

N * Canola Seeding Rate

Jonathon Wyber, Area Manager, CSBP
James Easton, Field Research Manager CSBP

Purpose:	To determine the effect of canola plant density on nitrogen (N) response
Location:	Negus Property, Regans Ford
Soil Type:	Brown gravelly loam
Soil Test Results:	See below (2 t/ha lime after soil sampling)
Rotation:	2012 Barley

Soil test results:

Depth (cm)	pH	EC	OC	Nit N	Amm N	P	PBI	K	S	Ex Ca	Ex Mg	Ex K	Ex Na	Ex Al%
0-10	5.6	0.10	1.1	25	3	21	18	91	6	3.5	0.39	0.24	0.12	5
10-20	4.4	0.02	0.1	4	1	10	22	34	6	0.7	0.14	0.09	0.03	35
	5.1	0.03	0.1	2	1	3	23	65	8	0.9	0.23	0.17	0.02	6

BACKGROUND SUMMARY

Previous research by CSBP has suggested that there may be a relationship between canola plant density and yield response to nitrogen. This trial was conducted to determine whether N fertiliser rates should be varied according to crop density.

TRIAL DESIGN

Trt	Seed Rate (kg/ha)	Banded (kg/ha)	4-5 Leaf (kg/ha)	Rosette (kg/ha)	Flowering (L/ha)	N
1	2	100 Agstar	-	-	-	14
2	2	100 Agstar	80 NS41	-	-	42
3	2	100 Agstar	80 NS41	80 NS41	-	70
4	2	100 Agstar	80 NS41	80 NS41	1.3 Bortrac 150	70
5	4	100 Agstar	-	-	-	14
6	4	100 Agstar	80 NS41	-	-	42
7	4	100 Agstar	80 NS41	80 NS41	-	70
8	4	100 Agstar	80 NS41	80 NS41	1.3 Bortrac 150	70

Plot size: 2.5m x 20m

Machinery use: CSBP Primary Sales cone seeder

Repetitions: 3

Crop type and varieties used: Stingray TT Canola

Seeding rates and dates: 6 May, 2 and 4 kg/Ha

Fertilizer rates and dates: Seeding: 100 kg/ha Agstar, June 20: NS41, July 10: NS41, 29 July: 1.3 L/ha Bortrac 150 (full flower).

Herbicide rates and dates: 6 May: 2.2 kg/ha Atrazine, 1.5 L/ha Treflan, 300 ml/ha Lorsban, 200 ml/ha Talstar (PSPE). 18 June: 500 ml/ha Select + oil.

Other applications/ treatment rates and dates: 5 November: Harvest.

TRIAL LAYOUT

Plot	Trt	Seed Rate (kg/ha)	Banded (kg/ha)	4-5 Leaf (kg/ha)	Rosette (kg/ha)	Early Flowering (L/ha)	N
1	5	4	100 Agstar	-	-	-	14
2	7	4	100 Agstar	80 NS41	80 NS41	-	70
3	1	2	100 Agstar	-	-	-	14
4	2	2	100 Agstar	80 NS41	-	-	42
5	4	2	100 Agstar	80 NS41	80 NS41	-	70
6	6	4	100 Agstar	80 NS41	-	-	42
7	8	4	100 Agstar	80 NS41	80 NS41	-	70
8	3	2	100 Agstar	80 NS41	80 NS41	-	70
9	8	4	100 Agstar	80 NS41	80 NS41	-	70
10	1	2	100 Agstar	-	-	-	14
11	3	2	100 Agstar	80 NS41	80 NS41	-	70
12	5	4	100 Agstar	-	-	1.3 Bortrac 150	14
13	7	4	100 Agstar	80 NS41	80 NS41	-	70
14	4	2	100 Agstar	80 NS41	80 NS41	-	70
15	6	4	100 Agstar	80 NS41	-	-	42
16	2	2	100 Agstar	80 NS41	-	-	42
17	6	4	100 Agstar	80 NS41	-	-	42
18	1	2	100 Agstar	-	-	1.3 Bortrac 150	14

RESULTS/STATISTICS

Trt	Treatment					Harvest Yield (t/ha)
	Seed (kg/ha)	6 Leaf (kg/ha)	Rosette (kg/ha)	Flowering (L/ha)	N	
1	2	-	-	-	14	1.28
2	2	80 NS41	-	-	42	1.41
3	2	80 NS41	80 NS41	-	70	1.71
4	2	80 NS41	80 NS41	1.3 Bortrac 150	70	1.65
5	4	-	-	-	14	1.41
6	4	80 NS41	-	-	42	1.39
7	4	80 NS41	80 NS41	-	70	1.76
8	4	80 NS41	80 NS41	1.3 Bortrac 150	70	1.69
Lsd Fert						0.20***
Lsd Seed						ns
Lsd Seed * Fert						ns

FINANCIAL ANALYSIS OF RESULTS

Two applications of 80 kg/ha NS41 cost \$90/ha. The average yield response to 2 * 80 kg/ha NS41 was 0.36 t/ha worth \$180/ha (with canola valued at \$500/t) – a 200% Return on Investment.

OBSERVATION/ DISCUSSION/ MEASUREMENTS

- 2 kg/ha seeding rate produced a plant density of 37 plants/m²; 4 kg/ha seeding rate 68 plants/m²
- Canola plant density had no effect on Nitrogen response
- 2 applications of 80Kg/Ha NS41 increased yield from 1.34 to 1.70 t/ha
- Plant test results showed low Boron (B) levels (about 14mg/kg) at the 6 leaf stage but there was no response to Bortrac 150 applied at early flowering.
- Large number of ryegrass plants, particularly in 2kg seeding rate plots.

PEER REVIEW/REVIEW

Dr Andreas Neuhaus

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