

Trial 8: Nitrogen nutrition for hyper yielding spring canola

Objectives: To determine optimum nitrogen nutrient management (including rate and timing) for hyper yielding spring canola.

Key Messages:

- A grain yield of close to 6t/ha was achieved where a high rate of nitrogen fertiliser was combined with the application of animal manure to replicate high fertility soils.
- The manure alone increased yield by 0.75t/ha and raised the bar on our understanding of achievable yield for canola for this environment.
- Yields responses to granular urea N peaked at 150kg N/ha and similar yields were achieved between 150, 225, and 300kg/ha of applied N.

Treatments: Five nitrogen rates applied as urea with an equal split at 6-leaf and bud visible stage. A sixth treatment had 6.7 t/ha of pig manure applied.

Table 1. Yield of the Nutrition trial (t/ha) in Canola (45Y28RR).

Applied Nitrogen in Crop	Yield		Grain Quality				
	Yield (t/ha)		Oil (%)		Protein (%)		Test weight (kg/hl) TSW (g)
Nil	4.03	d	45.8	a	19.9	c	62.8 - 4.58 a
75 kg N /ha	4.49	c	45.4	ab	20.4	bc	61.8 - 4.54 ab
150 kg N /ha	4.94	b	45.2	ab	20.5	bc	63.2 - 4.52 ab
225 kg N /ha	5.14	b	44.7	bc	21.5	ab	63.4 - 4.47 bc
300 kg N /ha	4.95	b	44.8	bc	20.9	bc	63.4 - 4.48 bc
225 kg N /ha + Manure	5.89	a	43.9	c	22.1	a	64.0 - 4.39 c
Mean	4.91		45.0		20.9		63.1 4.50
LSD 0.05	0.36		1.0		1.2		ns 0.1
P Val	<0.001		0.016		0.017		0.071 0.016

*Pig Manure expressed dry matter basis (2.7% Nitrogen, and 1.26% Phosphorus) = additional 169kg N/ha and 85kg P/ha to replicate high fertility soils

Table 2. Canopy measurements at flowering and crop maturity (t/ha, %).

Applied Nitrogen in Crop	Flowering Biomass		Harvest Crop Height		Maturity Biomass		Harvest Index	
	Dry Matter t/ha		cm		Dry Matter t/ha			
Nil	4.4	c	144.9	c	16.3	-	0.34	-
75 kg N /ha	5.3	ab	153.2	b	17.1	-	0.36	-
150 kg N /ha	4.8	bc	155.6	b	17.7	-	0.35	-
225 kg N /ha	5.1	abc	154.6	b	19.2	-	0.34	-
300 kg N /ha	5.1	abc	153.9	b	18.2	-	0.35	-
225 kg N /ha + Manure	5.8	a	160.6	a	19.8	-	0.34	-
Mean	5.1		153.8		18.0		34.7	
LSD 0.05	0.9		4.7		ns		ns	
P Val	0.049		<0.001		0.572		0.257	

Table 3. Trial management details.

Sowing date:	25 April	
Target plant density:		45 plants/m ²
Canola Variety		Pioneer 45Y28RR
Basal Fertiliser:		150 kg/ha MAP (15 kg/ha N)
		125 kg/ha SOA (26.2 kg/ha N)
Fungicide:	Seed	Saltro Duo
	6 - Leaf	Prosaro 450mL/ha
	20% Bloom	Aviator Xpro 800mL/ha

All inputs of insecticides and herbicides were standard across the trial

Trial 9: Disease management for hyper yielding winter canola

Objectives: To determine optimum fungicide management for hyper-yielding winter canola.

Key Messages:

- There was no effect of fungicide management on grain yield of the winter canola cultivar Hyola Feast CL. Trial average yield was 4.19t/ha.
- Sowing winter canola early combines the best of blackleg resistance (effective Group H) and cultural management, avoiding blackleg spore showers on seedling canola.
- Levels of all diseases were low, including blackleg crown canker, upper canopy blackleg and sclerotinia stem rot.

Treatments: Six Fungicide strategies applied to a Hyola Feast CL winter canola.

Table 1. Influence of fungicide management strategy on winter canola grain yield (t/ha).

Trt.	Seed	6 Leaf	20% Bloom	50% Bloom	Yield (t/ha)	% Site mean
1	---	---	---	---	4.05 -	96.5
2	Maxim XL	---	Aviator Xpro 800 mL/ha	---	4.12 -	98.2
3	Saltro Duo	---	Prosaro 450 mL/ha	---	4.18 -	99.7
4	---	---	Aviator Xpro 800 mL/ha	---	4.21 -	100.2
5	Saltro Duo	Prosaro 450ml/ha	Aviator Xpro 800 mL/ha	---	4.21 -	100.3
6	Saltro Duo	Prosaro 450ml/ha	Aviator Xpro 800 mL/ha	Veritas 1 L/ha	4.41 -	105.1
Mean					4.19	100.0
LSD 0.05					ns	ns
P Val					0.446	0.449