

4.10 STATE FOCUS CANOLA TRIAL

Location: Glenthompson

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Background:

TOPCROP State Focus is an extension program, based on farmer demonstrations, replicated throughout the main grain growing regions of the state, looking at a single industry issue. In 2001 the State Focus was called "Putting the N in CaNola" and its aim was to help growers make more informed decisions on nitrogen use under canola crops by highlighting the difference in the amount of nitrogen needed for a maximum yielding canola crop versus the amount of nitrogen needed to for the most profitable crop. This State Focus grew out of grower confusion on exactly how much nitrogen is required under canola following the high urea prices and low canola prices seen at the start of the season.

Twenty one State Focus sites were sown across the main grain growing regions of Victoria including two in the South West. This trial at Glenthompson was sown on behalf of the Glenthompson TOPCROP group and the Streatham Branch of Southern Farming Systems.

Results:

Treatment	Yield (t/ha)	Oil (%)
0 additional N	2.34	48.4
20 kg/ha of N (predrilled)	2.20	48.3
40 kg/ha of N (predrilled)	2.35	47.9
60 kg/ha of N (predrilled)	2.66	47.7
80 kg/ha of N (40 kg predrilled & 40 kg topdressed)	2.41	47.2
100 kg/ha of N (predrilled)	2.52	N.A.
100 kg/ha of N (60 kg predrilled & 40 kg topdressed)	2.76	46.5
160 kg/ha of N (60 kg predrilled & 100 kg topdressed)	3.14	46.6
Least significant Difference	1.21 t/ha	Not significant

Aim:

To investigate the optimum nitrogen required for a high yielding canola crop based on a deep soil nitrate test.

Methodology:

The variety Trooper was sown in plots 10 metres wide by 100 metres long. Nitrogen was predrilled and additional N was broadcasted for topdressing treatments. To enable statistical analysis to be performed every third plot was a control (in this case 40 kg of N predrilled).

Sown on the 11th of May at 5 kg/ha of seed and 100kg/ha of triple super as a base fertiliser, the site had a soil nitrogen pool of 144 kg/ha of N. The growing season rainfall was 496mm and the total for the year was 705 mm.

Soil nutrients were adequate and there were no toxicities. Plant densities were higher than recommended (103 – 120 m²) as establishment conditions were favourable. Disease levels were low and weeds and insects were adequately controlled.

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Conclusions:

Artificially applied nitrogen had no significant effect on crop establishment or on early growth as determined from NIR testing

The canola yields showed an increasing trend with the higher rates of applied nitrogen, however it was not significantly different. Waterlogging had occurred at the site, but was only severe in two of the control treatments. In these two control plots yields were at least a half a tonne to the hectare below what the other controls achieved and this will have affected the statistical analysis.

The oil content showed a decreasing trend as the applied nitrogen was increased. Once again it was not significantly different.

Lodging was an issue at the site but once again it tended to be affecting the high nitrogen plots the most. This may also have had an effect on yield. Harvest difficulties with lodging must be solved before an economic analysis is accurate however it

would appear that for this site the best dollar return on the extra dollar invested in N was at 60 kg/ha (for every \$1 spent \$9 was returned). However the highest gross margin occurred at 160 kg/ha of N. This gave a gross margin of about \$1048/ha).

The deep nitrogen testing done prior to the start of the season showed that there was 144 kg/ha of available N in the soil. This meant that if we were to reach the potential yield of 3.8 t/ha (based on an average growing season rainfall of 363mm) then we should only have needed an extra 40 kg/ha of N. Obviously we did not reach this target figure despite the above average rainfall. It is possible that the mineralisation figures used in the calculation of the deep soil nitrate test (while accurate in other areas of the state) may need some adjustment for our cool acidic waterlogged conditions. However before we can accurately predict this we must overcome our problem of crop lodging.

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