

Early sowing profitable in 2015 and 2016

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Key messages

- Sowing early is the key to maximising canola yield
- An extra 40kg/ha per day was gained when sowing in mid-April compared to late April at Binnu in 2015
- Changes in climatic, pest and disease risks must be considered when sowing early.

Background

Sowing canola in mid-April has become standard practice in the far north of the WA cropping zone. However, there is little research data on the effect of these sowing dates on yield. The Tactical Break Crop Agronomy team took advantage of early sowing opportunities in 2015 and 2016 to sow trials early and fill this knowledge gap.

Method

Two trials were undertaken which tested a range of canola varieties sown at two different sowing dates (TOS 1 and TOS 2). In 2015 a trial was sown at Binnu on 15 April and 29 April. In 2016 very early sowing occurred at Wongan Hills on 31 March and 15 April (Figure 1).

At Binnu there were 10 varieties (5 TT and 5 RR); CB Telfer (very early), ATR Stingray (early), ATR Bonito (early/mid), Hyola[®] 450TT (mid), Hyola[®] 559 (mid/late), Pioneer 43Y23 (early), Hyola[®] 404 (early/mid), GT41(early/mid) GT50 (mid), Hyola[®] 525 (mid).

At Wongan there were six varieties; all were Round-up Ready hybrid plant types; Pioneer 43Y23 (early), Hyola[®] 404RR (early/mid), GT50 (mid), Hyola[®] 525RT (mid/late), Hyola[®] 600RR (late), Hyola[®] 725RT (very late).

Results

Yield Binnu

The overall yield of the Binnu trial was 1322kg/ha. Averaged across all varieties TOS 1 yielded 1647kg/ha compared to TOS 2 yielding 997kg/ha. Hence 650kg/ha less yield from delaying sowing by 15 days, a loss of 43kg/ha/day.



Figure 1 DPIRD researcher Martin Harries at the Wongan Hills trial looking at sowing times for canola; March sown plots (left) and mid-April sown plots (right), photo taken 5 July

There was a variety response ($P < 0.001$), with the more recently released hybrids among the highest yielding varieties).

There were no significant differences between varieties in their response to sowing time. Roundup Ready varieties yielded 1362kg/ha on average and triazine tolerant varieties yielded 1282kg/ha (Figure 2).

Yield Wongan Hills

The overall yield of the trial was 2755kg/ha. Canola sown on 31 March yielded 2853kg/ha compared to 2658kg/ha for canola sown on 15 April, averaged across all varieties. Hence delaying sowing by 15 days led to 195kg/ha less yield, which is equivalent to an average loss of 13kg/ha/day.

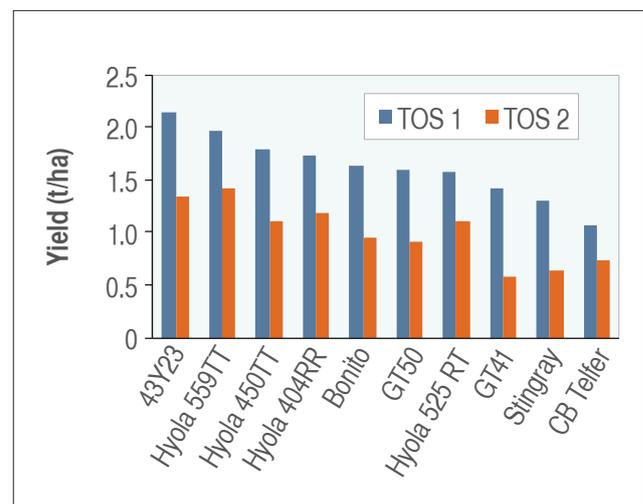


Figure 2 Yield, Binnu 2015 trial. TOS 1 = 15 April, TOS 2 = 29 April

For the early maturing varieties, Pioneer 43Y23 and Hyola® 404RR, there was no advantage to seeding in March compared to April. For the mid-season maturity varieties, GT50 and Hyola® 525RT, yields increased by 360kg/ha (24kg/ha/day) or 11% and 12% respectively with March sowing. For the long-season maturity varieties, Hyola® 600RR and Hyola® 725RT, yields increased by around 260kg/ha from March sowing (17kg/ha/day) or 9% and 10% respectively (Figure 3).

