Direct heading canola – less shedding in PodGuard varieties

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**Key messages**

- Shedding losses were generally acceptable (less than 10%) but were a big problem (up to 60% yield loss) during extreme conditions.
- The PodGuard lines IH51RR and InVigor R 5520P had significantly less shedding than other varieties.
- PodGuard varieties are suited for delayed swathing or delayed harvest situations.

**Background**

More farmers are switching from swathing to direct harvesting canola. We investigated how well adapted different varieties are for direct heading, and delayed direct heading, including the new PodGuard varieties. The direct heading experiments were conducted at Esperance Downs Research Station in 2014 and 2015. The PodGuard varieties tested were IH51RR in 2014, and InVigorR 5520P in 2015. Other varieties tested in both 2014 and 2015 experiments were ATR Stingray, Hyola’ 404RR and IH30 (RR).

Shedding losses were assessed multiple ways;

- Shedding before harvest - by measuring dropped seed and pods in gutter trays left in the plots (Figure 1).
- Shedding at harvest - by measuring dropped seed and pods in gutter trays placed in the plots before harvest (Figure 2).
- Total yield decline assessed from differences in harvested yield.

**Figure 1 Collecting pre-harvest losses with gutter tray**

**Figure 2 Collecting harvest losses with gutter tray**

**Figure 3 Gutter tray after harvest**
There were three harvest times for each trial. The first harvest was on-time and the last harvest was four weeks later, in 2014, and six weeks later, in 2015.

1. Seed losses collected before harvest
Shed seed collected in the gutter trays before harvest was variable. Losses were 1-2% when harvested on time and only increased to 3% with delayed harvest in 2014, in spite of a thunderstorm with 44mm of rain and strong winds three days before the second harvest.

However in 2015, average pre-harvest losses were 33% with delayed harvest, after extreme winds. These wind gusts of 87km/hr and 40°C temperatures caused widespread catastrophic fires in the Esperance region on 17 November 2015.

The 33% seed measured in the gutter trays was less than the decline in harvested yields, in 2015. This is likely to be due to seed blowing past the collection gutters during the strong winds. The average decline in machine harvested yield over the same period was 50%.

2. Seed losses collected during harvest
There was a moderate (less than 10%) amount of seed and pod collected in the gutters during harvest, over all harvests of both trials.

There was a marked difference in the shedding of different canola cultivars. The two PodGuard varieties IH51RR and InVigor R 5520P had significantly less shedding than other varieties, both at harvest and before harvest. Shedding losses of Podguard varieties were mainly due to whole pods dropping off the plant. Other varieties generally dropped seed from pods opening and releasing seed.

3. Differences in yield at later harvests
There was a relatively small decline in harvested yields with delayed sowing in 2014. Non-PodGuard varieties lost 6-8% yield (up to 228kg/ha) after the four week delay, while there was no yield loss in the IH51RR at the last harvest.

In 2015, there were high losses by the six week delayed harvest, after the catastrophic winds. Non-PodGuard varieties lost 49-64% (up to 1.4t/ha), while the yield decline for InVigorR 5520P peaked at 27% (735kg/ha) (Figure 4).

Gross margins
In 2014, IH51 had a slightly lower gross margin than other RR varieties for on-time harvest, due to slightly lower yields. However, at later harvests, yields became similar due to the lower shedding loss of IH51 and the gross margin between varieties was similar. In 2015, InVigorR 5520P had the highest yields at the on-time harvest, and this yield advantage grew as harvest was delayed. InVigorR 5520P also had the highest gross margin and the gross margin advantage increased over subsequent harvests (although overall gross margin decreased with delayed harvest).

The Podguard varieties offered a measure of harvest risk management.