

Midlands Update

Growing red meat productivity through the selection and establishment of perennial legumes

Authors: Brett de Hayr & Rowan Smith

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Project Overview

Currently the prevalence of perennial legumes in dryland pastures in Tasmania is low and is limiting profitability and productivity. This project aims to increase the legume component in pastures from 12-15% currently to 20-25%.

In the low to mid rainfall Midlands region of Tasmania, this research aims to extend the growing season of dryland pastures through improved establishment and persistence of perennial legumes. The research is trialling various perennial legumes and sowing practices that advantage legumes during establishment as well as demonstrating how to establish legumes in existing grass dominant pastures.

Evaluating Sowing Methods & Perennial Legumes

Legumes that will be trialled include Red, Talish, White and Caucasian clover and lucerne. These are being trialled under various sowing methods (broadcast, direct drilling and strip till) and sowing into new and existing pastures. In the sites where the legume species are being sown into existing pastures, an additional sub treatment of 0.5L/ha of glyphosate was also used to evaluate the impact of reduced competition from grasses on legume establishment

An important aspect of this research are on-farm trials in addition to TIA research sites at Cressy and Elliot. On-farm experiments have already started on properties in the Midlands at "Fosterville" (sown into existing Phalaris pasture in spring 2020) and "Rokeby" (sown into new pasture spring 2021). Trial plots at Cressy were sown into existing pasture in spring 2020 and 2021 and new sowings in 2021.



KEY POINTS

- Legume Species : Red, White, Caucasian, and Talish clovers and lucerne
- Sowing Methods : Broadcast, direct drilling and strip till, matrix, alternating row and timing of sowing.
- Sowing into new (legume and grass at same time) and existing pastures.
- Assessing impact of low level glyphosate treatment to check existing pasture during legume establishment

Top image: Rowan Smith (TIA) and Simon Foster "Fosterville" discussing establishment of legumes **Above:** Establishing the new sowing experiment at "Rokeby" in September 2021.

Re-establishing legumes @ Fosterville

Sown in September 2020, this study which is focusing on re-establishing legumes in a phalaris dominant pasture, is now showing treatment effects. A low rate of glyphosate (0.5L/ha) prior to over-sowing was used in an attempt to reduce the vigour of the phalaris. Preliminary analysis suggest that this has been successful with legumes appearing in a greater amount (DM) than in unsprayed plots highlighting the competitive effect the existing phalaris had on establishment of the legumes (See Figure 1 below).

Further analysis is required to determine the yield penalty of reduced phalaris growth. Of the legume species (see Figure 2), red clover has been most productive and is possibly a reflection on its good vigour as a seedling. Surprisingly, sowing method appears not to have had a significant effect to this point.

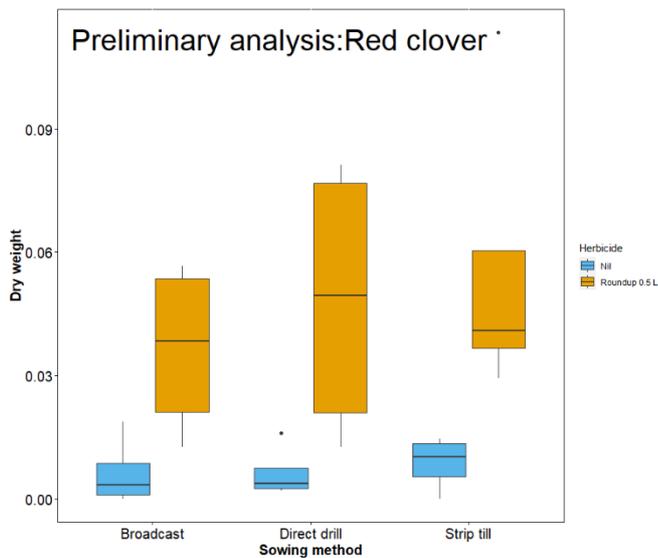


Figure 1: Red Clover production by sowing method and with(Orange)/without(Blue) herbicide treatment

Next steps in the project

- Dry matter harvests, plant frequency counts and feed quality analysis will continue to be monitored at the Fosterville site
- Plant counts will be taken to track establishment success of new pasture sowings at Rokeby
- Case studies of producers with success establishing and using legumes in their grazing systems will be developed
- Further sowings in Autumn and Spring 2022 will assist in determining seasonal differences in establishment success.

Involve & Partner

Importantly the learnings from phase 1 (which focuses on experimental work) will then be extended to 10 producer led sites on-farm to trial alternative sowing techniques and species at a commercial scale that have shown promise during the first phase of the project. In 2023, TIA will be looking for expressions of interest from producers interested in participating in this second phase of the project. Anyone interested in discussing this further should contact: Rowan.Smith@utas.edu.au

For more information please contact: Rowan.Smith@utas.edu.au or visit our project page <https://www.utas.edu.au/tia/research/research-projects/projects/growing-red-meat-productivity-through-the-selection-and-establishment-of-perennial-legumes>

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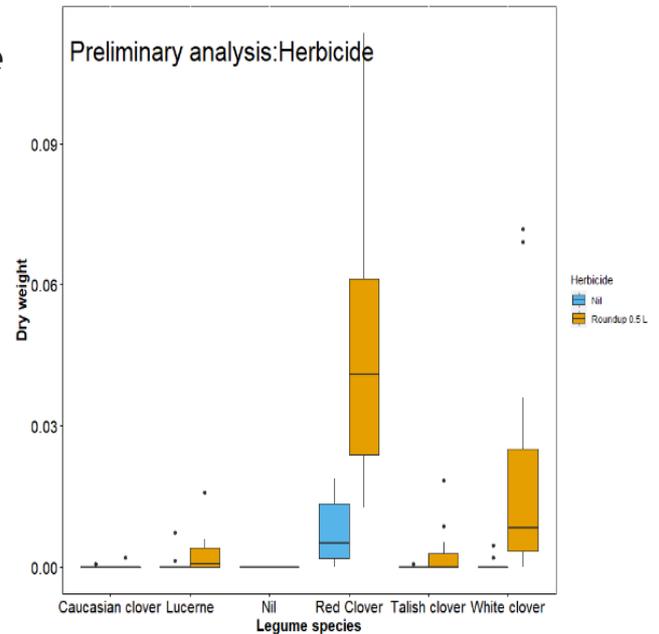


Figure 2: Comparison legume species production with(Orange)/without(Blue) herbicide treatment



Above: Red clover over-sown by direct drilling into phalaris dominant with pre-sowing glyphosate treatment. **Below:** Rooting structures of red clover (left) and Talish clover (right) may determine long-term persistence at this site

