



meatup FORUM

**For the latest in red meat research and development
Northam, WA – 12 August 2026**

Agronomy of Mixed Enterprise; Opportunities in Practice

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Greenough Specialty Agricultural

Mixed Enterprise; Where do the opportunities lie?

• Intensification

- Data
- Labour
- Genetics
- Animal husbandry

• Carrying Capacity

- Improved pastures
- Feed security
- TOS

• Profitability

- Cost control
 - Input costs – Weeds, N = legumes
 - Operating costs/fixed costs
- **Maximise your chance of upside**
 - Understand your production risks



3-Year Yield								ROI			
		N Applied p/a	2023 Average (t/ha)	2024 Average (t/ha)	2025 Average (t/ha)	2026 Average (t/ha)	Total production (t/ha)	N Spend (\$1.75/kg N)	Yield Gain (3y)	Revenue Gain (\$/ha, wheat \$340/t)	ROI (\$Revenue: \$Spend)
"Industry Practice" - LDS 75kg/ha Seed	75kg/ha 0N	0	3.27	2.57	5.29	TBC	11.12	\$ -	0.00		
	75kg/ha 25N	25	3.74	3.68	6.37	TBC	13.79	\$131.25	2.67	\$ 906.27	\$ 6.90
	75kg/ha 80N	80	4.13	4.74	7.89	TBC	16.76	\$420.00	5.63	\$ 1,915.51	\$ 4.56
HDS "N-Trap" 150kg/ha	150kg/ha 25N - Irrigated	25	3.90	3.52	6.92	TBC	14.34	\$131.25	3.21	\$ 1,092.77	\$ 8.33
HDS "N-Trap" 150kg/ha	150kg/ha 25N	25	4.07	5.50	7.12	TBC	16.69	\$131.25	5.56	\$ 1,891.84	\$ 14.41
	150kg/ha 80N	80	3.60	5.41	7.93	TBC	16.94	\$420.00	5.82	\$ 1,979.51	\$ 4.71

Break Crops

- TOS, TOS, TOS

- Canola
- Pastures – Small seeds
- Vetch
- Pulses
- Cereals??

- Zero Weeds

- We are still/already herbicide limited
- Grass

- Sowing systems

- Leverage existing opportunity
- Discs vs DBS vs Flexicoil



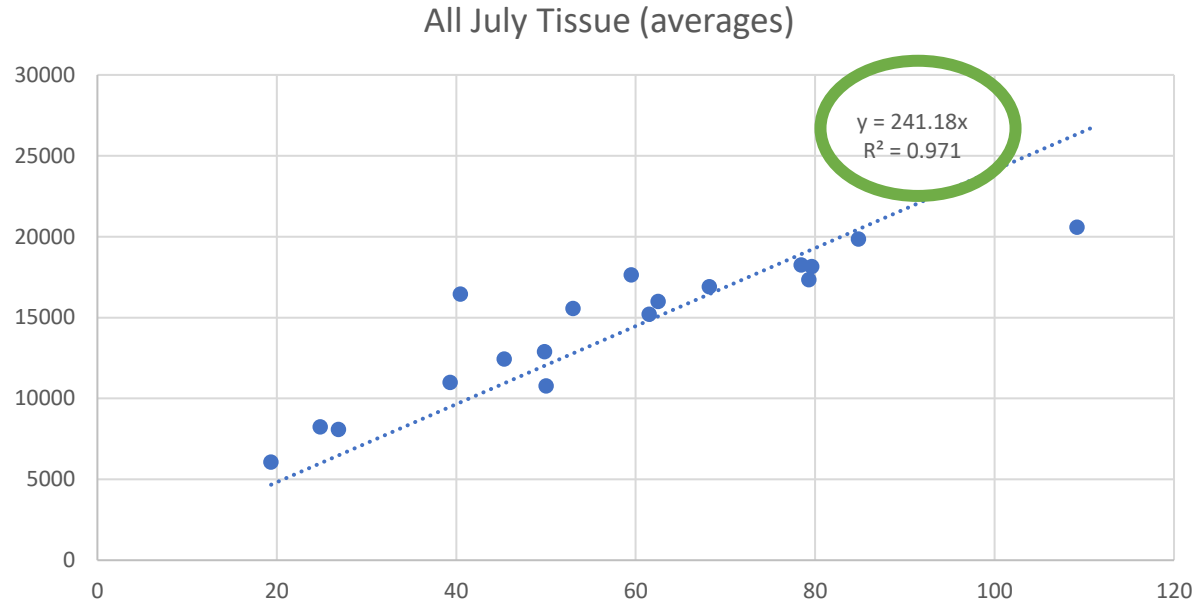
Long-term Legume N Legacy

- 2x Sowing rates
 - 75kg/ha Wheat
 - 150kg/ha Wheat
- 3x N Rates
 - 0N
 - 25N
 - 80N
- 1x Treatment Pre-Irrigation – 40mm Early March



