18ES14 Retaining Open-Pollinated (OP) canola seed on-farm

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Location of trial	Grass Patch

Summary (Key messages)

- **At Grass Patch in 2018 hybrid TT's produced higher yields and gross margins than most of the OP TT canola variety ATR Bonito treatments.**
- **Retaining ATR Bonito seed 'on-farm' for 1, 2, 3 or 4 years produced similar yields, oil and higher gross margins than purchasing new OP seed.**
- **Using ATR Bonito seed stored for 4 years produced plants lacking in vigour and overall poorer performance than growing out and retaining seed each year or purchasing new commercial seed.**

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. Growers are asking, "How long can I keep using my existing OP TT seed?"

Aim

To evaluate if retaining OP canola seed leads to reduced yield or oil.

Trial Details

- Property: Perk's Family, Kent Road Grass Patch, 33.181154º S 121.864688º E
- Growing Season rainfall (GSR, April to October) = 170 mm
- Soil type: Sandy Loam (0.63% organic carbon, pH 6.5)
- Sowing date April 18
- Herbicides – IBS 1.5 L/ha Trifluralin 480EC + 1.1 kg Atrazine 900DWG, PostEm, 19th July 330 mL/ha Select Xtra (clethodim) + 1.1 kg Atrazine 900DWG + 100 g/ha Lontrel
- Machine Harvested 13th November

Treatments

Trial design was row column design (Blocking = Group/(Rep+ColRep), Treatments were Type/VarietyOp/(VarietyHyb*Density) where type – OP or hybrid, Density = target density of 25 plants/m² for hybrids or 50 plants/m² for OP's and hybrids.

All seed was tested for seed size and seed rates adjusted to aim for target density assuming hybrids

would have a field establishment rate of 65% and OP's 50%.

Table 1 List of treatments and seeding rate information

Treatment name	Seed rate (kg/ha)	Germ	Seeds per kg	Seed size (mg)	Seeds sown per sqm	Viable seeds sown per sqm
ATR Bonito Commercial 2017	5.2	95	204,082	4.9	105	100
ATR Bonito Commercial 2014	4.9	89	229,885	4.4	112	100
ATR Bonito Retained 1 year Graded	6.2	81	198,807	5.0	123	100
ATR Bonito Retained 2 years Graded	7.1	71	198,020	5.1	141	100
ATR Bonito Retained 3 years Graded	5.9	83	204,082	4.9	120	100
ATR Bonito Retained 4 years Graded	6.8	75	196,078	5.1	133	100
Hyola 350TT 25 plants/m²	3.3	91	129,032	7.8	42	38
Hyola 350TT 50 plants/m²	6.6	91	129,032	7.8	85	77
InVigor T 4510 (Bayer) 25 plants/m²	2.2	95	183,486	5.5	40	38
InVigor T 4510 (Bayer) 50 plants/m²	4.4	95	183,486	5.5	81	77
Nuseed HyTTech Trophy 25 plants/m²	2.1	95	196,078	5.1	40	38
Nuseed HyTTech Trophy 50 plants/m²	4.1	95	196,078	5.1	81	77
Pioneer 44T02 TT 25 plants/m²	1.7	96	240,964	4.2	40	38
Pioneer 44T02 TT 50 plants/m²	3.3	96	240,964	4.2	80	77

Results

Average yield of canola at Grass Patch in 2018 was 1.0 t/ha. Hybrids out-yielded the OP variety ATR Bonito by 360 kg/ha and hybrids sown at 50 plants/m² out-yielded hybrids sown at 25 plants/m² by 135 kg/ha. During the year, we observed canola sown from Commercial seed of ATR Bonito kept in storage from 2014 to have less vigour in the field and this treatment produced lower yields of 0.69 t/ha compared to other ATR Bonito treatments which averaged 0.86 t/ha. Retaining seed of ATR Bonito for 1, 2, 3 or 4 years had no significant effect on seed yield, oil%, or oil yield – resulting in retained seed treatments being the most economical OP treatments due to lower seed costs.

The majority of hybrid treatments out-performed the OP variety ATR Bonito. In particular, Invigor T 4510 and NuSeed HyTTec Trophy sown at 25 plants/m² produced good yields without excessive seed costs.

