COST BENEFIT ANALYSIS:
multi species vs ryegrass-based pasture

TAKE HOME MESSAGE:

Where both multi-species pasture and ryegrass-based pasture were sown annually, analysis suggests there is little value in sowing a multi-species. When sown as a long-term pasture (five years), multi-species can deliver higher marginal return than ryegrass-based pastures (sown biannually) due to higher protein, and when used for lamb production.

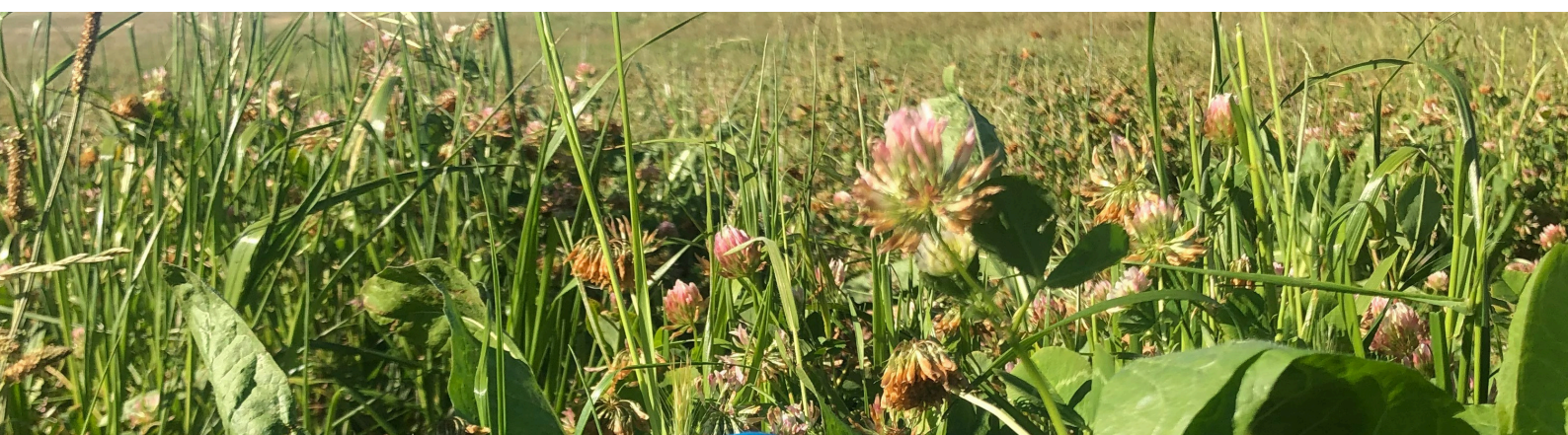
BACKGROUND

A cost benefit analysis was undertaken by John Francis, Agrista, using case study data from a multi-species vs ryegrass-based pasture demonstration conducted by the Barossa Improved Grazing Group (BIGG) at Marananga, South Australia.

In 2021, half a five-hectare paddock was sown to a multi-species (annual ryegrass, clover, tillage radish, plantain, and chicory) pasture and the other half to a conventional ryegrass-based (annual ryegrass and vetch) pasture. In 2023, the pastures were monitored for productivity and quality, with 76 twin ewes (including lambs at foot) grazing the paddock for 12 days in August, and 300 weaner lambs grazing it for 20 days in October.

As there was no fence splitting the multi-species and ryegrass pastures, differences in livestock intake (consumption), pasture growth rates and wastage rates could not be determined. Observations of livestock grazing did suggest sheep grazed the multi-species pasture in preference to the ryegrass-based pasture. Local experience also suggests that multi-species pasture have a greater persistence than ryegrass-based pastures.

Multi-species pasture trial, Marananga SA.



ANALYSIS OVERVIEW

The livestock decision-support tool Grazfeed was used to model pasture production benefits and lamb growth rates (based on pasture feed quality tests). Analysis was conducted under two scenarios:

- Multi-species pasture and ryegrass-based pasture sown annually
- Multi-species pasture sown once compared to a ryegrass-based pasture resown biannually over a five year period.

Annual pasture:

For the twin ewes grazing the paddock in August, Grazfeed showed a slightly higher production benefit for the ryegrass-based pasture compared to the multi-species pasture of $12 per hectare. However, when the weaner lambs grazed the paddock in October, the multi species pasture produced an increased grazing value of $321 per hectare (based on a $7/kg carcase weight). This was mostly due to the increased lamb liveweight gain of the multi-species pastures which were higher in quality (14.5% protein), while the ryegrass-based pasture limited production (9.9% protein).

The net benefit of the multi-species pasture compared with the ryegrass-based pasture was calculated by deducting the sum of the net benefit of the August 2023 grazing period (-$12/ha) and the benefit of the October 2023 grazing period ($321/ha) from the difference in seed cost between the pastures ($303/ha). This equates to a net benefit of $6 per hectare or 2 percent return on investment.

Long-term pasture:

The longer-term analysis demonstrated a very high marginal return on investment for sowing multi-species pastures where the persistence of the multi-species exceeds that of the ryegrass-based pasture.

Even if the persistence of the ryegrass-based pasture increases to five years (rather than sown biannually), then the return on investment in multi species remains high (100%). This suggests that most of the value in sowing multi-species pasture is due to the pasture quality rather than the additional persistence. While the additional persistence adds some additional value it is small relative to the value of the pasture feed quality.

For further information and detailed analysis, please visit **www.biggroup.org.au/mixed-species** to view the full *Cost benefit analysis report* and *Case study: Productive multi-species pasture at Marananga.*

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