

PASTURE OPTIMISATION FOR DRY TIMES

CASE STUDY #1 SCHUBERT FARMS

Schubert Farms is actively exploring nitrogen-fixing, annual legume pasture options, to optimize both grazing and cropping productivity. The variability in soil types, particularly vulnerable sandy soils, presents management challenges in dry times. The primary focus is to diversify pastures through mixed species that thrive during dry times and across diverse soil compositions, particularly sands, to improve soil cover and production potential.

Name: Hayden Schubert and family

Property: 'Schubert Farms,' Darke Peak

Average annual rainfall: 350 mm

Existing pastures: Dictator and Titan AX barley (forage barley) and vetch blend, Dictator barley and subzero brassica blend, vetch, and brassica blend

Soil types: Mix of deep sand, loam, and some heavier ground

Enterprise: Broadacre cropping, sheep and cattle

Trial area: 10 hectares



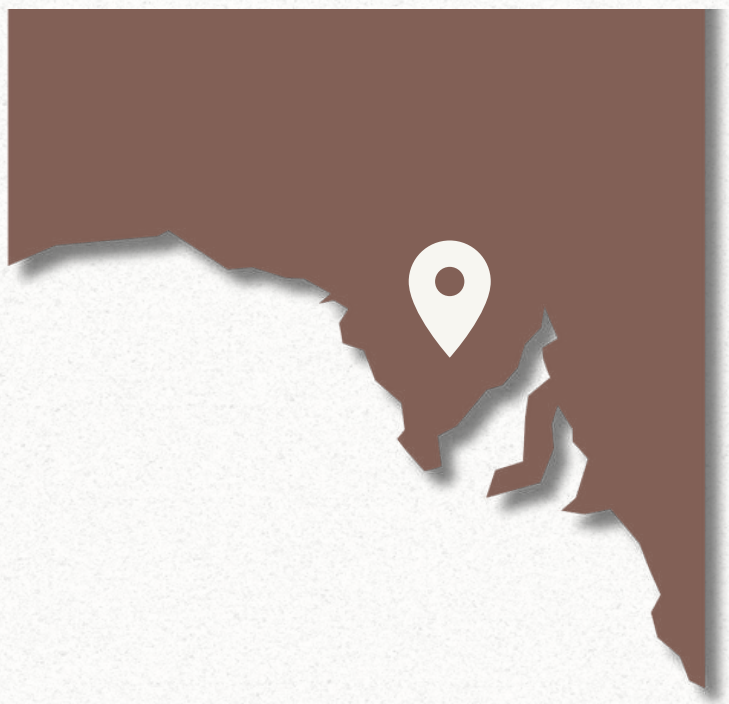
Figure 1. Hayden in the trial paddock May 2022

CURRENT FARMING PRACTICES

Schubert Farms run a mixed farming enterprise which includes both sheep and cattle. On average, a total of 900 breeding ewes (600 merinos, 300 crossbreds) are mated annually, along with a cattle herd of 100 heifers and approximately 100 weaners.

In an average year, they follow a cropping rotation of wheat, barley and lupins. If a good, early seasonal opportunity presents, canola and faba beans may be included as break crops. Hayden generally aims for a balance of approximately 50% cropping and pasture rotation, managing both regenerating and sown pastures. Pastures play an important role in weed management, providing the ability to use a range of chemical groups to help lessen the likelihood of weed resistance occurring.

In 2023, a new tool in pasture management was introduced into the rotation in the form of Titan AX barley. This allowed the for introduction of the herbicide Aggressor (Group 1), to be used in crop for grass management. Schubert Farms have included this new variety into their sown pasture mixes to allow an early grass control, without limiting the feed value of the pasture. When the vetch or brassica is established and protecting the soil from erosion risk, the barley and second wave of germinated grass is sprayed out to allow the vetch to thrive and produce ample biomass without competition.



NEW APPROACH TO LIVESTOCK MANAGEMENT

At Schubert Farms, joining occurs in February for July lambing. Since taking on the livestock management role on his family farm, Hayden was eager to increase lambing percentages and improve survival rates. Historically lambing occurred in April, placing pressure on feed availability, as they were already containment feeding mobs during the seeding period. Moving to July lambing allowed the ewes to lamb on fresh, nutrient rich pastures.

An important tool for Hayden when making these changes has been the introduction of pregnancy scanning, as it allows him to separate the single and twin scanned ewes. Separation of ewes into single or twin-bearing mobs enables Hayden to support their nutritional needs via supplementary feeding and providing access to nutrient licks. Pregnancy scanning also affords the opportunity to sell off or re-mate dry ewes, potentially increasing the overall flock productivity and on-farm profitability.

