

Case Study - Out of Season Feed Supply - Lupin Fodder

Producer case study: Roger House's property with daughter Catherine House, Muradup, Western Australia

The *Towards Optimal Out-of-Season Feed Supply Project* is an MLA Producer Demonstration project that was developed to address one of the most persistent challenges for livestock producers in the Great Southern region of Western Australia, the summer and autumn feed gap. The region's Mediterranean climate, with cool wet winters and hot dry summers, causes a mismatch between feed supply and livestock demand. Managing this gap often forces producers to choose between expensive supplementary feeding, reducing stock numbers, or allowing animals to lose condition, each carrying a financial or production cost.

The project aims to build producer confidence and knowledge in practical and profitable strategies to fill this gap using two key feed sources: shrubs and standing fodder crops. Shrubs such as saltbush are resilient, drought-tolerant and provide environmental benefits through soil and salinity management, while fodder crops offer an inexpensive, high-biomass feed option that can be deferred and grazed through summer and autumn. However, questions remain around how much to establish, when and how to graze, and what the true economic impacts are within a mixed farming system.

To help answer these questions, the project combines on-farm demonstration with whole-farm economic analysis using the *Farm Optimiser Platform*, a bioeconomic decision-support tool designed to test how changes in feed systems affect profitability and resilience. Led by Southern Dirt in collaboration with Stirlings to Coast Farmers, the project runs over 2.5 years and includes four host sites across the Great Southern. Producers at each site demonstrate different feed base options and management approaches, collecting real on-farm data to feed into the Optimiser model and guide improved decision-making.

Introducing the Producer: Catherine House

Catherine House, who farms with her dad, Roger, in Muradup, near Kojonup Western Australia, is one of the project's host producers. They run a mixed enterprise comprising a self-replacing Merino flock alongside growing

cereals, canola, and lupins. Like many producers in the region, Catherine faces significant feed shortages after harvest and through early autumn. Her involvement in the project focuses on using standing lupin fodder to finish lambs post-weaning while reducing reliance on purchased supplements or outside feed.

By testing the performance of lupin fodder under local conditions, Catherine is exploring whether this system can deliver both production and profitability gains compared with traditional finishing or stubble-grazing approaches. Throughout the project, Southern Dirt has collected detailed data on feed quality, animal performance, and inputs, providing valuable insights into how standing lupin fodder fits within a modern mixed farming system in the Great Southern.

Trial Design:

The trial was conducted in a 25-hectare paddock where lupins were sown, grown through the 2024 winter season, and left standing for deferred summer grazing. The paddock also contained areas of the previous year's oaten hay stubble. Lambs were rotationally grazed through the standing lupin fodder from late November 2024 through to April 2025. Feed on offer (FOO), feed quality, and lamb weights were monitored regularly.

The lupin crop achieved an estimated yield of 2.7 tonnes per hectare, providing a substantial feed reserve at a time when green feed was limited. Feed tests showed strong nutritional quality for a standing crop at this stage, with crude protein at 19.9% and metabolisable energy (ME) at 10.2 MJ/kg DM, indicating the potential for good liveweight gain without excessive supplementation.

In comparison, the oaten hay stubble provided far lower nutritional value, with crude protein at 3.3% and ME at 6.7 MJ/kg DM, consistent with typical cereal stubbles offering limited energy and protein once residual grain is exhausted.

Feed on Offer & Quality:

Oaten chaff/stubble (21 November 2024): average FOO 3,516.7 kg DM/ha

Lupin fodder (21 November 2024): average FOO 21,116.7 kg DM/ha

Grazing Management and Animal Performance

A total of 999 lambs were weaned and weighed on 25 November 2024, averaging 34.6 kg. Of these, 360 lambs over 42 kg were first moved onto the lupin fodder, with the remainder grazed on pasture before joining the fodder mob in mid-December. All lambs were drenched prior to grazing and monitored regularly for weight and condition.

In total, 961 lambs were sold. Average weights at sale ranged from light to heavy trade categories, with strong market prices achieved through summer when many producers faced feed shortages.



Figure 1 - Catherine House

Inputs & Costs

Feed costs:

Lupins (grown on farm): \$999.10 (Est Market value)

Hay (8 bales at \$120): \$960.00 (Est Market value)

Total feed cost: \$1,959.10

Animal health and handling:

Drenching, Vitamin E supplementation, and shearing totalled \$8,344

Cropping inputs:

Seed, fertiliser, and chemicals for the lupin fodder crop totalled \$7,641

Combined, the total expenditure for the site was \$17,944.

Insights

Throughout the trial, Catherine observed that early conditioning of lambs to the standing lupins was crucial for smooth transition and consistent grazing. Trail feeding a small amount of lupins in the first three weeks encouraged lambs onto the crop and improved utilisation. She also noted that despite minor losses — largely attributed to environmental factors and unavoidable mortality — the system demonstrated resilience and strong overall performance.

The trial period highlighted that lupin fodder can effectively bridge the summer feed gap, offering a locally adapted and financially viable solution for Great Southern livestock producers. Data collected from this site will continue to inform the *Farm Optimiser Platform* analysis in the project's second year, refining recommendations on the optimal area of fodder crops to include in a mixed enterprise system.

Economic analysis and overall results from 5 host producers of the trial will be evaluated and shared at projects end.

For further information:

Jessica Sunderland, Southern Dirt **M** 0455 556 850 **E** projects@southerndirt.com.au