

DAW00277

Tactical Break Crop Agronomy in Western Australia

16ES08 Retaining canola seed

Authors

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Location of trial

Wittenoom Hills

Summary (Key messages)

- ***Farmers can safely retain OP seed for at least two years***
- ***Retaining seed of hybrid and OP canola had no deleterious effect of yield or oil production.***
- ***Using hybrid canola produced no net benefit compared to OP canola.***
- ***Retained and graded hybrid TT seed had lower % establishment, some variability in flowering, higher % of sterile flowers– but no effect on seed yield or oil. Hence purchasing new hybrid seed produced lowest gross margins in this trial.***

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?" "can I use F2 and F2 hybrid seed?" Additionally there is some interest in mixing different season length canola in low rainfall areas to allow for adaptation to different length of seasons.

Aim

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

Trial Details

- Property: Chris Reichstein's
- Growing Season rainfall (GSR, April to October) = 385 mm
- Soil type: Scaddan loam (1.18% organic carbon)
- Paddock rotation 2016 canola, 2015 barley, 2014 wheat, 2013 field pea
- Randomised block design, 8 treatments x 4 replicates
- Sowing date May 13

Treatments and Assumptions used in Gross Margins

8 treatments:–, Bonito Commercial 40 plants/m², Bonito retained for one year (F2) Grass Patch 40 plants/m², Bonito retained for two years (F3) Grass Patch 40 plants/m², F1 Hyola 450TT 25 plants/m², Hyola 450TT F2large (seed > 1.8mm sieve) 40 plants/m², Hyola 450TT F3large 40 plants/m², Bonito and ATR Wahoo (50/50 mix) 40 plants/m², ATR Wahoo 40 plants/m².

Each variety of seed originated from same line and then sourced from same site.

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 and Hybrid at \$31/kg. Retained and graded OP and hybrid seed valued at \$2/kg. Non treatment costs of \$251/ha.

Results

Conditions were good following seeding on May 13 with average field establishment of 76%, which was higher than targeted. Retaining seed had no significant effect on plant establishment. The mix of ATR Bonito and ATR Wahoo had the highest NDVI 6WAS on June 24 and at 8WAS on the 8th of July, but by 12WAS Hyola 450TT F2large produced the highest NDVI, whilst retaining seed had no effect on NDVI throughout the year.

We observed more sterile flowers in Hyola 450TT F3 large (10%) than other treatments (0 to 3%). We were able to find misses in pod set on the lower part of the main stem raceme in some Hyola 450TT F3 large plants. This appeared to be related to earlier flowering of the F3 hybrid plants resulting in flowering occurring when no other sources of pollen were nearby. The farmer's canola crop was sown earlier than our trial and was flowering at this time, but apparently the pollen could not reach these plots.

Retaining seed or using mixes had no significant effect on seed yield, oil, oil yield or gross margins. Hyola 450TT treatments as a group produced lower oil, and consequently higher seed protein, than ATR Bonito and ATR Wahoo treatments. The mix of ATR Bonito and ATR Wahoo produced slightly larger seed than commercial ATR Bonito.

There was a trend ($P < 0.1$) for Hyola 450TT F1 to produce the lowest gross margin – associated with higher seed costs without any improvement in performance. ATR Bonito F3 and retained Hyola 450TT and the mix of ATR Bonito and ATR Wahoo tended to produce equal highest gross margins.

Table 1 Establishment counts (June 9, plants/m²), dates of 50% flowering and % of sterile flowers of canola at Wittenoom Hills in 2016.

Treatment	Establishment counts (plants/m ²)	% field establishment	Flowering date	% of sterile flowers
Bonito Commercial	61	76%	19 Aug	0
Bonito F2 Grass Patch	62	77%	18 Aug	0
Bonito F3 Grass Patch	70	88%	18 Aug	0
Hyola 450TT F1	33	86%	15 Aug	3
Hyola 450TT F2large	63	78%	14 Aug	3
Hyola 450TT F3large	60	75%	13 Aug	10
ATR Wahoo	71	88%	12 Sept	2
Bonito and ATR Wahoo (50/50 mix)	65	82%	21 Aug	1
P	<0.001	0.369	<0.001	0.002
Isd	10	15%	5	4
CV%	12	13	0	0

