



17ES17 Retaining canola seed

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Location of trial Grass Patch

Summary (Key messages)

- ***Farmers can continue to use retained OP seed for at least three years***

Background

WA canola growers in low rainfall areas mostly grow OP TT canola. However the rate of release of OP TT canola has slowed down in recent years. Currently there is only one company who has released OP TT canola over the last 3 years – Nuseed, and their continued support is reliant on farmers paying EPR. It is possible farmers may end up with no new OP TT canola varieties in a few years' time. With this in mind questions arise from growers such as "How long can I keep using my existing OP TT seed?"

Aim

To determine if retaining canola seed leads to reduced yield, oil and financial return.

Trial Details

- Property: Danny Sanderson's Grass Patch 33.273935°S, 121.525818°E
- Growing Season rainfall (GSR, April to October) = 232 mm
- Soil type: Scaddan loam (0.61% organic carbon), SYN estimate of available N = 39 kg N/ha
- Paddock rotation 2017 canola, 2016 wheat, 2015 wheat, 2014 field pea, 2013 barley
- Row column design, 10 treatments x 4 replicates
- Sowing date April 28

Treatments and Assumptions used in Gross Margins

10 treatments:

5 Seed source treatments

1. Commercial ATR Bonito seed kept in laboratory since 2014 – labelled 'Commercial 2014'
2. Commercial ATR Bonito seed purchased from reseller in 2017 – labelled 'Commercial 2017'
3. Seed of ATR Bonito retained from Grass Patch 2014's harvest (F2) – labelled 'Retained 1 year'
4. Seed of ATR Bonito retained from Grass Patch 2015's harvest (F3) – labelled 'Retained 2 years'
5. Seed of ATR Bonito retained from Grass Patch 2016's harvest (F4) – labelled 'Retained 3 years'

X

2 Grading treatments

1. Ungraded
2. Graded over 1.8mm sieve

All seed adjusted for laboratory germination and seed size to target 40 plants/m².

Oil bonus +/- 1.5% per unit of oil (%) either side of 42%, with no oil ceiling. Grain worth \$550/t. Newly purchased OP seed valued at \$17/kg. Retained OP seed valued at \$2/kg. Extra grading cost of \$1/ha. Non treatment costs of \$251/ha.

Results

Grading seed had no effect on establishment but did lead to visual and NDVI differences within 8 weeks after sowing, which were more difficult to discern by 12 weeks by eye or by NDVI. We observed no sterile flowers in any plants in this experiments and less than 2 days difference on the flowering date of any treatment. There was a trend ($P=0.1$) for seed retained for 3 years to be higher yielding than other treatments however it was not significant at $P=0.05$ (Figure 1). Similarly no treatment had any effect on oil%, there was trend ($P=0.1$) for seed retained for 3 years to have higher oil yield than other treatments however it was not significant at $P=0.05$. These trends in seed and oil yield combined with higher input costs of newly purchased seed added up to significant differences in gross margins. Such that the highest yielding seed source treatment was 'Retained seed for 3 years' (Figure 2).

