PASTURE OPTIMISATION FOR DRY TIMES

CASE STUDY #4 JAMIE PEARSON

Name: Jamie Pearson
Property: Caralue, South Australia
Average annual rainfall: 380mm
Existing pastures: Long term medic pastures
Soil types: Sandy loam over clay
Enterprise: Broadacre cropping with self-replacing merino flock and crossbred sheep.
Trial area: Replicated small plot

CURRENT FARMING PRACTICES

Jamie Pearson farms approximately 6,000 hectares, of which 50% is cropped annually to wheat and a small proportion to barley and legumes. The remaining 50% supports a substantial livestock enterprise of approximately 2,200 ewes, comprising of 1,000 crossbreds and 1,200 self-replacing Merinos, with an additional 500-600 hoggets. While wheat dominates the cropping program, canola and lupins are sown opportunistically to manage weeds and maintain soil health.

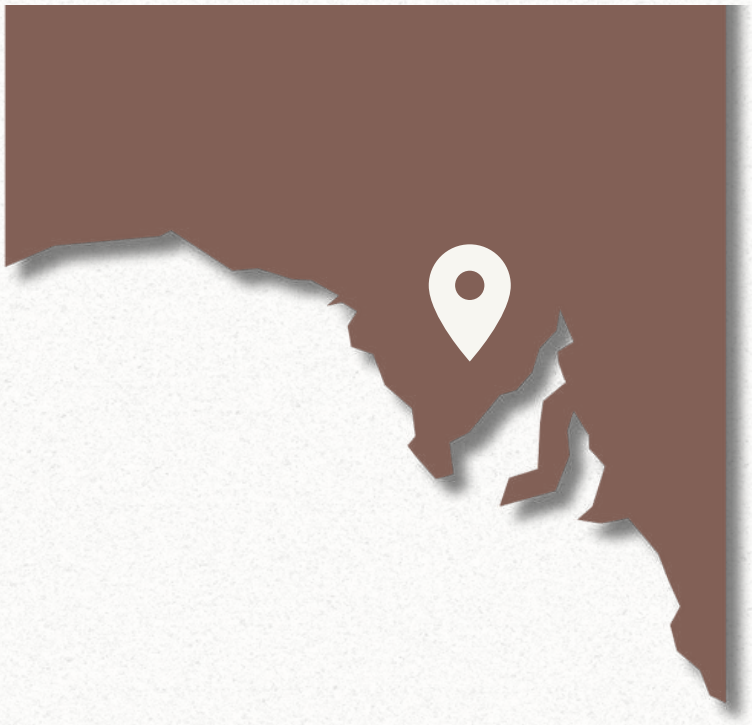

Figure 1. A trial visit was held in September 2024, with Jamie the trial host and local advisors and farmers in attendance.

PASTURE MANAGEMENT & LIVESTOCK SYSTEMS

Jamie's pasture system includes a mix of self-regenerating annuals, predominantly consisting of medic varieties. Unfortunately, some areas have been weakened by previous intensive cropping practices, coupled with sparse opportunity for perennial pasture renovation. In those areas, vetch has been successfully established to improve ground cover, pasture management and availability.

Over time, in conjunction with moving away from continuous cropping farming practices, Jamie has seen natural regeneration and an increase in medic and clover populations in certain paddocks. While some areas remain non-productive or heavily weed-infested, the integration of sheep in areas where pasture is well-established has been ongoing and reasonably successful.

Jamie typically uses hay and grain-based supplements, including sheep pellets from Cummins Mill, to ensure his flock maintains condition without the need for large-scale containment feeding. Hay is always stored for supplementary feeding in dry years, to ensure the pressure on pastures and crop stubbles remains low, and fragile sandy landscapes remain protected.

The livestock program has evolved in recent years, with changes to breeding strategies. A staggered lambing period was implemented to reduce management pressure during critical periods on farm. These adjustments allow Jamie to effectively manage feed resources, schedule lamb marking and shearing, align lambing and weaning times with feed availability, and aim for more profitable 'turn-off' windows.

In the last 3 to 4 years, Jamie has adopted a strategic approach to managing his flock numbers. He times joining of his 5½ year old ewes to crossbred rams, ensuring they are shorn by January/February prior to lambing commencing in March/April. This approach aligns well with market trends, as prices are traditionally strong before July. After lambing, the lambs are weaned and ewes sent straight to market.

INTRODUCTION OF SERRADELLA

Outbreaks of powdery mildew have occurred several times in the last few years, significantly affecting the quantity and quality of feed available. This was one of the reasons Jamie was eager to participate in the project, to assist in identifying suitable pasture species with powdery mildew resistance, as well as testing serradella's adaptation to the sandy dune swale areas of his properties.