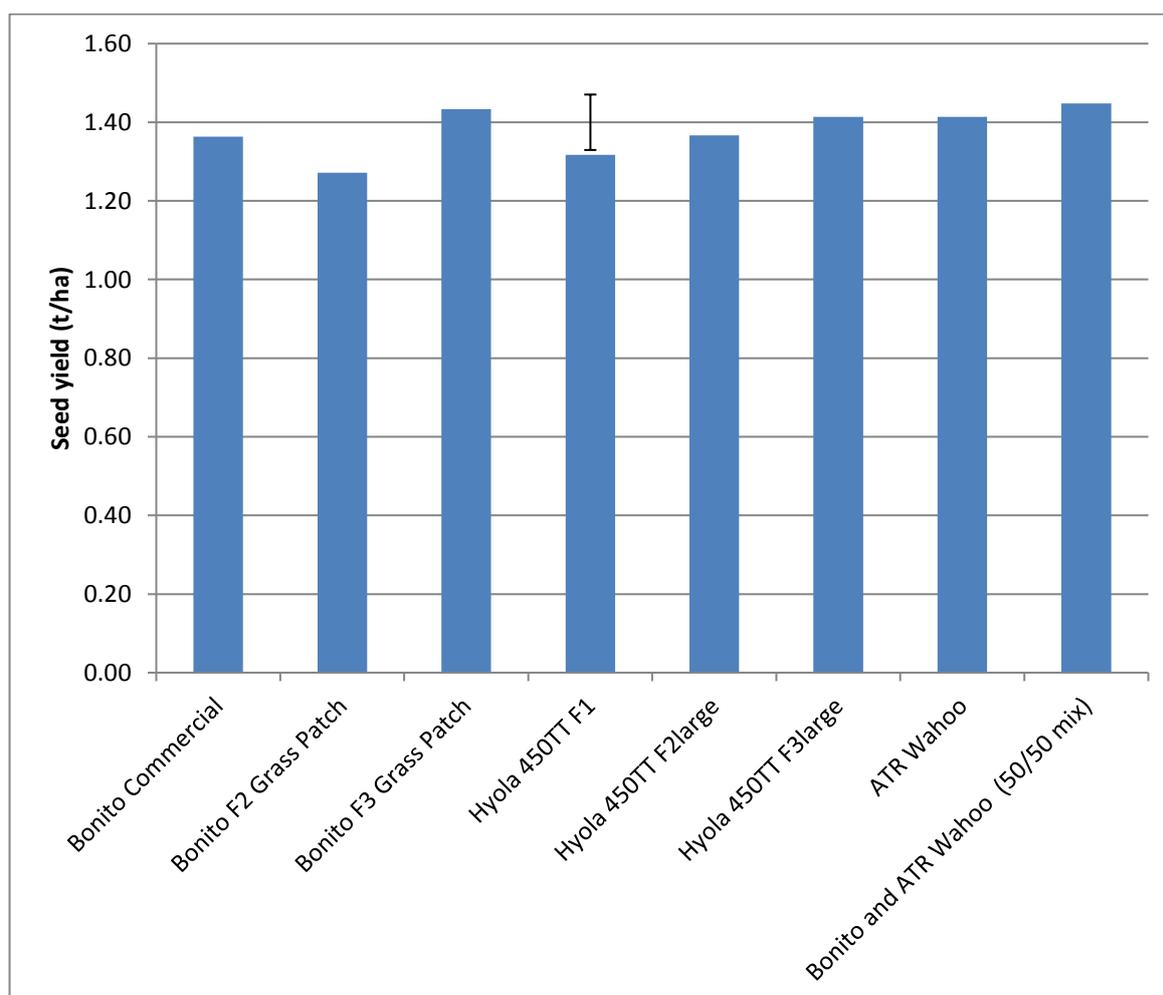


Figure 1 Seed yield of canola at Wittenoom Hills in 2016.