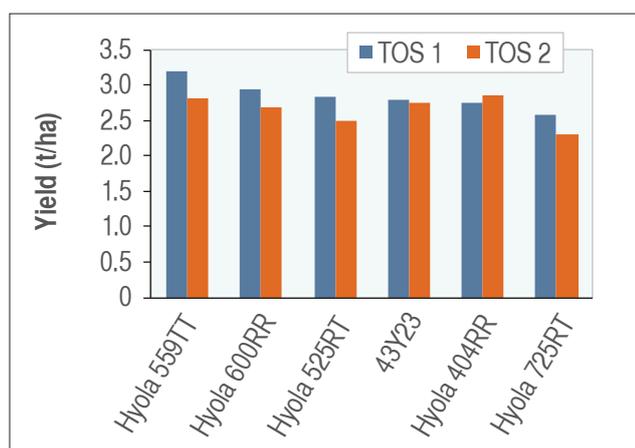


Figure 3 Yield, Wongan Hills 2016 trial, TOS 1 = 31 March, TOS 2 = 15 April

Seed quality

For both trials there were significant differences in seed oil content between varieties but not between the sowing times.

Plant growth

In both trials, plants that emerged earlier produced more biomass, although this response was less pronounced in the short-season, smaller plant-type varieties (Figure 4).

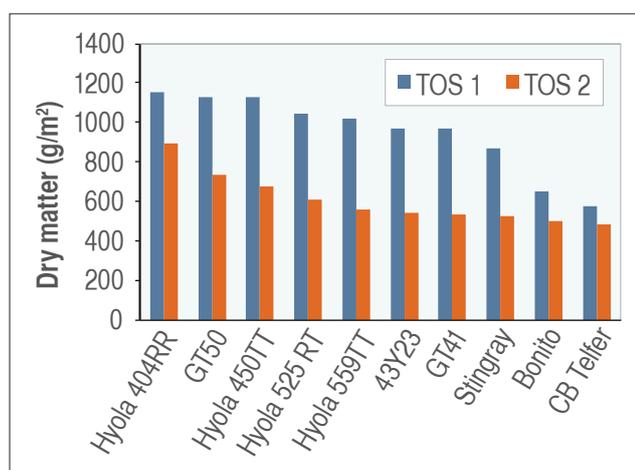


Figure 4 Plant biomass Binnu 2015 trial on 18 August. TOS 1 = 15 April, TOS 2 = 29 April

APSIM simulation modelling comparison

The yields obtained in the Wongan Hills trial were compared to predicted yields using the APSIM model.

On average, the optimum time of sowing for Wongan Hills is simulated to be 7 April - 6 May, with lower yields for March sowing (Figure 5).

The trial yields were close to that simulated by the model for the 2016 season. In 2016, simulated yield increased when sown in March compared to April, due to summer rain and early season rainfall. However, the model output for 2000-2015 suggests this is not common.

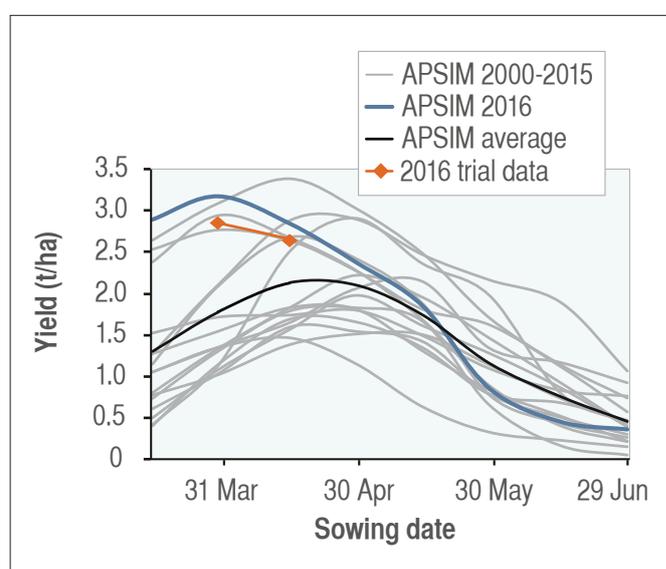


Figure 5 Comparing yield at different seeding dates for trial results and APSIM simulations at Wongan Hills

Conclusions

The research to date strongly indicates, if a mid-April sowing opportunity occurs growers should take it. This will maximise yield and reduce the risk of experiencing a long delay to the next sowing opportunity. Although there will be increased disease and pest risk, due to the longer period of exposure, and increased risk of a dry spell after sowing.

APSIM simulations are a valuable tool in understanding and simulating (predicting) particular seasonal results.

More work is required to investigate very early sowing of canola over a wider range of years and locations.