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Midlands Update

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

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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 for establishing perennial legumes

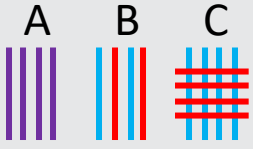
Separating grass and legumes at sowing to reduce competition for resources and increase the quantity of legumes in mixed pastures is a hypothesis we have been testing. Grasses and legumes are most commonly sown in the same drill row, but we are investigating the pros and cons of alternating drill rows of grasses and legumes, and matrix sowing the grasses and legumes.

Early observations – The establishment vigour of red clover has meant it is the standout legume so far. Lucerne looks better when it is separated from the grass, while unsown subterranean clover has filled gaps, particularly in the alternate row plots where there is less competition from grasses. Although the legumes look good, alternate row sowing appears to limit the productivity of the grass. As the sowing rate (kg/ha) remains the same, the grass seed is confined to half as many rows and it appears competition within the grass plants limits the overall production. Matrix sowing appears to alleviate this issue but its transferability and adoption by farmers might be low due to the need for two passes with the drill. Further data collection is required to confirm these observations and whether they provide an advantage over conventional mix row sowing. Broadcasting the seed and rolling appears a good option where the paddock is cultivated; being evaluated separately.

Figure 1: Phalaris and lucerne combination, in matrix sown (left) and alternate row (right). May 2023

Sowing treatments

- **Legume Species:** Red, white, Caucasian, and Talish clovers and lucerne – in combination with phalaris and cocksfoot
- **Sowing Methods:** (A) Direct drill mixed row (control), (B) alternate row (grasses and legumes in their own row), and (C) matrix (sowing grasses and legumes perpendicular to each other)



Involve & Partner

Importantly the learnings from phase 1 (which focuses on experimental work) are being extended to 10 producer led Involve and Partner sites in the Midlands and North-west regions. In each case we have chosen an alternative pasture mix to the one being sown by the producer. It's a low-risk method to allow the producer to try something novel for them with the assistance of the TIA team to monitor and evaluate.

Chris Headlam – *Ratharney*, Woodbury

Midland sheep producer, Chris Headlam is aiming to extend the grazing phase of his cropping rotation to compensate for a reduction in poppy area and provide his soils with a longer rest period. In December 2022, Chris planted an area under pivot irrigation with a diverse pasture mix. The inclusion of phalaris (2.5 kg/ha) and cocksfoot (2.5) in this mix will increase the longevity of the pasture. Chicory (2) and red clover (8) were quick to establish and provided the bulk of the first summer feed. Over time, we expect the chicory and red clover will decline somewhat, being more balanced with phalaris, cocksfoot and lucerne (3). This mix of pasture species will be highly responsive to summer irrigation but resilient in times of moisture stress if irrigation water is prioritised elsewhere. Feed test values taken from the pasture are available in Table 1.

Table 1: Feed test values for the diverse pasture mix at *Ratharney*

Sample Month (2023)	Dry matter digestibility %	NDF %	Crude Protein (CP %)	ME MJ/kg DM
January	73	33	19.3	11.4
June	64	43	21.8	9.6

Figure 2: Chris Headlam and Rowan Smith (TIA) in the diverse fodder mix at *Ratharney*.

Figure 3&4: Above: Jock Hughes in a clover and chicory pasture which was broadcast sown on 20th October 2022 and rolled with a Cambridge roller. Right: Clover chicory mix direct drilled into sprayed out grass seed crop.

Jock Hughes – *Jessiefield*, Longford

Longford red meat producer, Jock Hughes, is introducing chicory into his pure clover pastures to try to reduce sudden lamb deaths and create more grazing flexibility for his cropping and mixed grazing business. The 2022 season provided many challenges for pasture establishment due to extensive waterlogging. Due to these wet conditions, Jock tried broadcast sowing chicory/white clover mixes onto ex grass seed paddocks to avoid sowing delays. A Cambridge roller was used to increase the seed to soil contact. He also broadcast chicory into existing white clover stands with varying results achieved.

Next steps in Involve and Partner

- We will continue to follow Chris Headlam and Jock Hughes's progress over the coming months
- Further Involve and Partner sowings will continue in the Midlands region with interested producers.

For more information please contact: *Rowan.Smith@utas.edu.au or visit our project page* *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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