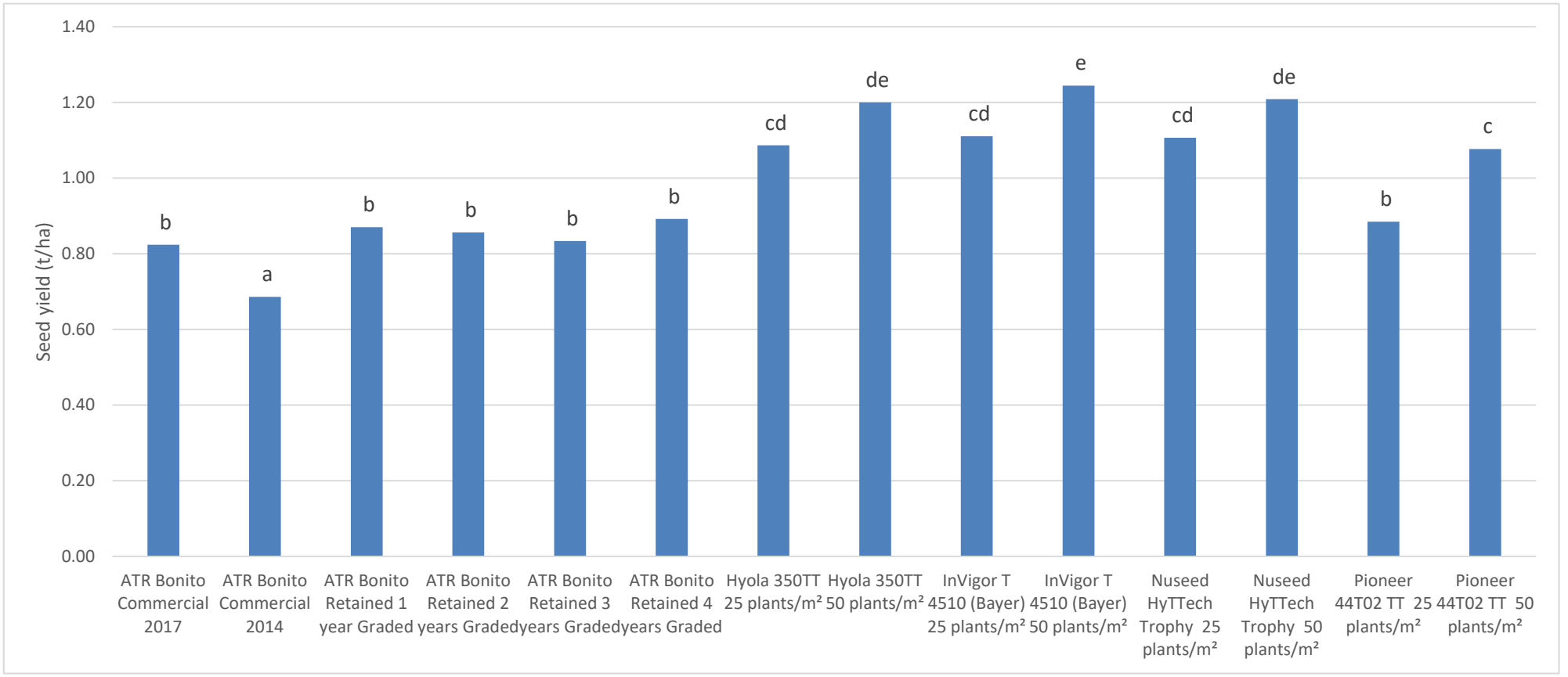

Figure 1 Seed yield (t/ha) of canola in retained seed experiment at Grass Patch in 2018 (18ES14).

