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Irrigated diverse fodder mix

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

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Chris and Claire Headlam: *Ratharney*, Tasmania's Midlands

Background

Midlands sheep producers, Chris and Claire Headlam, are aiming to extend the grazing phase of their cropping rotation to compensate for a reduction in poppy area and provide a longer rest period for soils. The challenge is to find a long-term irrigated pasture mix that can achieve weight gains equivalent to lambs grazing annual crops of brassica or straight legume pastures (~300 g/day) without the risk of animal health issues.

There has been significant irrigation expansion in the midlands of Tasmania, predominantly in areas of better soil types and on river valley flats. The recent irrigation expansion has led to increased areas of pasture and fodder crops being grown for intensive grazing in rotation with other cash crops.

Irrigated areas on *Ratharney* follow a ten year cropping rotation with a 3-4 year cropping phase followed by a 6-7 year pasture phase. Poppy crops have historically been a staple in the Headlam's cropping rotation and are usually followed by a forage brassica crop for autumn and winter feed to fatten lambs and provide valuable winter feed for ewes. The Headlam's are re-strategizing their cropping/grazing rotations and trialling alternative pasture mixes that can provide flexibility to the rotation while maintaining animal productivity.

Trialling a diverse forage mix

After harvesting poppies from a 90 ha pivot circle, a forage brassica/oat mix was planted in February 2022. This forage mix was grazed during autumn and winter. The paddock was then sprayed out, multi disced and drilled to a regenerative forage mix. A massive downpour shortly after sowing caused germination to fail. On 7 December 2022, a portion of the paddock was re-sown with the diverse forage mix listed in Table 1.

Table 1. Diverse forage mix
2 kg/ha Chicory
3 kg/ha Lucerne
8 kg/ha Red clover
2.5 kg/ha Phalaris
2.5 kg/ha Cocksfoot

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Snapshot

- Chris and Claire Headlam, *Ratharney*, Woodbury
- 1820 ha cropping and sheep production
- 450 ha of centre pivot irrigation
- 5, 500 merino ewes
- 430 mm annual rainfall
- Chris grows poppies, grass seed and fodder crops under irrigation for fat lamb production

Above: Chris Headlam and Rowan Smith (TIA) in the diverse fodder mix at *Ratharney*, Woodbury.

Pasture longevity and weed control

To increase the longevity of the pasture mix, phalaris and cocksfoot were added (Table 1). It is expected that over time the chicory and red clover numbers in the pasture will decline, leaving a stand of phalaris, cocksfoot and lucerne. This mix of pasture species will be highly responsive to summer irrigation but resilient in times of water stress. Initially, the Headlam's were worried about the large number of weeds germinating in the paddock. Given the diverse nature of the pasture mix, selectively spraying weeds was not an option. However, after a few rounds of grazing and the competitive nature of the pasture, the weeds were smothered and numbers in the pasture are now negligible.

Grazing management

The Headlam's have broken the 90 ha pivot circle into 30 ha paddocks. Each 30 ha paddock is being divided into 10 ha grazing blocks using strip fences. There have been 1700 merino ewe lambs rotationally grazing the 10 ha blocks, spending five days in each block. One challenge identified in maintaining quality in this pasture mix is managing the flowering of the chicory. Rotational crash grazing is one method that can be used to extend the quality of the pasture.

Feed quality

Given that the Headlam's aim to extend the pasture phase of their cropping rotation while maintaining feed quality that is similar to annual fodder crop options, regular feed testing has been undertaken. Table 1 shows the feed test results from samples taken throughout 2023 and 2024. It is evident that during the warmer months of January and September, feed quality, particularly Metabolisable Energy (ME) and Dry Matter Digestibility (DMD) are greater compared with the winter month of June. Interestingly, the feed test values for February 2024 are only slightly better than those taken in June 2023. We attribute this to the reproductive stage of the pasture, particularly, the chicory as this had become rank and stalky. To combat this, a pluck test was taken instead of a quadrat cut to emulate an animal's grazing behaviour.

Table 1: Feed test results for diverse pasture mix

Sample Month	DMD %	NDF %	CP %	ME MJ/kg DM
January 2023	73.0	33.0	19.3	11.4
June 2023	64.0	43.0	21.8	9.6
September 2023	78.0	27.0	29.2	11.9
February 2024	66.7	40.3	22.0	10.0

KEY POINTS

- Greater grazing flexibility can be achieved using longer term perennial pastures under irrigation.
- The legume component of a pasture is important in extending the feed quality of a pasture throughout the season.
- Feed quality can be maintained later into the growing season through careful grazing management.

Next steps in Involve and Partner

- We will continue to follow Chris and Claires progress over the next year
- Further Involve and Partner sowings will continue in the low-mid rainfall midlands region with interested producers.

Left Image: Diverse forage mix sown 7 December 2022. Photo taken 30 January 2023, immediately prior to the first dry matter cut for feed quality assessment. **Right:** Diverse Forage mix being sown at *Ratharney*, Woodbury on 7 December 2022.

This project was co-funded with Meat & Livestock Australia. 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*