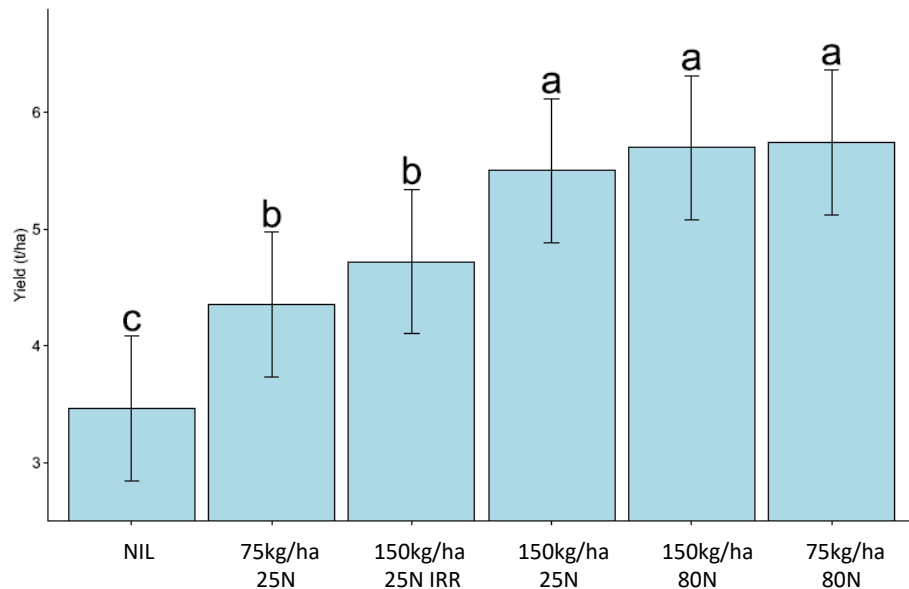
Z30 N Uptake = Grain No.

- **241grainsm⁻²kgNha⁻¹**
 - 30mg grain size (average)
 - 72kg grain yield per kgN at z30
- **ROI on N inputs then becomes a clear factor of expected NUE**
- **Legume N becomes highly profitable if it can be used at 100%**
- **Softer finish = Bigger grain, increases ROI from Z30 N uptake**



Yield Results

3 Years of wheat yield



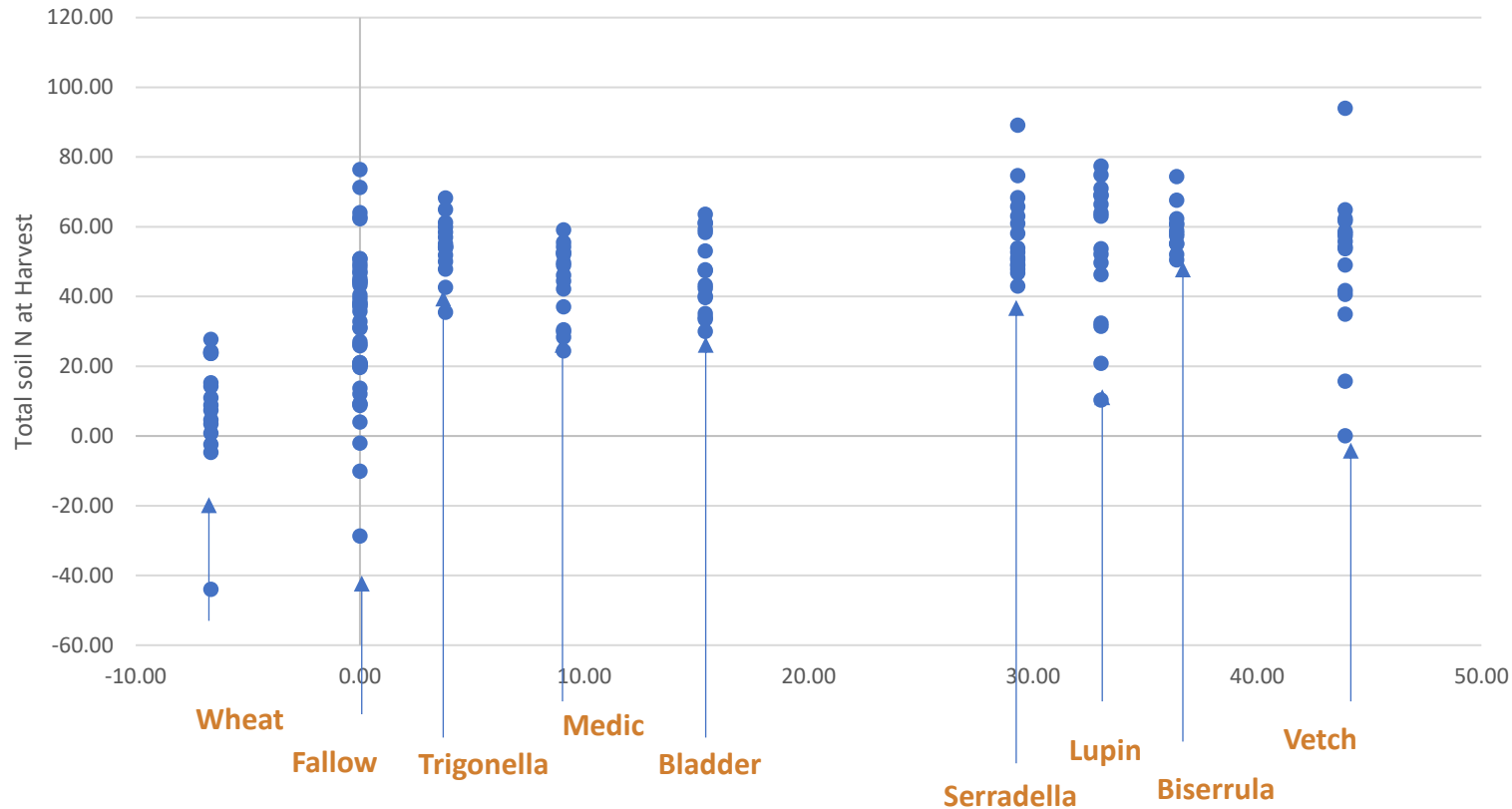
Summary:

