Bayer CropScience

AgGrow
AGRONOMY + RESEARCH

CANOLA HARVEST MANAGEMENT

Barellan, 2014

INDEPENDENT AGRONOMY ADVICE + CUTTING EDGE RESEARCH

PSR Technology in canola

KEY POINTS

*Pod Shatter Reduction (PSR) technology in canola is a new technology which could be advantageous for growing canola in the local region.

*The variety IH51RR has the pod shatter resistant trait breed into it. This technology showed merit in this trial at the two harvest timings and also with and without enforced pod shatter events.

* Direct heading on time (<8% moisture) is the key to minimising shattering losses, regardless of variety. Yields significantly declined in both the delayed harvest treatments.

BACKGROUND

The genome for triggering pod shattering in canola was discovered by Bayer CropScience.

This Pod Shatter Reduction (PSR) technology is coming through in new varieties and could potentially provide significant benefits when direct-heading or windrowing canola in the region.

TRIAL DETAILS

A trial was established at Jeff Savage's, Barellan on 25th April, 2014 in conjunction with Bayer CropScience.

The aim of the trial was to evaluate the benefits of PSR technology in canola when direct heading. It also aimed to evaluate the harvest losses from different varieties and the timing of direct heading.

The trial consisted of 3 varieties (including IH51RR, a new pod shatter resistant variety by Bayer CropScience) by 4 harvest timings and was replicated 4 times. This is shown in table 1. Each plot was 12m by 1.75m.

All plots were direct headed, with a "shattering event" simulated by shaking plots on the day of harvest, as shown in figure 1.

Harvesting on-time occured on 6th November, with the delayed harvest treatment occuring on 29th November.

Establishment, shattering losses and grain yield were all assessed, and are summarised in the results section.

Table 1: Treatment list for PSR Trial

Treatment No.	Variety	Harvest timing
1	IH51RR	On time (<8% moisture)
2	45Y22	On time (<8% moisture)
3	GT 50	On time (<8% moisture)
4	IH51RR	On time + shattering
5	45Y22	On time + shattering
6	GT 50	On time + shattering
7	IH51RR	Delayed harvest
8	45Y22	Delayed harvest
9	GT 50	Delayed harvest
10	IH51RR	Delayed harvest + shattering
11	45Y22	Delayed harvest + shattering
12	GT 50	Delayed harvest + shattering

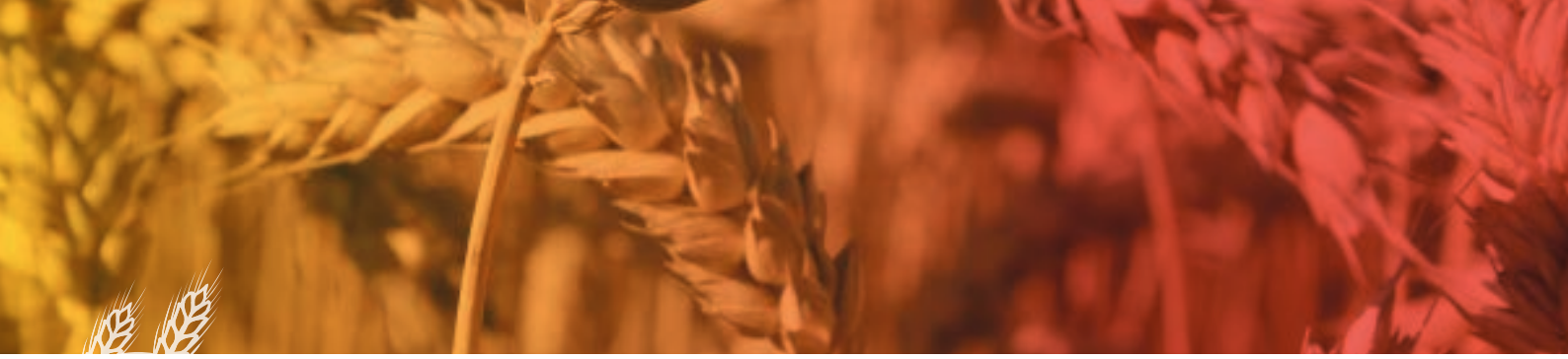

Figure1: Simulating a pod shattering event before harvest

RESULTS AND DISCUSSION

Statistical analysis was carried out on this trial. Significant differences were found between varieties and also between harvest treatments.

