



## MLA PDS Alternate Forage Crops for Southern WA



# Background

- MLA PDS Alternate forage crops for Southern WA started in 2020.
- Levy Producer Demonstration Site (PDS)
- Funded by Meat and Livestock Australia (MLA)
- 8 demonstration sites across 3 years



Pallaton Raphno



Shirohie Millet



Left:  
Bunker  
Sorghum



Right:  
DS Bennett

Alternate Forage	Control comparison
Pallaton Raphno (South Stirlings)	Canola stubble and volunteer pasture
Shirohie Millet (Green Range)	Barley stubble
Bunker Sorghum (Manypeaks)	Ryegrass pasture
DS Bennett (winter wheat)	Clover ryegrass pasture

# Aim

To demonstrate the value of alternate high biomass forage crops in increasing stocking rates and live weight gain of lambs or weaner cattle relative to current high rainfall zone systems.

# Method

## For each trial site

- Soil samples (0-10cm)
- Rainfall data
- Agronomic details
  - Sowing date
  - Fertiliser input
  - Crop protection
- Biomass cuts
- Plant samples for Nutritive value analysis
- Stock weighed on and off respective forages

- 2021 Pallaton Raphno vs Canola stubble and volunteer pasture



- 2022 Winter wheat vs clover ryegrass pasture





# Stocking rate

2020 Ryegrass 30ha, 360 lambs = 12 lambs/ha

Pallaton Raphno 45ha, 1400 lambs = 31.1 lambs/ha



2021: Canola stubble 30ha, 670 lambs = 22.3 lambs/ha



Pallaton Raphno 59ha, 1580 lambs = 26.8 lambs/ha

# Biomass cuts



2.54 t/ha

Canola stubble



4.05 t/ha

Pallaton Raphno





# Nutritive Value analysis

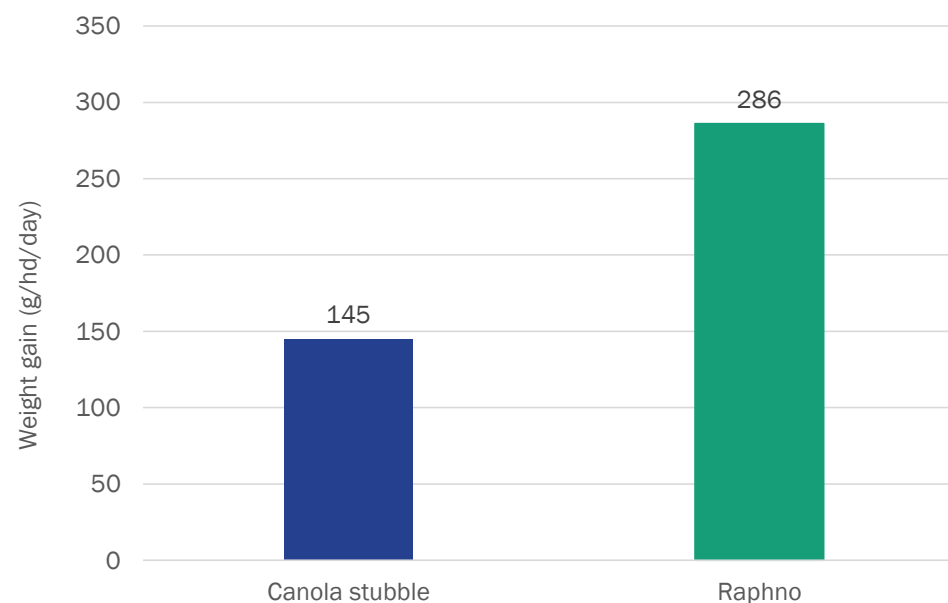
	Canola Stubble	Pallaton Raphno
Dry Matter (DM)	26.8 %	16.1 %
Moisture	73.2 %	83.9 %
Crude Protein	11.4 % of DM	16.6 % of DM
Acid Detergent Fiber	36.6 % of DM	20.4 % of DM
Neutral Detergent Fiber	54.0 % of DM	31.5 % of DM
Digestibility (DMD)	54.8 % of DM	82 % of DM
Digestibility (DOMD)	53.2 % of DM	76.3 % of DM
Est. Metabolisable Energy	7.8 MJ/kg DM	12.5 MJ/kg DM
Fat	3.6 % of DM	4.0 % of DM
Ash	8.3 % of DM	8.1 % of DM

# Lamb weights

	Weigh In (Kg)	Weigh Out (Kg)	Weight gain (Kg)
Canola stubble	38.2	41.4	3.2
Raphno	40.1	46.4	6.3



Lamb weight gain on Pallaton Raphno and Canola stubble over 22 days grazing





# After grazing



17th December 2021, when the control mob were added to this paddock.



