

Trial 6. Disease management for Hyper-Yielding Spring Canola (FAR NSW C22-06)

Objectives: Determine the key timings for fungicide protection and the value of varietal resistance for blackleg management in hyper yielding Canola.

Treatments

Table 1. Detailed treatment list

Treatment	Seed Treatment	4-6 Leaf Spray	20% Bloom Spray	50% Bloom Spray
Nil	Maxim XL	Nil	Nil	Nil
Late	Maxim XL	Nil	Aviator Xpro 0.8 L/ha	Prosaro 0.45 L/ha
Complete	Saltro Duo	Prosaro 0.45 L/ha	Aviator Xpro 0.8 L/ha	Prosaro 0.45 L/ha

The treatments were designed to protect key growth stages from fungal diseases. The Late treatment was designed to only control upper canopy diseases such as upper canopy blackleg and sclerotinia stem rot. The Complete treatment controls crown canker blackleg as well as the upper canopy diseases. Grain yield difference between Complete and Late can be attributed to the control of crown canker blackleg.

Sub trial 1. Glyphosate tolerant canola

Key points:

- The complete fungicide treatment was higher yielding than nil and late fungicide in both 45Y28 RR and Condor TF.
- The benefit of the Complete treatment is from the extra protection provided by Saltro on the seed and Prosaro at 4-6 leaf stage to protect crown canker blackleg.
- When counted at maturity, there were more plants in the Complete treatment in 45Y28 RR compared to Nil and Late, but fungicide had no effect on plant numbers in Condor TF.
- The Complete treatment reduced crown canker blackleg infection (proportion of cross section of stem infected with blackleg at maturity) in both varieties.
- There were small effects of fungicide treatment on both upper canopy blackleg and sclerotinia stem rot (data not shown) but despite the wet year these diseases were both at surprisingly low levels. Sclerotinia stem rot averaged only 2% of plants infected with no fungicide treatment.

Table 1. Influence of fungicide management strategy plant number at maturity, blackleg at the crown (% of stem cross section infected), grain yield (t/ha) and oil concentration in two GT canola varieties at Wallendbeen in 2022.

Variety	Fungicide	Plants/m ² at maturity	*Crown Canker %	Grain Yield (t/ha)	Oil %
45Y28 RR	Nil	36.7	5.7	3.64	46.9
	Late	32.7	6.7	3.77	47.6
	Complete	47.7	2.2	4.10	47.6
Condor TF	Nil	41.0	3.2	3.58	46.7
	Late	44.2	3.2	3.59	46.7
	Complete	42.7	1.2	3.97	47.5
<i>l.s.d. (p<0.05)</i>		7.4	1.8	0.33	<i>n.s.</i>

Key points:

- There was a grain yield response of approximately 0.6 t/ha in ATR Wahoo where the complete fungicide management strategy was used compared with the late and full strategy, but there was no yield response in the more resistant variety HyTTec Trifecta. This response shows that the key timing for disease control in this trial was for early crown infection rather than later upper canopy diseases e.g. sclerotinia stem rot and upper canopy blackleg.
- The complete fungicide treatment had higher plant numbers at maturity in ATR Wahoo and lower crown canker infection.
- Upper canopy disease levels were low overall, with 4% infection of main stems with sclerotinia stem rot (untreated).

Table 2. Influence of fungicide management strategy plant number at maturity, blackleg at the crown (% of stem cross section infected), grain yield (t/ha) and oil concentration in two GT canola varieties at Wallendbeen in 2022.

Variety	Fungicide	Plants/m ² at maturity	*Crown Canker %	Grain Yield (t/ha)	Oil %
ATR Wahoo	Nil	37.5	9.5	2.11	44.2
	Late	40.8	13.2	2.08	44.6
	Complete	52.8	4.7	2.69	44.4
HyTTec Trifecta	Nil	52.8	4.0	3.53	45.7
	Late	46.5	3.0	3.31	46.0
	Complete	56.0	0.5	3.56	45.9
<i>l.s.d. (p<0.05)</i>		9.5	2.8	0.46	<i>n.s.</i>

Table 3. Trial management details.

Sowing date:		25 April
Variety:		45Y28RR & HyTTec Trifecta
Target plant density:		45 plants/m ²
Sowing Fertiliser:		130 kg/ha MAP (in-furrow) & 180 kg/ha Single Super (broadcast pre-sow).
Nitrogen:	6 Leaf	113kg N/ha
	Bud Visible	113kg N/ha
Fungicide:		As per treatment list