Establishment

Establishment scores were carried out on the 21st May. Establishment was scored on a scale of 0 to 10, with 0 indicating very poor /uneven establishment and 10 very even establishment.

Figure 2 shows how well the trial established with scores averaging from 8.6 up to 9.2.

Shattering Losses

Figures 3 and 4 show the shattering that occured at harvest. They compare the shattering treatment with the non-shattering treatment for each harvest timing (on-time and delayed).

Shattering losses for each variety are shown from figures 5 to 10. They compare the induced shattering losses for each variety at the various harvest times (direct headed either on-time or delayed).

Figure 11 shows an estimation of the losses after the induced shattering event for each variety at the delayed harvest timing. Visually you can see the variety with the pod shatter gene, IH51RR, had the least amount of shattering over the other two varieties GT50 and 45Y22.

Grain Yield

No significant differences were found in grain yield for the interaction of harvest treatment and variety. This is represented in figure 12.

Statistical analysis from this trial showed that shattering losses (60 kg/ha) were not significant when harvested on time, figure 13. There was a significant difference though between harvesting on time and delaying harvest in terms of yield for both the non-shattering and shattering treatments. There was also a significant difference between delaying harvest (1602 kg/ha) and delaying harvest plus a shattering event (1357 kg/ha).

Figure 14 shows the combined yield of each of the varieties in the trial. Overall the pod shatter resistant variety IH51RR (1915 kg/ha) yielded significantly greater than the other two varieties GT50 (1692 kg/ha) and 45Y22 (1550 kg/ha).

Figure 2: Establishment Scores taken 21st May, 2014

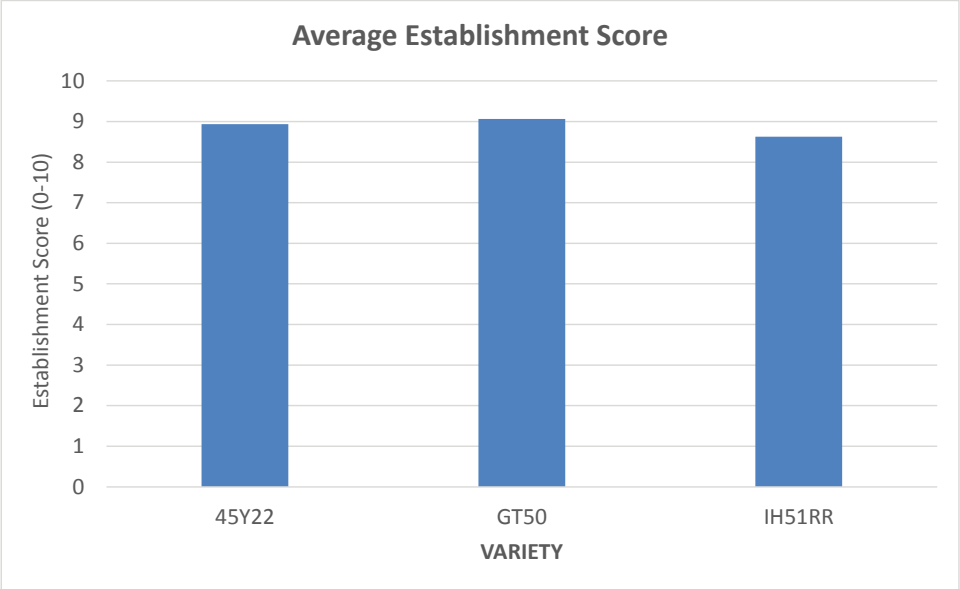

Figure 3: On-time + shattering (left) v on-time (<8% moisture) no shattering (right)

Figure 4: Delayed harvest + shattering (left) v delayed harvest no shattering (right)

