

# Managing canola for low disease and optimum yield

## SUMMARY

Canola can be successfully grown on cereal stubble if the stubble is removed and nutrition (especially N) is adequate.

With the area sown to canola steadily increasing, blackleg is becoming a threat to the successful production of this crop. The use of Impact in furrow fungicide can reduce blackleg disease and improve yield especially where disease pressure is high to moderate. Proper management is still the best tool to prevent the build up of the blackleg fungus.

Canola is now a major crop in many rotations. Traditionally growers grew canola on either fallow or on pulse stubble. There is increasing interest in canola's performance on cereal stubble. Issues in relation to canola on stubble deal with emergence and nitrogen tie up from the stubble.

Blackleg, caused by the fungus *Leptosphaeria maculans*, is a very serious disease in canola. Seasonal conditions have a major influence on the level of disease and potential damage. As rotations are getting tighter, residue and proximity to the residue is increasing, posing greater threat of severe infection for emerging crops. Blackleg is spread primarily from wind, and can spread up to one kilometre. It can take up to four years for the stubble to completely breakdown and stop the spread of spores.

Impact is currently the most effective fungicide that is registered for control of blackleg. Impact is a systemic fungicide applied to fertiliser. Treated fertiliser should be sown in the same furrow as the seed, not broadcast. The treated fertiliser should not come in direct contact with the seed. The canola root must grow through the treated fertiliser for effective uptake. Preliminary research work is showing that Rovral, applied as a seed dressing, at higher rates may also be an effective control measure.

## METHOD

The trial was established at both Charlton and Birchip. Canola had not been grown in the paddocks in the last four years. At Charlton, Pinnacle was sown. At Birchip, Karoo was used. Treatments included sowing canola into worked and standing wheat stubble; low and high rates of nitrogen applied as a pre-drill operation (30 and 60 kg N/ha); and sowing seed treated with Rovral or sowing untreated seed with Impact treated fertiliser at the recommended rate of 0.4 L/ha.

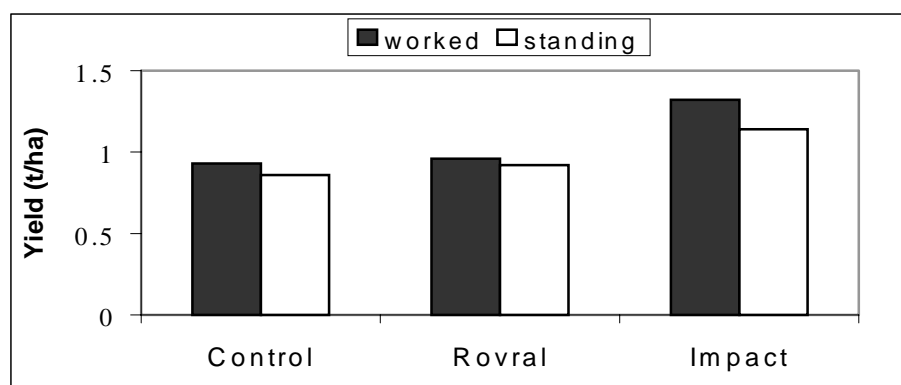
## RESULTS

Canola yield was significantly higher where the cereal stubble had been worked compared to where it had been left standing (0.87 vs 0.95 t/ha,  $P < 0.001$  LSD=0.04) at Charlton. There was a small effect at this site from the higher nitrogen treatment (0.94 vs 0.88 t/ha,  $P < 0.05$  LSD=0.08). At the Charlton site there was no effect of fungicide on yield (Table 3.6).

**Table 3.6** Effect of nitrogen rate and fungicide on canola yields (t/ha) at Charlton site

	Control		Impact		Rovral	
	Low N	High N	Low N	High N	Low N	High N
standing stubble	0.82	0.91	0.87	0.94	0.82	0.84
worked stubble	0.89	0.97	0.96	0.97	0.90	0.98
<b>Significant difference:</b> stubble <b>N</b> treatment fungicide treatment	<b>P&lt;0.001 LSD=0.04</b> <b>P=0.05 LSD=0.08</b> <b>NS</b>					

At Birchip, canola yield was significantly higher where the stubble had been worked compared to where the stubble had been left standing (1.06 and 0.97t/ha respectively,  $P < 0.01$ ,  $LSD = 0.06$ ). There was no effect of low and high rates of nitrogen on canola yield. Blackleg in the seedling stage was observed early in the season but there were no visual differences between treatments. Later in the season, on the adult plants, there were no observable differences in blackleg infections between treatments. Root rots were not observed during the growing season. The Impact treatment yielded higher compared to the control and Rovral treatments ( $P < 0.001$ ,  $LSD = 0.07$ ) (see Figure 3.6).

**Figure 3.6** The effect of cereal stubble treatment and fungicide on canola yield at

Birchip.

#### INTERPRETATION

At both sites the worked cereal stubble plots yielded better than where the stubble had been left standing. At Birchip the canola grown on the fallow had a similar yield. This indicates that canola can be grown successfully on cereal stubble as long as the stubble is removed.

At Birchip there was no response to extra nitrogen, whilst at Charlton there was only a small response.

Even though there were no discernible infections of blackleg during the season there was a significant yield response to 'Impact in Furrow' (between 10 and 30% yield improvement) at the Birchip site but not at Charlton. There was no effect of Rovral at either site. It is not clear why there was a response to Impact at Birchip and not at Charlton. Blackleg levels in the crop were very low at both sites. It is possible that other soil born pathogens could have acted on the canola at the Birchip site.

### **COMMERCIAL PRACTICE**

Canola can be successfully grown on cereal stubble if the stubble is removed prior to sowing and nutrient supply is adequate.

As rotations tighten and canola is sown over more hectares it is essential that preventative management measures are taken to ensure that blackleg potential is limited. The following recommendations will help keep blackleg in check:

- Use resistant varieties
- Burn, rake or bury the stubble
- Plant canola as far as possible from previous year's stubbles
- Keep the rotation one in four years to allow for complete breakdown of previous residue.