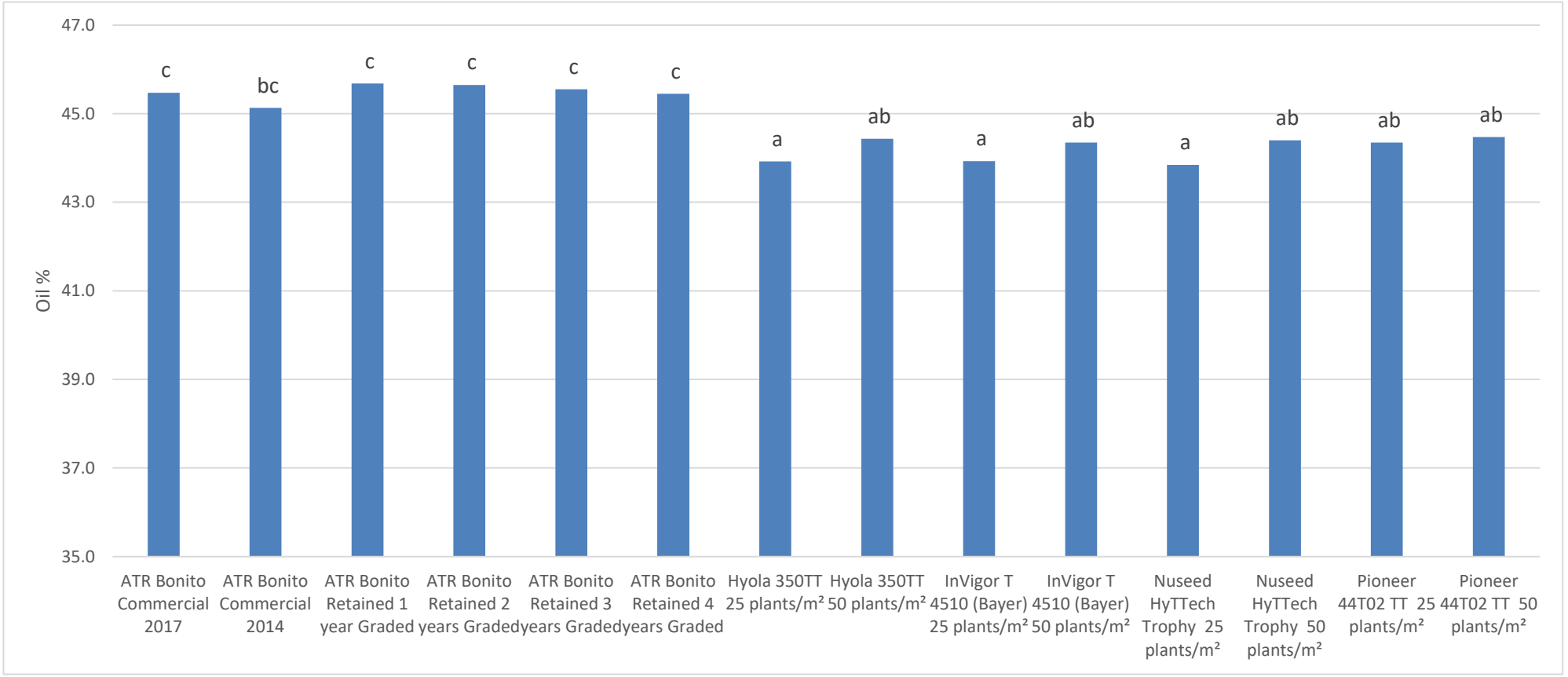

Figure 2 Oil concentration (%) in canola from retained seed experiment at Grass Patch in 2018 (18ES14).

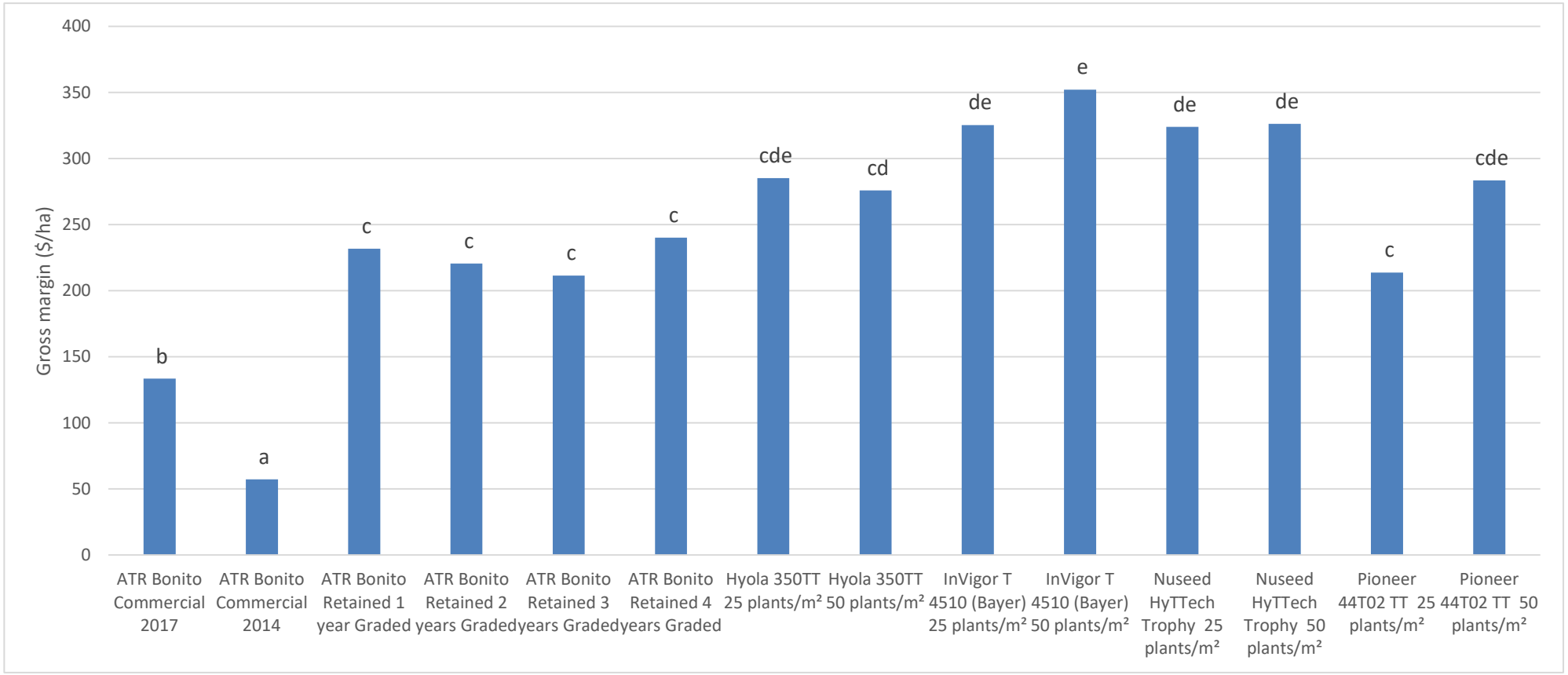

Figure 3 Gross margin ($/ha) of canola from retained seed experiment at Grass Patch in 2018 (18ES14).

Acknowledgements

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Links

For other reports related to this trial see NVT online or visit GRDC’s on-farm trial web site at https://www.farmtrials.com.au

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