Figure 5: Treatment 4 - Direct Heading IH51RR, on time + shattering losses

Figure 6: Treatment 5 - Direct Heading 45Y22, on time + shattering losses

Figure 7: Treatment 6 - Direct Heading GT50, on time + shattering losses

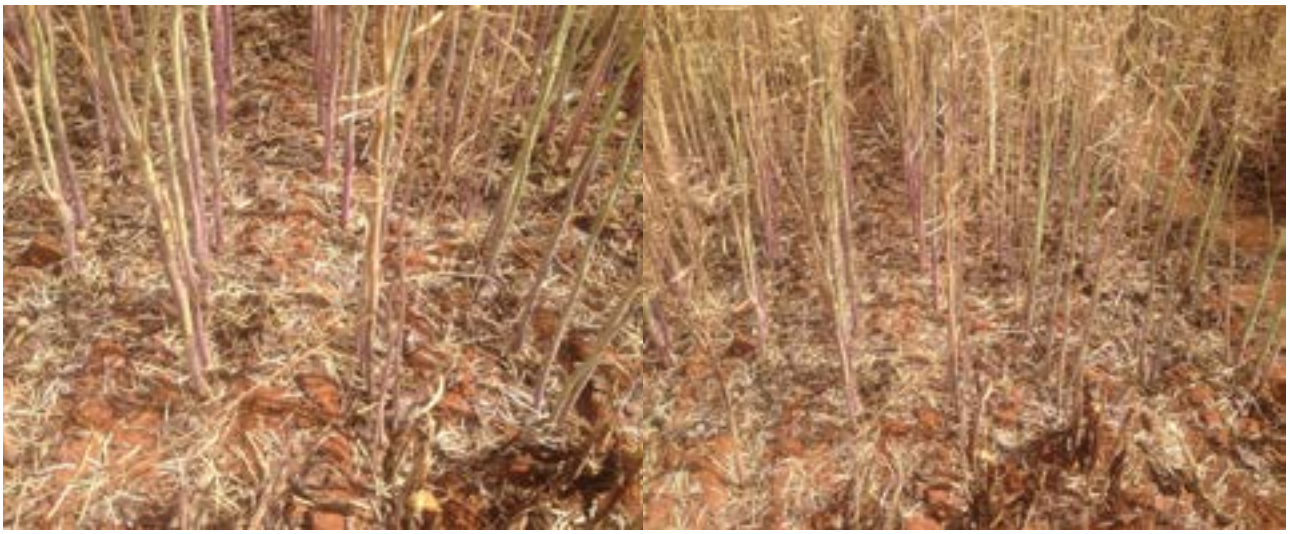

Figure 8: Treatment 10 - Direct Heading IH51RR, delayed harvest + shattering losses

Figure 9: Treatment 11 - Direct Heading 45Y22, delayed harvest + shattering losses

Figure 10: Treatment 12 - Direct Heading GT50, delayed harvest + shattering losses

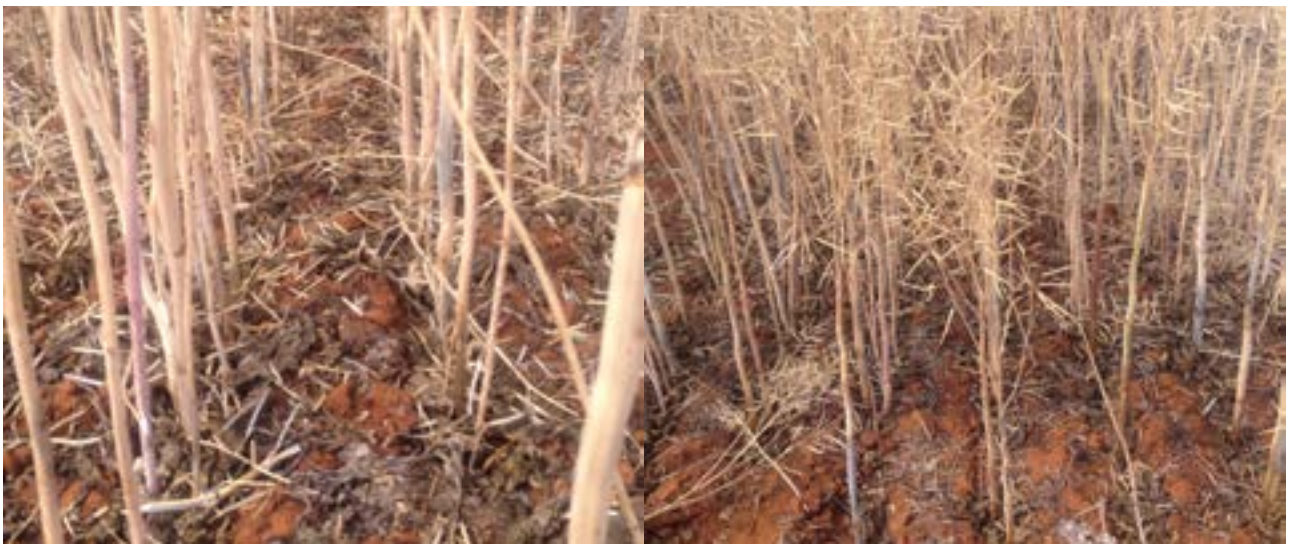

Figure 11: Shattering Losses for the delayed harvest treatments for each variety

Note: 9003 is now known as IH51RR.