Since implementing changes in ewe management, they have seen an increase from 80-90% lambing to 110% on average. “I used a range of information sources to help me make the decisions over a two-year period. I found the ‘*Making more from sheep*’ website a useful tool, as well as speaking to other farmers and our stock agent”, says Hayden.

When faced with dry seasonal conditions, Hayden explains they rely heavily on self-sown regenerating pasture. If any feed is sown, it is sown early before the break to the season, to ensure every opportunity to benefit from rainfall. The change to July lambing has become an important practice in reducing the need to containment feed for extended periods of time and rely on self-regenerating pastures. Oats and lupins stored on farm are utilised only as a risk management tool, should rainfall cut off early in the season and pasture growth is affected.



EXPLORING ALTERNATIVE PASTURE OPTIONS

In 2022, Hayden hosted a farmer demonstration with the aim of visually assessing the adaption of pasture species across the paddock landscape. All varieties were sown as a blended mixture and inoculated at the time of sowing. The pasture species and their traits are listed in Figure 3 below. Each variety was sown at 3 kg/ha.

The demonstration was sown alongside the farmer’s best practice pasture.

Type & Cultivar	Traits
Fran2o French serradella	Hard seed; aerial harvest ability; performs well on sandy acidic soils; suited to summer sowing
Seraph strand medic	Powdery mildew resistant; tolerant of SU herbicide residues
Penfield barrel medic	Early barrel medic; tolerant of SU herbicide residues; spineless; resistant to some aphid species

Figure 3. Pasture types and their traits used for the farmer demonstration site.

From this demonstration, we were able to observe that the serradella favoured the sandy rises on Schubert Farms, with the medic performing across all areas of the paddock (Figure 4).

Following on from these initial demonstrations, in 2023 Schubert Farms hosted a pasture variety trial that provided an opportunity to investigate a range of pasture varieties including serradella and medic species. This enabled researchers to assess establishment vs seeding rate across the range of soil types, particularly the sandy soils, that may fall within the neutral to slightly acidic range. This was an important aspect to include in the demonstration, as recommended sowing rates for pastures are aimed at much higher rainfall environments.

Figure 2. Establishment of the three species mixture.

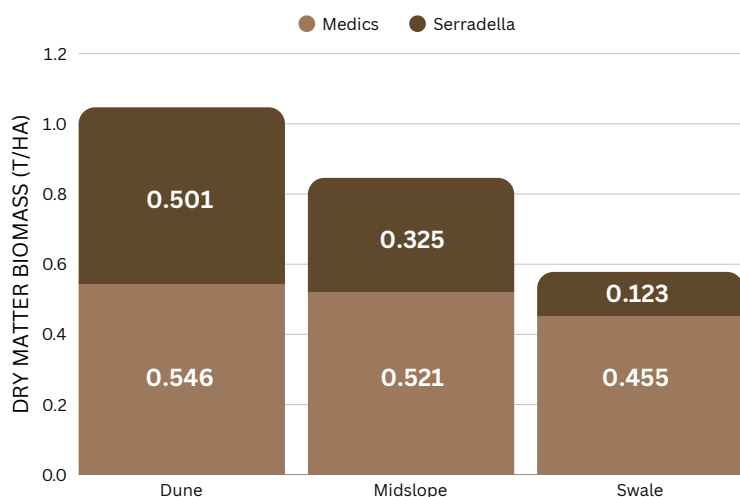


Figure 4. Dry matter biomass (tonnes/ha) measured in 2022 across the landscape. Samples taken after grazing.

BUILDING RESILIENCE FOR THE FUTURE

Following the success of the mixed species pasture demonstration, Hayden intends to continue trialling different pasture options to understand and develop sustainable practices to help manage challenging variable seasonal conditions. Achieving successful and consistent establishment on their sandy soils will not only help with providing useful early cover to combat erosion, it will also assist in filling the early feed gap in regenerative pasture systems, whilst relieving the dependence on containment feeding were possible. Hayden hopes that the incorporation of serradella could potentially replace vetch in areas with pH soil constraints.

Additional areas to be assessed include:

- Time of sowing – the effect of soil temperature on getting the best establishment to ensure maximum early growth and effective weed control.
- Time until grazing - the effect of early establishment on good ground cover and production potential.
- Seed bank potential in the first year – critical as part of an assessment of success for the longer term.
- Nitrogen fixing/production – potential to reduce fertiliser requirements.

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Figure 5. Fran2o serradella on 15 December 2022. This paddock was heavily grazed in September 2022, and at the time of the photo it was being lightly grazed by rams. It was exciting to see fresh growth and flowers so late in the season in response to rain in November.

Building drought resilience in farming practices is a long term goal. Changes in management techniques and practices, such as introducing new pasture species and rotations take many years, sometimes decades, to see final results.

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](#)

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