

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 during periods of dry times. The primary focus is to diversify pastures through mixed species that thrive across diverse soil compositions, particularly sands, to improve soil cover and production potential.

Name: Hayden Schubert and family

Property: 'Schubert Farms,' Darke Peak, spanning approximately 2,000 hectares of arable land.

Average annual rainfall: 350 mm (100 year average)

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



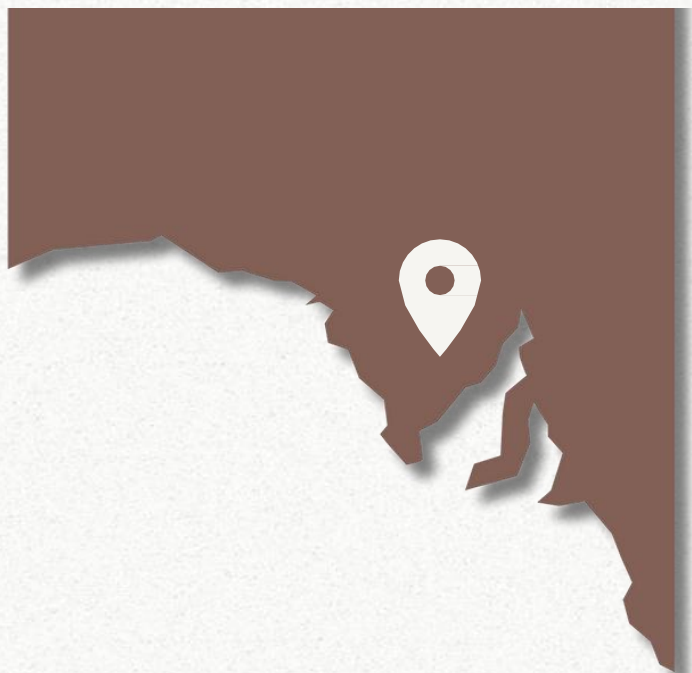
Figure 1. Ewes grazing a forage barley and Subzero brassica blend in July 2022.

CURRENT FARMING PRACTICES

Schubert Farms run a mixed farming operation including a total of 900 breeding ewes, 600 merinos and 300 crossbreds.

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 a break crop. Hayden generally aims for a balance of approximately 50% between cropping and pasture rotation, managing both regenerative 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 with the aim of lambing in July. Since taking on the livestock management role on his family farm, Hayden was eager to increase lambing percentages and 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 allows 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 nutrient needs via supplementally 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's productivity and on-farm profitability.

Since implementing these changes in ewe management, they have seen an increase from 80-90% lambing rate to 110% 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".

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 lambing in July has become an important practice in reducing the need to containment feed for extended periods of time and rely on self-regenerating pastures. Oats & lupins stored on farm are utilised only as a risk management tool if rainfall cuts off early in the season and pasture growth is affected.



Figure 2. Shows the establishment of the three species mixture.

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 rates used are listed in Figure 3.

The farmer demonstration was sown alongside the farmers best practice pasture. It provided an opportunity to assess establishment under a variety of pasture sowing rates. This was an important aspect to include in the demonstration, as recommended sowing rates for pastures are often aimed at much higher rainfall environments.

Type & Cultivar	Traits
Frano 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. Describes the pasture types and their traits. These species were selected for the farmer demonstration site.

From this demonstration we were able to observe that the serradella favoured the sandy rises on Schubert Farm, 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 us 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.

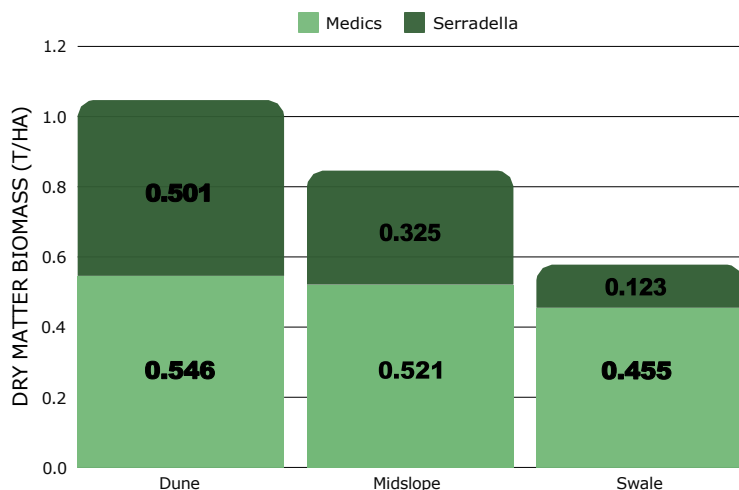


Figure 4. Dry matter biomass (t/ha) measured in 2022 across the landscape.

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 in their sandy soils will not only help with providing useful early cover to combat erosion but will assist in filling the early feed gap in regenerative pasture systems, whilst relieving the dependence on containment feeding were possible. Schubert Farms 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 longer term
- nitrogen fixing/production – potential to reduce fertiliser requirements.

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.



Figure 5. Frano serradella on 15/12/22. This paddock was quite heavily grazed in September 2022, and at the time of the photo it was being lightly grazed by rams. We were quite excited to see fresh growth so late in the season (in response to late season rain in November), and even some flowers for potential pod set (photo credit Matt Denton).

RESOURCES

[GRDC - Resilient pastures for low rainfall mixed farms - crop and system benefits provided by legumes](#)

[WA DPIRD - French Serradella - use and management](#)

[Making more from sheep](#)

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