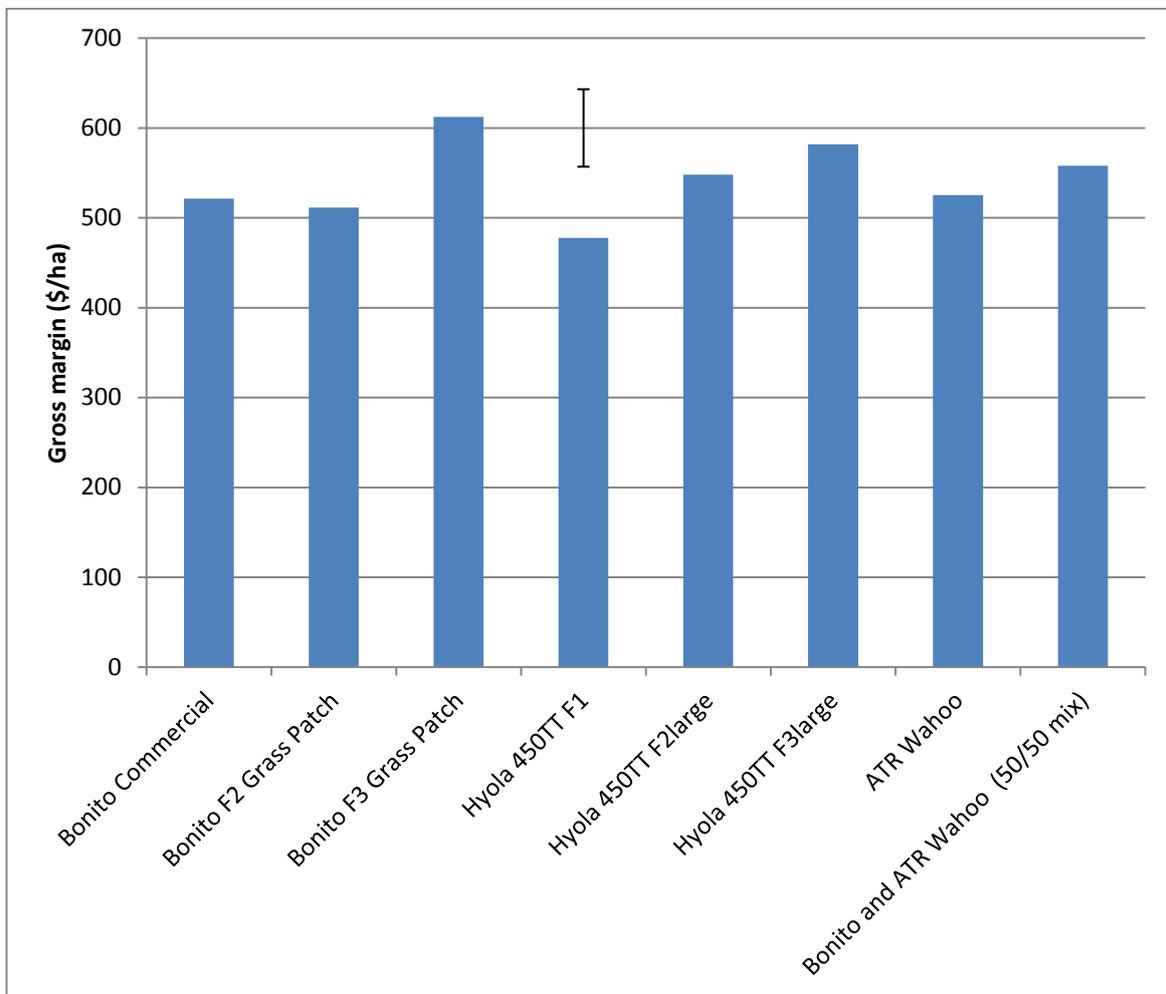


Figure 2 Gross margin of canola at Wittenoom Hills in 2016.

Conclusion

Using hybrid canola produced no net benefit compared to OP canola.
Retaining seed of hybrid and OP canola had no deleterious effect of yield or oil production.

Acknowledgements

This trial is one of a series conducted throughout WA as part of the GRDC/DAFWA co-funded project "Tactical Break Crop Agronomy in Western Australia". Thanks to the Esperance TSU for trial management and Chris Reichstein for his continued support in providing trial sites. Pam Burgess (DAFWA, Esperance) provided technical assistance to ensure all treatments and measurements occurred in a timely and accurate fashion.

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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