

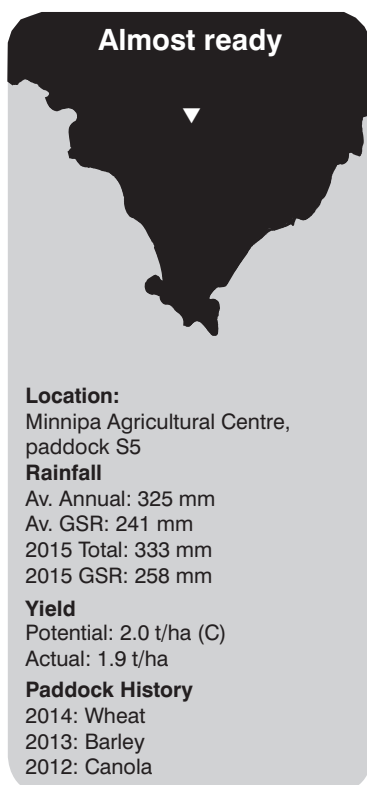
Reducing risk in canola

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RESEARCH

Break Crops



Key messages

- **Canola can be an expensive crop to grow.**
- **Yields can be maximised by planting early in low rainfall environments.**
- **Retained seed from open-pollinated varieties has the potential to match yields of some hybrid varieties.**
- **Delaying nitrogen application until stem elongation (bolting) was not as effective as applying at seeding or early post-emergence.**

Why do the trial?

Canola can be an expensive crop to grow. Seed costs, high requirements for nitrogen and controlling insects can all add to expenses not seen in other break crop options. This is particularly the case for low rainfall areas and can add a high level of risk to growing canola in these areas.

To begin to address the issues of canola being a high risk crop in

low rainfall areas two experiments were established in 2015, at Minnipa (upper Eyre Peninsula) and Ouyen (Victorian Mallee). Only Minnipa results are reported here.

This trial is part of the GRDC funded Optimising Canola Profitability Project currently underway across New South Wales, Victoria and South Australia (CSP00187).

How was it done?

The hypotheses for reducing risk were:

1. Can canola be sown on a fixed date (dry or wet) in mid-late April to maximise the growing season rainfall available and completed prior to the 'ideal' wheat planting window? Two seeding times were evaluated: fixed = 21 April and season opening = 6 May.
2. What is the effect on grain yield of using grower retained open pollinated seed compared to purchased, hybrid seed? Two varieties were evaluated: farmer retained Stingray (graded to greater than 1.8 mm) and purchased Hyola 450TT.
3. Can the application of nitrogen be delayed until late in the season when there is a greater certainty of potential yield? Nitrogen applications were planned for sowing at growth stages of 4-8 leaf, bolting and early flowering.

A 29 mm rainfall event occurred between 16-19 April, which resulted in the fixed date seeding (21 April) being planted into moist soil, with the soil drying slightly by the season opening sowing time (6 May). A base application of 100 kg/ha of single superphosphate at seeding helped cover phosphorous and sulphur requirements. All nitrogen applications were able to be made

at the correct growth stage with rainfall following shortly after to wash them into the soil.

The trial received 100 kg/ha of single superphosphate at sowing and then received 150 kg/ha urea (69 kg/ha nitrogen), applied either drilled below the seed at seeding, or broadcast around 3 weeks after emergence, or once the stem had started to elongate (bolting) or at the start of flowering. 800 ml/ha Atrazine (500 g/L a.i), 90 ml/ha Verdict and 1.0% Kwicken was applied to control weeds. Multiple products were used during the season to control insects.

What happened?

Results from the Minnipa risk management trial showed that making use of the early sowing opportunity in 2015 produced significantly higher yields (a 19% improvement) than delaying seeding until 6 May, regardless of the variety planted (Table 1). It also showed that there were no differences between the farmer retained open pollinated variety, Stingray, and the purchased hybrid variety, Hyola 450TT, in this trial. This trial showed a yield response with earlier applications of nitrogen applied at seeding and post emergence, before the 8 leaf stage.

Table 1 Grain yield (t/ha) from canola sown at planted at Minnipa, 2015 at two sowing times, and four nitrogen application regimes.

Variety	Time of Sowing (TOS)		
	N Timing	21 April	6 May
Hyola 450	Seeding	1.81	1.45
	Post Em	1.90	1.43
	Bolting	1.69	1.43
	Flowering	1.50	1.38
Stingray	Seeding	1.77	1.55
	Post Em	1.85	1.45
	Bolting	1.60	1.37
	Flowering	1.41	1.28
Average (TOS)		1.69	1.42
LSD ($P=0.05$)		0.14	
CV (%)		6.3	

What does this mean?

Making use of early sowing opportunities will reduce risk, by helping to promote a higher yielding crop, which makes better use of the plant available water. This has been consistently shown over three years by the SAGIT funded Canola Establishment project (see article Maximising canola yield by getting establishment right). It is yet to be determined if similar benefits can be consistently achieved by sowing dry.

Evidence from this research, and supported by a similar trial conducted at Ouyen in Victoria, suggests that delaying nitrogen application, in nitrogen responsive situations, until stem elongation will see a reduction in nitrogen efficacy and yield. This shows that

delaying nitrogen applications until later in the growing season for a better idea of yield potential is not the best approach. A better solution may be to plant canola into a paddock with higher levels of residual nitrogen.

Of the two varieties and seed sources (hybrid and open-pollinated) evaluated in this trial there was no significant difference in retaining an open pollinated variety compared to planting a commercial hybrid. This suggests that retaining open pollinated canola seed can be an effective way of reducing costs. It should be noted that in order to compare other varieties in different environments the National Variety Trials (NVT) are a good source of information.

Acknowledgements

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