As part of the "Pasture Optimisation for Drought Solutions (PODS)" project, Jamie was introduced to serradella via a small plot trial on his sandy soils, with a low medic seed bank. Serradella was suggested as a candidate that could thrive where traditional medic struggles, particularly on sandy rises. The trial consisted of seven improved and alternative annual pasture legume cultivars (Figure 2). The cultivars were sown with seeding rate of 40kg/ha to mimic regenerating pasture and compensate for dry sowing in 2024. Jamie sowed the rest of the paddock with lupins.

Prior to participating in the trial, Jamie was unaware of serradella's attributes. He became interested after understanding its potential benefits, such as better resilience in marginal conditions, the capacity to improve soil cover on sandy soils with low pH, being a useful tool to control grass weeds, and the potential to enhance nitrogen fixation.

Species	Variety
Medic	Seraph Scimitar Penfield Cavalier
Arrowleaf clover	Zulu Cefalu
Bladder clover	Bartolo
Serradella	Fran2o Margurita SerraMax

Figure 2. The species and varieties that were included in the trial site at Jamie Pearson's, Darke Peak, 2024.

"I went from never really hearing about it (serradella), to taking a pretty big interest in what was going on. I was walking through there (the trial plot) once a week or fortnight to keep a bit of an eye and just see what was going on," said Jamie.

MANAGEMENT PRACTICES AND OBSERVATIONS

Plant emergence counts showed Fran2o serradella germinated quite well, despite being sown dry on a later than optimal sowing date.

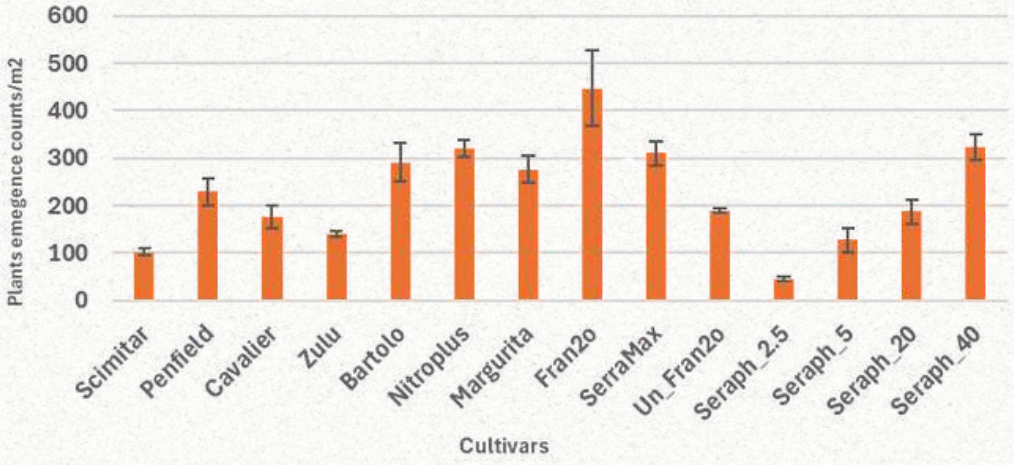

Figure 3. Emergence counts conducted on 11 July 2024 revealed an average plant count of 269 plants/m^2 with a high of 320 plants/m^2 for SerraMax and 175 plants/m^2 for Cavalier. Unhulled Fran2o serradella (Un_Fran2o) established poorly compared to the hulled seed.

CHALLENGES & ADAPTATIONS

Key challenges identified include:

- Weed competition: High weed loads, particularly turnips, smothered newly sown pastures. Jamie would normally address this with early broadleaf herbicides, but trial constraints limited interventions.
- Insect pressure: Pests arrived rapidly and caused damage before timely intervention. In a commercial setting, early monitoring and insecticide use could mitigate these impacts.
- Herbicide residues: Clearfield herbicide residues in low rainfall years have hindered subsequent pasture regeneration. Without sufficient rainfall to break down these residues, pastures struggle to establish.
- Soil constraints: Sandy, acidic soils pose a challenge. Traditional medic pastures do not thrive well on the sandier rises. Serradella's adaptation to these soil types is still being explored.

Despite these challenges, Jamie has adapted his system to ensure ample supplementary feed is available for livestock. In addition, strategic grazing management has helped maintain ground cover, along with adjusting his sheep breeding and turn-off times to align with forage availability. In addition, Jamie has considered shifting rotations and is open to more experimentation with alternative pasture species.

WHAT'S NEXT?

Going forward, Jamie is open to conducting larger-scale demonstrations of serradella on suitable sandy areas, to see how it performs under more managed conditions. He wants to trial best practice weed control, insect management and timely sowing, to give serradella the best chance to shine. A more concerted effort in establishing serradella could provide a stable and productive feed source where medic struggles.

Jamie's interest in long-term pasture solutions is driven by a desire to improve land productivity, reduce reliance on continuous cropping, and ensure stable forage availability in dry years.

With further research, improved management strategies, and potential new serradella varieties better suited to local conditions, he believes there may be a fit for serradella in his farming system. This would enhance the resilience of his operation and potentially improve the profitability of both his cropping and livestock enterprise.

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

Making more from sheep

South Australian Drought Hub

ACKNOWLEDGEMENTS

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