- Z30 N uptake drives yield
 - Early N uptake creates grain numbers
 - Leaching, waterlogging reduce N uptake
- Z30 is largely driven by temperature – thermal accrual (genetics)
- Yield is a factor of grain number **x grain size**
 - *Grain size is a factor of flowering timing*

HALO – Harvestable Annual Legume Options



Litter Bag Net N release; Total Soil N Nanson 2025



DIRECTION
92 deg(T)

28.45057°S
114.97881°E

ACCURACY 3 m
DATUM WGS84

DIRECTION
90 deg(T)

28.45030°S
114.97882°E

ACCURACY 3 m
DATUM WGS84

ALO

ME OPTIONS



Irrigated 40mm

Yuna N site

2026-08-04
10:41:19+08:00



Not Irrigated

Yuna N site

2026-08-04
10:41:59+08:00

m

la
AUSTRALIA

Summary - Legume N is all supplied *differently*

- Where early season loss is a risk
 - TOS
 - Increased early season demand (HDS)
- Where late season supply is expected
 - Increased early/in-season N inputs
- *Yield potential (N supply/loss) must be managed in accordance to flowering windows – genetics!*



Crop grazing & Z30 N

- Early sown cereals
- Later sown cereals
- Deferred grazing of improved pastures

“Our biggest single benefit is we’ve doubled our numbers and have less pasture. It’s made us a lot more profitable”

Brad Eastough - Graze Expectations producer engagement

17th June



1st July



11th July



21st July



Take home messages

When productivity has never been such high stakes

- Improved legume pastures are a ***no brainer if you have livestock and cropping***
 - Legacy ROI will always trump current year – focus on long term
 - Numbers can work even without livestock
 - Get the agronomy nailed – species, TOS, weeds, sowing systems – expertise and experience
 - Easy to justify in current market – even more important to value the legacy
- Legumes aint legumes – ROI can be improved
 - Maximise N-fixed - agronomy
 - Minimise N losses - agronomy
- TOS – can we afford to not engineer options into our system
 - Still drives GM
 - Canola/Pastures(small) → Vetch → Cereals
 - Yield is $230 \text{ N uptake} \times \text{Grain fill (flowering timing)}$, TOS maximises both (when done well)
- ***For every 1 ha crop grazed, 2 ha of pasture can be cropped***
 - Deferred grazing improves pastures
 - Improved pastures increases carrying capacity



MLA and relevant tools and resources

- Graze Expectations – MLA Crop grazing extension and development
- Grain and Graze – GRDC
- Harvestable Annual Legume Options – HALO (WAARC, GRDC)
- NUE in the Geraldton Port Zone – GRDC, COGGO



Closing slide