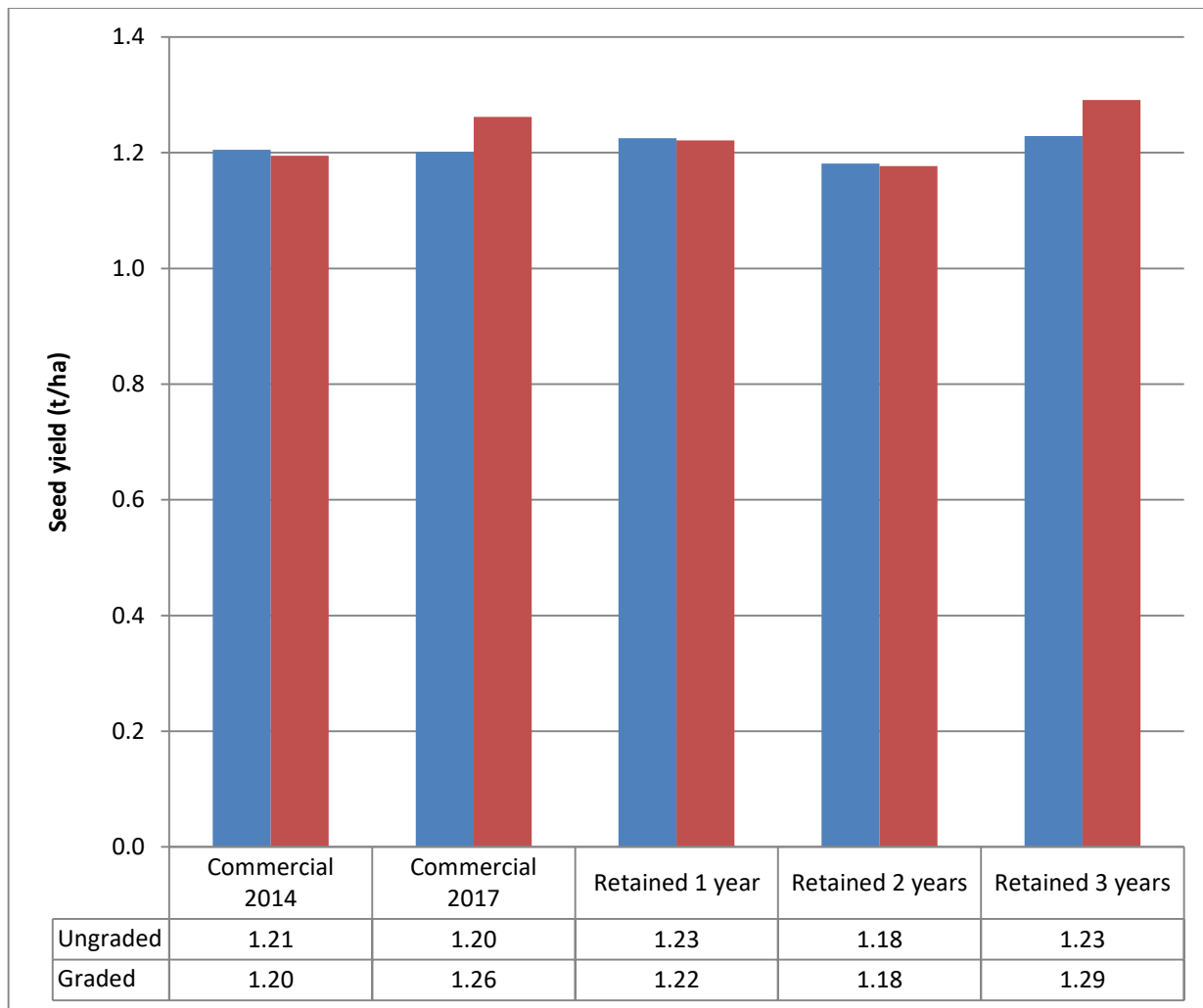


Figure 1 Seed yield (t/ha, mean on graded treatments) of canola at Grass Patch in 2017 (no significant difference, $P=0.05$).