Figure 12: Yield of each harvest treatment and variety

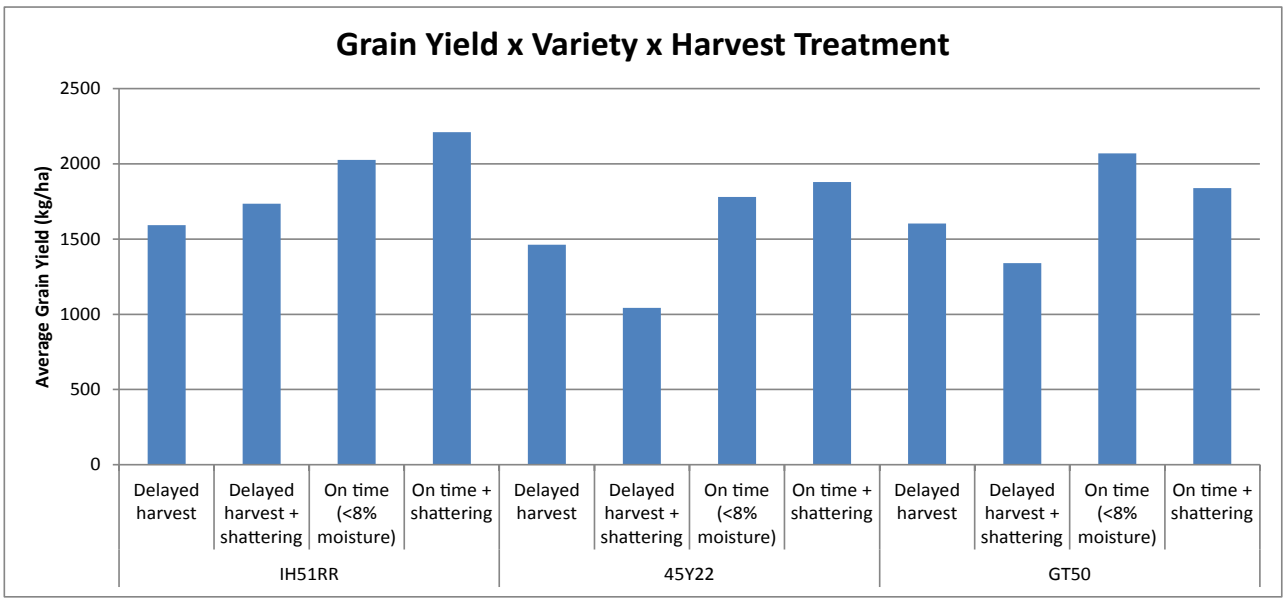

Figure 13: Grain Yield of each Harvest Treatment, (LSD 303 kg/ha)