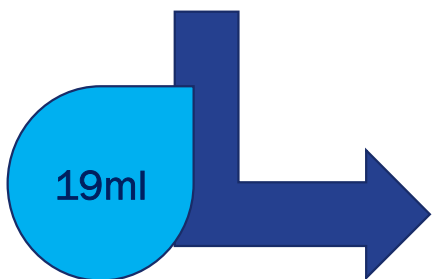
17th December 2021, when the control mob were added to this paddock.



# 8 weeks post grazing



From this



To this



# Pallaton Raphno sowing costs

Description	Raphno Costs (\$/ha)
Seeding (contract)	\$ 70.00
Glyphosate (\$6/Lt)	\$ 12.00
Spraying (contract)	\$ 8.00
Seed (8kg/ha Raphno)	\$ 285.00
AMS	\$0.10
Li 700	\$0.20
Alpha Cypermethrin 160ml	\$ 1.32
Hammer 20ml (\$900 5L)	\$ 3.60
Fertilizer pre-seeding (K-Till Extra \$ 720 /t) (120kg/ha)	\$86.4
Flexi N 50L/Ha (\$600/t) (1.32t per cubic meter (1000L))	\$ 39.60
Crop protection (DBM spray) (\$1470/20L)	\$ 11.10
Total	\$ 517.32

- Prices are also based on the time the trial took place December 2021
- Seeding and spraying costs have been calculated at contract prices.
- Pallaton Raphno is a hungry plant and loves N
- Like all brassicas it is susceptible to diamond back moth
- Seed is \$\$\$



# Pallaton Raphno value

	Canola Stubble	Pallaton Raphno
Store lambs @ \$3/kg lwt (at weights in)	\$114.60	\$120.30
Finished lambs (weights out) @ \$3/kg lwt (at Store condition)	\$124.20	
Finished lambs (weights out) @ 43% dressed weight @ 800 c/kg (2021 prices)		\$155.60
Total value (above starting condition)	\$6,432	\$55,774
Revenue generated per Ha	\$214.40	\$945.32
Minus costs –		
Cost of planting Raphno @ \$517.32/ha and canola \$0/Ha	\$0	\$517.32
Profit (calculated per Ha)	\$214.40	\$428
Profit (above starting condition)	\$6,432	\$25,252

# Pallaton Raphno – Host learnings

- Pallaton Raphno is an amazing plant with great ability to grow in harsh conditions with good feed test data.
- Suited to sandy soils not so much waterlogged and gravel areas.

## With Sheep

- Split the paddock up to maximise production and rotationally graze.
- If there is a section in the paddock the stock camp, leave unseeded.

## With Cattle

- Slow induction is crucial for weight gain.
- Not suited as a monoculture.



# Porongurup winter wheat - DS Bennet



# Stocking rate



210 yearling heifers grazed 85ha  
= 2.5 yearling cattle/ha



35 yearling steers grazed 25.5ha  
= 1.4 yearling cattle/ha

# Biomass cuts

Winter wheat -  
DS Bennet

Averaged  
3.88t dry matter /ha

Across 85ha



Clover and ryegrass  
pasture

Averaged  
1.86t dry matter/ha

Across 25.5ha

# Nutritive Value analysis

	Clover Ryegrass pasture	DS Bennett
Dry Matter (DM)	18.5 %	14.9 %
Moisture	81.5 %	85.1 %
Crude Protein	20.0 % of DM	21.7 % of DM
Acid Detergent Fiber	22.1 % of DM	17.3 % of DM
Neutral Detergent Fiber	42.5 % of DM	37.9 % of DM
Digestibility (DMD)	71.1 % of DM	84.3 % of DM
Digestibility (DOMD)	67.1 % of DM	78.2 % of DM
Est. Metabolisable Energy	10.6 MJ/kg DM	12.9 MJ/kg DM
Fat	5.6 % of DM	6 % of DM
Ash	9.8 % of DM	9.6 % of DM



# Cattle weights

Treatment	Weigh In (Avg kg)	Weigh Out (Avg kg)	Weight gain (Avg Kg)	Avg weight gain (kg/hd/day)	Weight gain (kg/ha/day)	Total Weight Gain (kg / ha)
Mixed Pasture (Steers)	389	463	74	1.85	2.53	101.2/ha
DS Bennett (Heifers)	385	433	48	1.20	2.96	118.4/ha

# After grazing

Advantages of DS Bennett include the versatility and range of options it provides.

The poorer section of the paddock

- 17 ha for silage which yielded 290 rolls at approximately 700kg each (12t/ha)

The best portion of the paddock

- 68 ha were taken through to harvest, with an average yield of 3.6t/ha



## MLA PDS Alternate Forage Crops for Southern WA

This Producer Demonstration Site  
is funded by



Thankyou to our host farmers  
for their collaboration  
with this project.



# Any questions?

