

Keep canola density over 20 plants/m² to combat weeds

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Key messages

- Canola crops with a density less than 20 plants/m² are vulnerable to increased ryegrass seed set.
- There were significant increases in ryegrass heads in OP TT, hybrid TT and RR varieties.
- The number of ryegrass heads increased in trials with high and low weed pressure.

Introduction

Maintaining weed control is one of the biggest challenges in farming and is particularly important for canola crops. A major benefit of canola in the rotation is the opportunity to control grasses and provide a disease break for the subsequent cereal crops.

Crop density and herbicide system are two factors that affect the level of weed control. Growers faced with increasing resistance to grass selective herbicides and triazine herbicides have turned to Roundup Ready varieties for more effective ryegrass control. Conversely, growers purchasing hybrid seed are motivated to use lower seeding rates. This is of concern since crop competition is an important contributor to weed control.

Method

Crop density and weed data were obtained through the canola density trial series (see previous paper). Weeds were observed in five of the 24 density trials and weed data was collected. The trials provided a comparison of weed suppression in canola crops with density ranging from very low (<5 plants/m²) to high (40-80 plants/m²).

The weed control program was a single or double knockdown, trifluralin at seeding, a grass selective post emergent and two atrazine sprays for the TT plots with one or two glyphosate applications for the RR plots (Table 1)

Results

Ryegrass head numbers were higher at low crop densities, especially below 20 plants/m² (Figure 1). The crop threshold of 20 plants/m² for suppressing ryegrass weeds appeared to be similar across all five weedy trials, from the high weed density site at Katanning to the lower weed pressure sites at Holt Rock and Wongan Hills.

TT

The open pollinated TT canola had the biggest increase in ryegrass heads, with crop density below 20 plants/m². Ryegrass head numbers were consistently lower for the hybrid TT cultivars than for the OP cultivars, although this difference was not statistically significant at all densities. The lower weed number in the hybrid TT varieties may have been due to more vigorous growth and faster closing of the crop canopy that is typical of hybrids, although this effect was not measured.

Table 1 Herbicide applications at weedy canola density trials. Number of sprays specified for TT and RR plots

Herbicide treatment	Katanning 2013	Holt Rock 2013	Wongan Hills 2013	Wongan Hills 2014
Knockdown 1.5L glyphosate	✓			✓
Knockdown 1.5L sprayseed	✓	✓	✓	✓
1.5L trifluralin	✓	✓	✓	✓
Grass selective -500mL clethodim	✓	✓	✓	✓
TT plots- atrazine 1.1kg/ha	2	2	2	1 (2.2kg)
RR plots- glyphosate 900g/ha	1	1	2	1