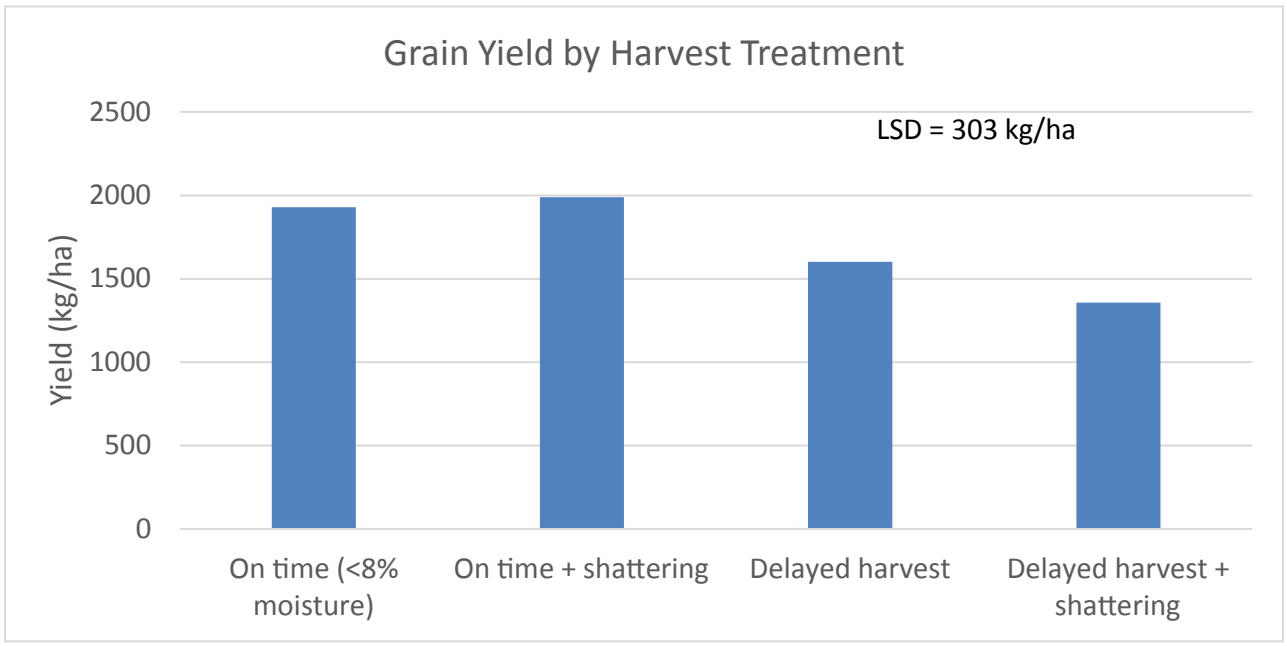

Figure 14: Grain Yield of each variety, (LSD 162 kg/ha)

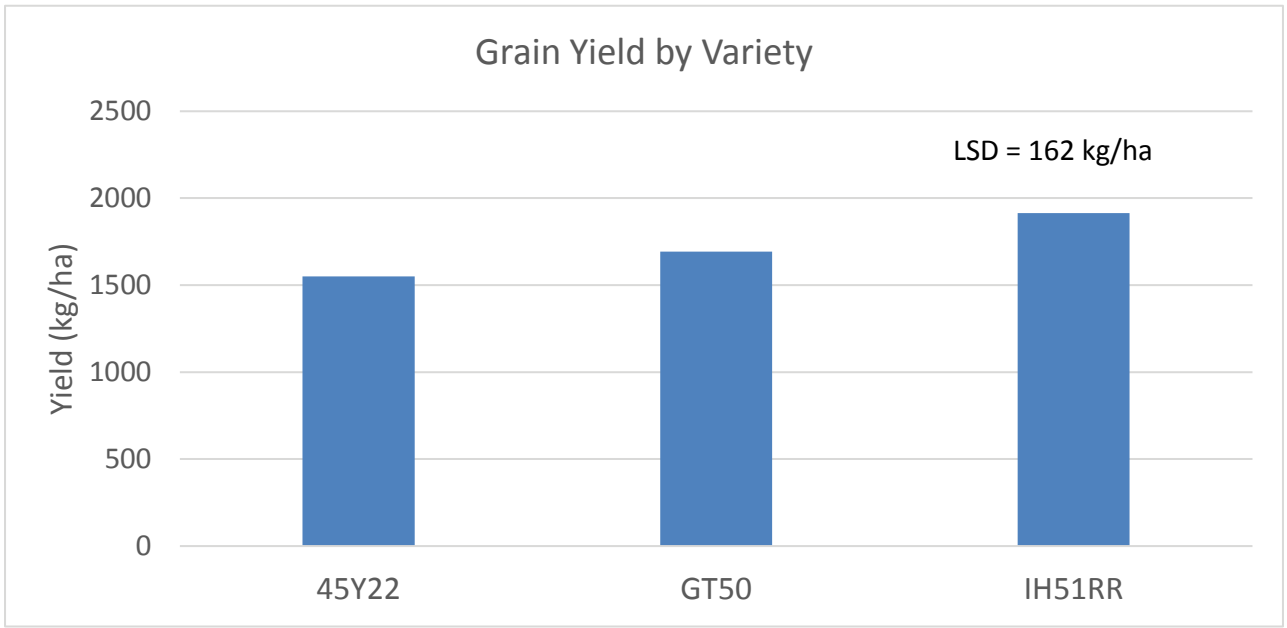

Figure 15: Harvesting at the Barellan site, 6th November 2014

ACKNOWLEDGEMENTS

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