

Growing Canola after a cereal

SUMMARY

Canola can be successfully grown on a cereal stubble. It is not essential to burn stubble as long as seedling emergence and establishment is not affected by the retained stubble. If the seeder does not leave a good seed bed and the harrows leave the paddock uneven with clumps of mixed up straw and soil it is better to burn the stubble.

The incidence of black leg was quite high and the fungicide treatments, Rovral and Impact in Furrow did not decrease the level of infection.

The aim of this trial was to investigate management practices for growing canola after cereal.

BACKGROUND

As pulse break crops lose favour because of the risks in growing these crops there is a growing need to work out what are the safest techniques for growing canola on cereal.

Disease implications are also important as more canola is being grown. Blackleg was very common this season, even in varieties with high blackleg resistance ratings. With the increase in area of canola, black leg control methods need to be looked at.

METHODS

Pinnacle canola was sown at the Charlton stubble site on 9th May @ 5kg/ha with MM1 @ 80 kg/ha. Replicated treatments included fungicide treatments, comparing Rovral seed dressing with Impact in furrow (400ml/ha) treated fertiliser, predrilling with 60 or 120 kg/ha of urea and barley stubble burnt or left standing.

Measurements included yield and oil content, disease rating at the 1-2 leaf stage, plant number, and stem disease rating at the late podding stage.

RESULT

The site had a low soil available nitrogen status at sowing (41 kg N/ha) and urea responses were expected (0.70 and 0.84 t/ha for urea at 60kg vs 120kg/ha respectively). There was a significant increase in yield where the stubble was retained compared to where it was burnt (0.61 vs 0.93 t/ha for stubble burnt and stubble retained respectively) (Table 1).

Table 1. Canola yield (t/ha) sown on burnt and unburnt barley stubble, with 60 and 120kg/ha Urea and two different types of disease treatment.

stubble urea kg/ha	Burnt		Retained	
	60	120	60	120
Control	0.59	0.71	0.90	1.00
Impact in Furrow	0.46	0.69	0.78	1.02
Rovral seed treatment	0.61	0.62	0.87	1.00
Significant difference: stubble urea fungicide	P<0.001 LSD=0.09 P<0.01 LSD=0.09 NS			

Oil content was slightly higher for the low urea treatments (60kg - 46.1%, 120 kg - 45.5% oil).

There was no difference in plant density between any of the treatments (average of 51 plants/m²).

Disease ratings for blackleg were carried out on the leaves at the seedling stage and in the stems at the podding stage. An average of 70% of the seedlings had some level of blackleg infection but there was no difference between any of the treatments in the number infected or severity. At the podding stage there were slightly more plants infected with blackleg on the stubble plots (85%) than the burnt plots (79%) but there was no difference between the other treatments. Of the plants infected, 21% had a severe level of infection.

INTERPRETATION

Canola yields were, on average 0.3 t/ha higher where it was sown into a standing cereal stubble compared to a burnt stubble. The main reason for this can be attributed to the extra soil moisture under the stubble area compared to in the burnt area. The largest problem encountered when sowing canola into a cereal stubble is the ability of the seeder to handle stubble - canola has a weak seedling which cannot grow through thick layers of mixed up straw and soil. If you are considering sowing canola into a wheat or barley stubble it is essential to make sure that the seed bed is even and stubble is spread out and not bunched in clumps that canola cannot grow through. If this cannot be guaranteed it will be better to burn the stubble.

Soil testing for deep soil N is essential because generally available N after a cereal is quite low and nitrogen fertiliser rates need to be determined. A significant increase in yield was found with the highest urea rates in this trial.

The use of a fungicide seed treatment (Rovral was used in this trial) or Impact in Furrow with the fertiliser made no difference to yield. Black leg infection was quite severe towards the end of the season with 21% of plants showing a high level of black leg at the base of the stem. The use of a seed dressing with Rovral or using Impact in Furrow with the fertiliser had no effect on the extent of black leg infection in either the seedling or adult stage.

Rovral is useful for suppressing the effects of damping off in canola in the seedling stage and Impact in Furrow is expected to suppress the incidence and carry over of black leg.

COMMERCIAL PRACTICE

Canola in the Wimmera and southern Mallee has an excellent track record as an income earning crop and a break crop. On paddocks with good fertility it is possible to successfully grow canola after a cereal stubble. Cereal stubble does not appear to have toxic effect on emerging canola (also called an allelopathic effect). Your seeders ability to handle stubble without it causing problems with emergence and early establishments is the main consideration in burning or retaining cereal stubble. Nitrogen fertility is important when growing canola especially if it is sown on a cereal stubble and it is advisable to do a deep soil N test prior to sowing and fertilise accordingly.

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