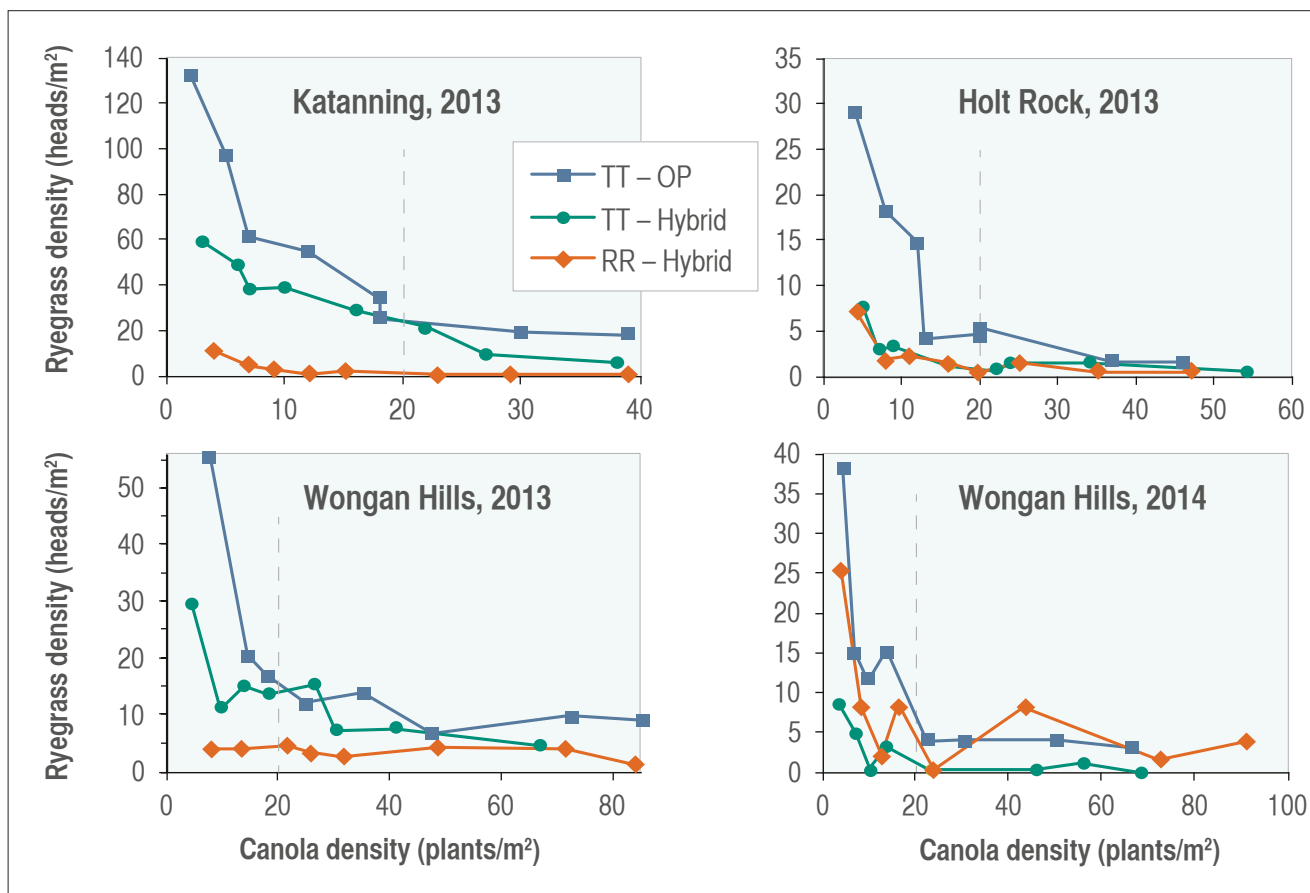


Figure 1 Increased ryegrass heads at crop densities below 20 plants/m² (dashed vertical line), in weedy crop density trials (note different scales for ryegrass densities)

Roundup Ready

As expected, glyphosate provided superior ryegrass control to atrazine, and ryegrass populations were consistently lower for RR plots, compared with TT plots. However, within the RR plots, there was a significant increase in ryegrass heads for low density crop treatments in the 2013 Katanning trial, 2013 Holt Rock trial and 2014 Wongan Hills trial. There was only a single post-emergent application of glyphosate in these trials. The second glyphosate application may also be missed on-farm,

especially with early sowing when the crop matures quickly and may be past the six leaf spray window by the time ryegrass germinates.

Management conclusions

Ensure crop density is at least 20 plants/m² to suppress ryegrass seed set:

- including when using expensive hybrid seed, especially TT hybrid varieties
- including when yield expectations could be met with lower crop densities, for example when considering the need to re-sow.

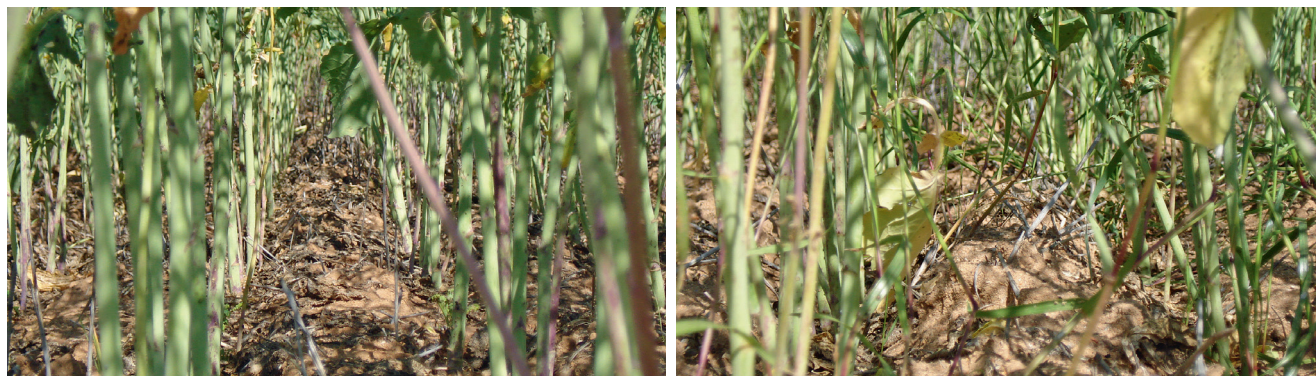


Figure 2 Glyphosate provided superior ryegrass control; clean Roundup Ready plot (left) but grass weeds evident in TT plot (right)