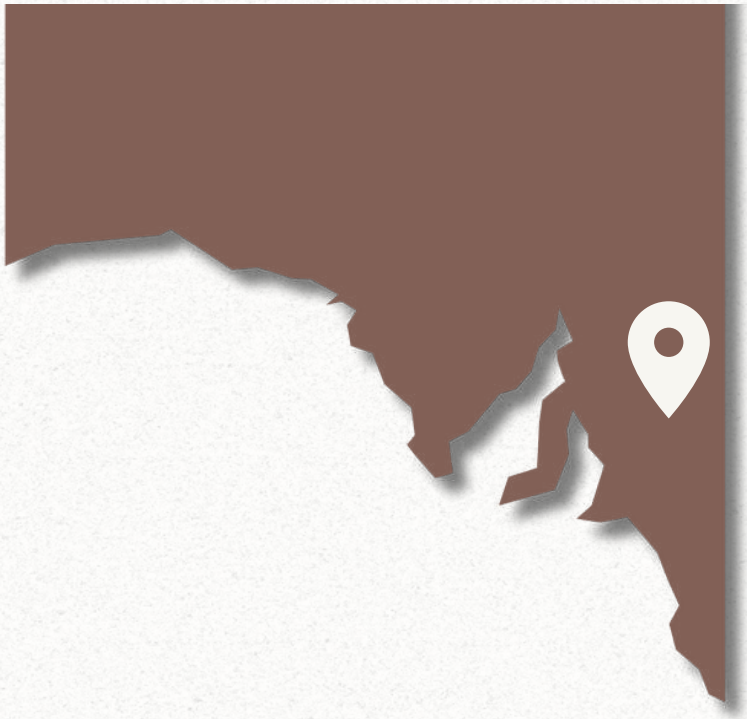

Figure 1. Kane Schutz, mixed farmer from Waikerie in South Australia.

CURRENT FARMING PRACTICES

Kane's mixed farming enterprise encompasses both sandy and stony flat terrain. The property supports a self-replacing Merino sheep flock and a broadacre cropping program. Crop types grown are wheat, barley, lupins and vetch, all of which are integrated into the farming system for grain and livestock production. Kane typically allocates 85-90% of his land to cropping, with the remaining 10-15% to livestock grazing. The sandy soils are characterised by neutral to slightly acidic pH levels, with some variability across leased properties.

Recent years of below average rainfall have created several management challenges for Kane, requiring the implementation of new adaptive strategies to maintain production and groundcover. Dry sowing has become common practice to ensure cropping continuity, despite uncertain seasonal breaks.

PASTURE MANAGEMENT & LIVESTOCK SYSTEMS

Kane's livestock system comprises of a self-replacing Merino ewe base, with a supplementary trade lamb enterprise. He runs approximately 800 ewes annually, with feed strategies designed to adapt to seasonal conditions. To diversify his livestock system and maintain ground cover, he has established a feedlot to support the trade lambs. Grazing practices are integrated with crop rotations, with specific paddocks dedicated to forage crops, such as vetch and barley, for sheep grazing.

In addition, Kane's farming business relies on leased farming land that was previously continuously cropped. As a result, the soil seed bank levels of regenerative pasture species are low.

To increase the low soil seed levels, Kane uses a combination of sowing vetch and vetch/canola blends to diversify annual pasture options. In years when the outlook is dry, Kane has the ability to graze sown barley. Ground cover maintenance is prioritised, reflecting a broader trend across the region towards erosion prevention and improved soil health.

During dry years, Kane utilises his scrub block and woody vegetation areas for strategic grazing. Stock feed is supplemented with irrigation-grown hay from a neighboring property. When seasonal conditions permit, Kane will cut hay for stockpiling. Adjustments to livestock numbers are made proactively in response to feed availability, and to prioritise the retention of ground cover. This may include the agistment of sheep to local properties, or purchasing additional feed supplies during challenging years.

INTRODUCTION OF SERRADELLA

Kane hosted a demonstration site for the '*Pasture Optimisation for Drought Solutions*' (PODS) project. He was able to trial a blend of Penfield and Seraph medic cultivars, combined with Fran2o serradella in 2022. This was conducted across a broad scale area to evaluate their potential as regenerative pasture species on sandy soils. These blends were also demonstrated in trials across the upper Eyre Peninsula, to assess the suitability and performance of the serradella and medic species across the landscape. Due to seasonal conditions and seed availability, the demonstration was sown after the optimal sowing window, which raised concerns about its success. Despite initial apprehension, consistent late season rainfall resulted in excellent establishment and biomass production. Sampling conducted in November 2022 indicated a dry matter biomass of 2.6 t/ha at Kane's Waikerie demonstration site (Figure 4). Figure 2 shows the production of biomass at the Waikerie site, compared to the Eyre Peninsula trial sites.

