

Trial 5. Nitrogen nutrition for hyper-yielding canola

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

Key points:

- All nitrogen treatments yielded more than nil N and 100% Upfront (all N applied at sowing) treatment.
- N was possible lost from denitrification just after sowing as the site became waterlogged.
- There was no yield difference between nitrogen timing for all treatments applied after sowing.
- Oil concentration was highest where nil N was applied.
- A nitrogen trial will be sown in 2021 with the inclusion of a winter cultivar.

Treatments: Nine nutrition rate and timing treatments applied to 45Y28 RR.

Table 1. Detailed treatment list, yield (t/ha) & % Site Mean.

Trt.	Treatments	Nitrogen						Yield		Mean
		Sowing	Kg N/ha				Total	(t/ha)	(%)	
1	Nil	16	---	---	---	---	16	3.22	b	74.8
2	33.3%	16	30	---	---	---	46	4.53	a	105.2
3	200%	16 + 90	30	30	30	---	196	4.73	a	110.0
4	100% Upfront	16 + 90	---	---	---	---	106	3.42	b	79.6
5	100% Split	16	30	30	30	---	106	4.61	a	107.1
6	100% Bud visible	16	---	90	---	---	106	4.47	a	103.9
7	100% Start flower	16	---	---	90	---	106	4.49	a	104.3
8	100% Split late foliar	16	30	30	15*	15*	106	4.47	a	103.9
9	100% Split + Manure	16	30	30	30	---	106	4.78	a	111.1
Mean								4.30		100.0
LSD (p=0.05)								0.51		11.7
P Val								<0.001		<0.001

6L= 6 leaf BV = Bud visible, SF = Start of flowering, MF = mid-flowering

MAP was applied at a rate of 100kg/ha and all treatments received 30kg/ha of SOA at sowing.

*Late foliar treatments (treatment 8) applied as UAN through flat fan nozzles.

Table 2. Influence of nitrogen rate on quality, protein (%), test weight (kg/HL) and screenings (%).

	Treatments	Oil	Test weight	Protein
Trt.		(%)	(kg/HL)	(%)
1	Nil	44.1 a	64.3 -	18.4 d
2	33.3%	43.2 abc	64.8 -	18.8 bcd
3	200%	43.1 abc	65.1 -	19.5 ab
4	100% Upfront	43.3 ab	64.7 -	18.5 cd
5	100% Split	42.7 bc	64.8 -	19.5 ab
6	100% Bud visible	43.0 bc	64.6 -	19.3 abc
7	100% Start flower	43.0 bc	64.5 -	19.5 ab
8	100% Split late foliar	42.2 c	64.6 -	19.5 ab
9	100% Split + Manure	42.5 bc	64.4 -	19.9 a
Mean		43.0	64.7	19.2
LSD (p=0.05)		1.0	0.6	0.9

P Val	0.046	0.272	0.020
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Table 2. Details of the management levels (kg, g, ml/ha).

Sowing date:		28-April
Seed Rate:		60 seeds/m ²
Sowing Fertiliser:		100kg/ha MAP
Seed Treatment:		Jockey + Poncho
Nitrogen:		As per treatment list
Fungicide:	17 June	Prosaro 450ml/ha
	10 September	Prosaro 450ml/ha