

## Alternate forage crops for Southern WA

### Is there value in Pallaton Raphno compared to traditional feed sources in filling current farming systems summer feed gaps in HRZ of Western Australia?

In the high rainfall zone area of South Stirlings, WA, Pallaton Raphno was compared to canola stubble and ryegrass pasture to test its ability to fill the current summer feed gaps within the region. The increase of summer rain in the region presents the opportunity to review traditional feeds and test alternatives that can provide year-round feed and fill the summer and autumn feed gaps common in traditional annual pasture systems common in the area.

During the first year, 30ha of ryegrass was grazed with 360 lambs and compared to 45ha of Pallaton Raphno grazed with 1400 lambs with impressive results. In the second year the alternate forage was compared to canola stubble (with germinated clover) with 59ha of Pallaton grazed with 1580 lambs and 30ha of canola stubble grazed with 670 lambs.

*"We have spent a lot on this crop when you consider the soil amelioration required to break up the Kikuyu pasture and the costs of the seed itself," said Tim Pyle, host farmer. "When you calculate how many tonnes of pellets we could have bought for the same money, there is some pressure on this crop to deliver benefits to our enterprise."*

The trial of the new forage brassica had a tough start. The crop was sprayed with Affirm and Flexi-N, but there were signs of diamondback moth damage within the first few months. Despite this, the crop was able to withstand multiple grazings within the first year, hosting 1400 lambs from December 3, 2020, to January 4, 2021. After a month break, another 700 lambs grazed the paddock from February to April 30, followed by 400 lambing ewes through May and June. The Raphno paddock then supported 2200 weaned lambs for six weeks from the start of September.

At completion of the second year of the measured grazing period there was still plenty of biomass in the Raphno paddock. Lambs continued to graze the Raphno at a stocking rate of 38 lambs/ha for a further three weeks, which then removed all leaf area from the Raphno.

*"The raphno paddock was certainly understocked and ideally the stocking rate would have been over 30 lambs/ha" David Pyle said, when speaking about year 2. "After grazing the crop for 6 weeks and giving it a 7-week spell it had returned to a foot tall with blanket coverage despite only receiving one rainfall event of 10mm in that time, so we grazed it again."*

### Is alternate admissible?

The Pallaton Raphno performed exceptionally well in the nutritional value testing, with a higher crude protein, digestibility and metabolizable energy (Table 1). Interestingly the Raphno and ryegrass had similar biomass of 3t/ha and 3.8t/ha respectively.

The second year the two paddocks grew vastly different biomass, with 2.54t/ha for the control paddock and 4.05t/ha for the Raphno. Nutritive value analysis revealed similar results to the previous year with the Raphno having a much higher feed quality, possessing higher digestibility, metabolizable energy and crude protein than the canola stubble/pasture mix (Table 1).

Table 1: Nutritive Value analysis of forages over the two years.

NV Analysis	Ryegrass	Canola Stubble	Pallaton Raphno	
	Year 1	Year 2	Year 1	Year 2
Crude protein (% of DM)	7.9	11.4	16.4	16.6
Digestibility (DMD) (% of DM)	51.2	54.8	88.3	82
Est. Metabolisable Energy (MJ/kg DM)	7.2	7.8	13.6	12.5

In the first year, excellent weight gain was recorded with Raphno outperforming by the ryegrass regrowth by 63g/head/day. At the completion of year 2, lamb weight gain averaged 145g/hd/day on canola stubble and 286g/hd/day on Raphno (Table 2). This resulted in an extra 141g/hd/day produced on the Raphno, nearly double the average daily gain (ADG) of lambs on canola stubble.



Table 2: Stocking rates and average weight gain of lambs over the two years.

Description	Ryegrass	Canola Stubble	Pallaton Raphno	
	Year 1	Year 2	Year 1	Year 2
Stocking Rate (lambs/ha)	12	22.3	31.11	26.8
Weight gain (Avg kg) per lamb	3.5	3.2	5.5	6.3
Average weight gain (grams/head/day)	109.4	145	171.9	286

## Is it financially viable?

Pallaton Raphno outperformed the ryegrass by \$702/ha however made \$12/ha less than the canola stubble in profit. Profit from the forages over the 2 years was only recorded over the measured 32- and 22-day grazing period. It needs to be remembered that the raphno was understocked due to the number of lambs available and David wanting to utilise the voluntary pasture that came up under the stubble before it senesced going further into summer. Both years the raphno supported lambs for weeks after the ryegrass regrowth and canola stubble pasture were exhausted. It is another factor to consider when the cost of establishment is so high, at over \$450 for each year.

Using alternate forages requires producers to consider the risks and rewards, and this study aims to help local producers consider their options in future years.

At the conclusion of the study, the Pyles were very happy with the performance of the Pallaton Raphno. They have realised the importance of stocking rates to ensure return on investment especially when the cost of establishment is so high. It is just another factor to consider when thinking about using an alternate forage.

This Producer Demonstration Site was run by Stirlings to Coast Farmers, with technical support from consultant Lucy Anderton for economic analyses.

Table 3: Cross-bred lamb liveweight gains and calculated profit over the two years.

Description	Ryegrass	Canola Stubble	Pallaton Raphno	
	Year 1	Year 2	Year 1	Year 2
Total weight gain (kg lwt/ha)	42	71.5	171	168.7
Cost of establishment	\$0	\$0	\$ 453.3	\$ 517.3
Profit (calculated per ha)	\$480	\$781	\$1,182	\$768

## Takeaway messages for producers from the PDS include:

- Pallaton Raphno had a higher nutritional value (NV) than both controls, with a higher crude protein, digestibility and metabolisable energy than the ryegrass pasture and canola stubble.
- The ability of Raphno to grow under grazing pressure and produce leaf material allowed a much higher stocking density.
- Lambs grazing the Pallaton Raphno grew at an extra 141g/hd/day, nearly double the average daily gain (ADG) of lambs on canola stubble.
- Over the two-year period the Pallaton Raphno was more profitable than traditional annual pasture/crop stubbles.