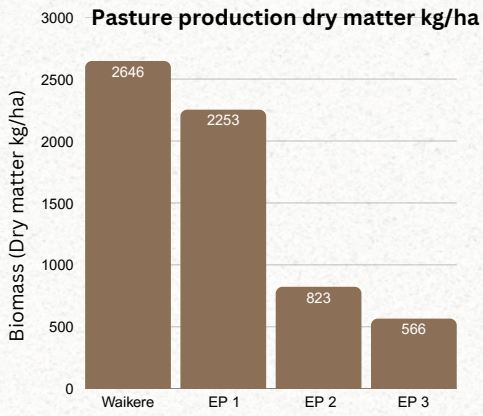

Figure 2. Pasture biomass measured as dry matter in kg/ha at trial site locations across the Eyre Peninsula and the site at Waikerie.

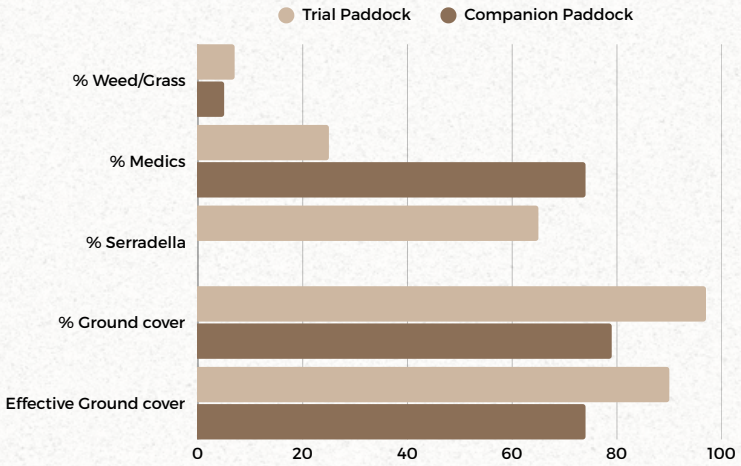

Figure 3. Ground cover composition of trial pasture versus adjacent medic companion paddocks.

Figure 3 shows the composition of the species planted, in relation to percentage of ground cover at the Schutz Waikerie site. It demonstrates that the serradella was successful at establishing itself in the trial paddock and dominated the pasture composition.

The medic and serradella blend was integrated into cropping rotations to rebuild soil nitrogen levels and establish a sustainable pasture seedbank. Observations indicated substantial medic regeneration in the trial paddocks, offering opportunities to harvest seed for broader paddock use.

MANAGEMENT PRACTICES AND OBSERVATIONS

Soil improvement

The trial paddocks showed significant medic growth, contributing to ground cover and nitrogen fixation. These benefits aligned with the project goals of enhancing soil health and productivity.

Challenges

Late sowing and weed management were notable challenges. While weeds were managed successfully, earlier intervention could have improved results. Native budworm damaged serradella in spring, reducing the seed set and potential to regenerate in future years.

Pasture suitability

Kane observed that serradella was less suited to his conditions in comparison to the medic species trialled. Contamination risks in serradella seed sourced from external suppliers also posed concerns. Of the three cultivars, Seraph medic performed best in the wet spring of 2022. Penfield medic, as an early season variety, combined with susceptibility to powdery mildew, senesced early, producing minimal biomass. Seraph is a mid-season cultivar, but its indeterminate growth habit allowed it to continue to grow in response to late spring rain.

Overall, feed quality was good. All species had sufficient protein and energy, and fibre levels were low enough to maintain or slowly improve condition in mature animals. However, on the hills where serradella dominated, the quality was not sufficient to support ewes in later stages of pregnancy or whilst lactating.

None of the pasture species in the trial paddock (at the time of testing in November) had sufficient quality to support rapidly growing lambs, without supplementary feed available. It is likely that this would have been different earlier in the season, when fibre is typically lower and digestibility is high. To reach lamb genetic growth potential, a small amount of energy dense supplement (i.e. grain) would be recommended.

Community engagement

The trial attracted local interest, hosting two field days to share findings. These events highlighted the potential of medic pastures in rebuilding soil health and fostering resilience in mixed farming systems.

WHAT'S NEXT?

Building on the demonstration's success, Kane plans to:

- Harvest medic seed of new cultivars, spread and establish in additional paddocks for broader regeneration benefits.
- Further integrate medic pastures into his rotation, particularly in sandy soils and less productive areas.
- Explore grazing management strategies to optimise pasture utilisation, whilst maintaining ground cover.
- Evaluate additional pasture species for their suitability to the region's soil and climatic conditions.

Whilst acknowledging the limitations of serradella in his specific system, Kane remains committed to refining his approach to pasture and livestock integration. The insights gained from the project have strengthened his confidence in adopting sustainable practices to navigate climatic variability and maintain productivity.

Figure 4. The trial paddock showing the change across the landscape from heavy flats to dune swale systems.

RESOURCES

GRDC - Resilient pastures for low rainfall mixed farms - crop and system benefits provided by legumes

WA DPIRD - French Serradella - use and management

AIR EP - Pastures Optimisation for Drought

AWI 10 minute talks

South Australian Drought Hub

ACKNOWLEDGEMENTS

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