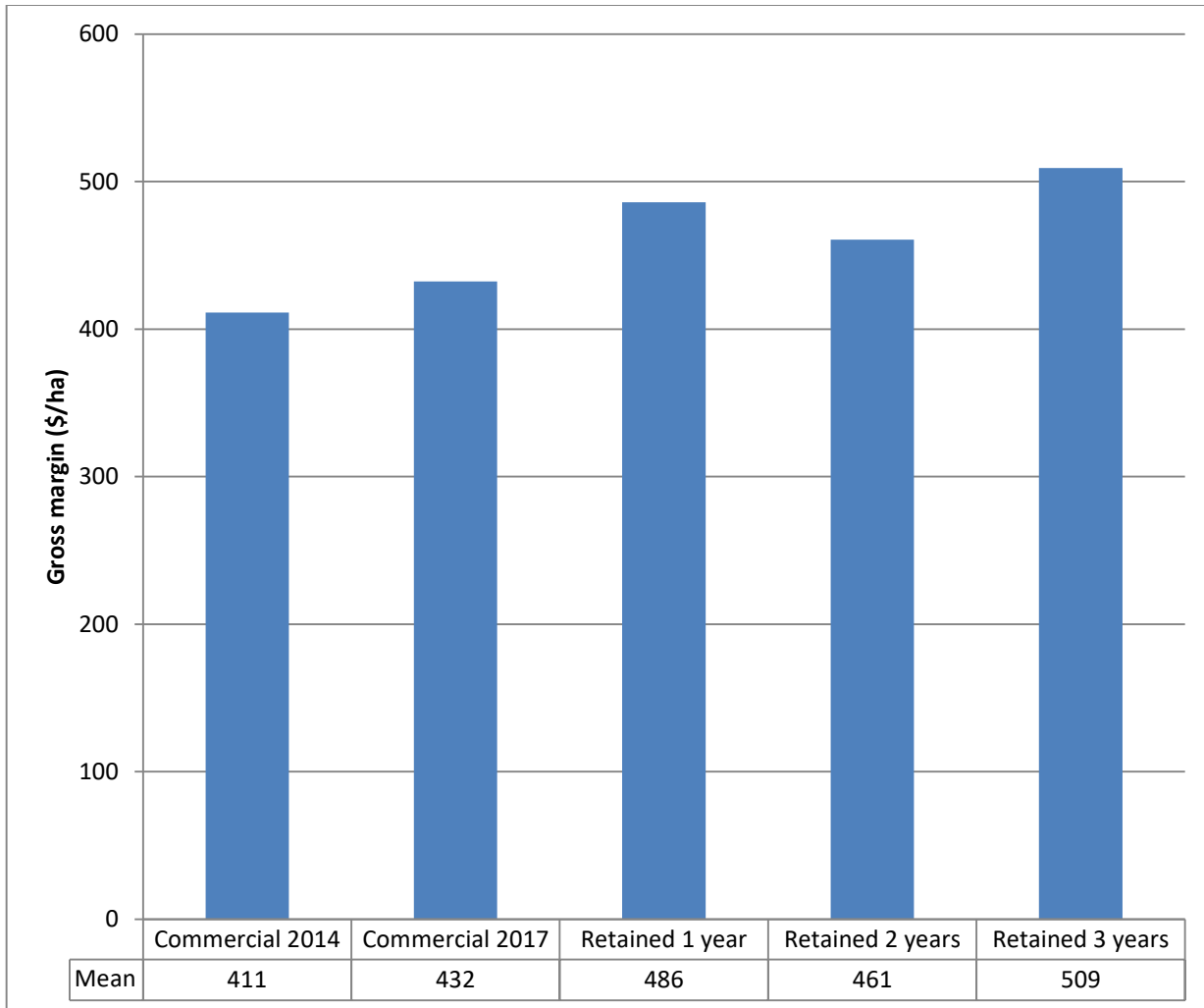


Figure 2 Gross margin (\$/ha, mean of graded treatments) of canola at Grass Patch in 2016 (l.s.d. = \$22/ha)

Conclusion

There is no evidence to suggest farmers need to replace ATR Bonito with new commercial seed provided they know their retained seed is viable via seed testing. Similar studies conducted elsewhere in Australia have had similar results. In this experiment grading seed that ranged from 225,000 to 258,000 seeds per kg over a 1.8mm sieve did not provide any improvements in yield, oil or seed size of harvested seed. This result is consistent with previous studies by Brill *et al.* (2016) who have shown improvements in canola performance when comparisons are made between 'small' seed (below 1.8mm sieve) and 'large' (above a 2mm sieve), but not when 'medium' sized seed (above 1.8mm sieve) is compared to the other grades of seed. Thus if we continue on with this study we will likely use a 2mm sieve rather than the more commonly available 1.8mm sieve used in commercial mobile seed cleaning units.

References

Brill, R. D., Jenkins, M. L., Gardner, M. J., Lilley, J. M., & Orchard, B. A. (2016). Optimising canola establishment and yield in south-eastern Australia with hybrids and large seed. *Crop and Pasture Science*, 67(4), 409-418.

Acknowledgements

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Links

For other reports related to this trial see <https://www.agric.wa.gov.au/canola> or visit GRDC's on-farm trial web site at <https://www.farmtrials.com.au>

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