Trial 6. Disease Management for Hyper-Yielding Canola (FAR SAC C22-06-S)

Objectives:

To determine the impacts of cultivar choice and fungicide management for disease infection and grain yield of hyper-yielding canola.

Key findings:

- 45Y95 CL was the highest yielding variety across all fungicide treatments, averaging 3.65 t/ha.
- The Flowering and complete fungicide treatments yielded similarly, both yielding more than where no fungicide was applied. This indicated that the fungicide response was due to the control of late foliar diseases (upper canopy blackleg and/or sclerotinia stem rot).
- Varietal crown canker blackleg response to fungicide application varied but there was no interaction between fungicide treatment and variety for yield or quality.
- Hyola Solstice CL had very low incidence of crown canker blackleg but was the lowest yielding variety overall. 45Y95 CL had the most crown canker blackleg infection where nil fungicide was applied but this was greatly reduced where fungicide was applied. Yield did not appear to be affected by the level of blackleg in 45Y95 CL.
- 45Y28 RR had the highest oil concentration of the varieties but there was no impact of fungicide strategy on oil concentration.

Treatments: Three fungicide strategies applied to four varieties. Flowering treatment set to control late foliar diseases only (sclerotinia and upper canopy blackleg); Complete treatment set to control early crown canker blackleg and late foliar diseases.

Table 3. Influence of fungicide strategy and variety of canola yield (t/ha).

	Condor TF		45Y28 RR		45Y95 CL		Hyola Solstice CL		Mean	
Treatment	**Yield (t/ha)**		**Yield (t/ha)**		**Yield (t/ha)**		**Yield (t/ha)**		**Yield (t/ha)**	
Nil	3.02	-	2.79	-	3.34	-	2.01	-	**2.75**	**b**
Flowering	3.16	-	2.62	-	3.93	-	2.24	-	**3.03**	**a**
Complete	3.51	-	2.95	-	3.68	-	2.20	-	**3.09**	**a**
Mean	**3.23**	**b**	**2.79**	**c**	**3.65**	**a**	**2.15**	**d**		
LSD Variety P=0.05						0.23	**P val**			0.010
LSD Fungicide P=0.05						0.26	**P val**			<0.001
LSD Variety x Fungicide P=0.05						0.45	**P val**			0.544
CV						10.34				

Table 2. Grain quality assessment- oil (%), test weight (kg/HL) & protein (%).

		Grain quality assessments					
	Cultivar	**Oil (%)**		**Test Weight (kg/hL)**		**Protein (%)**	
1.	Condor TF	44.5	b	67.0	a	19.8	ab
2.	45Y28 RR	45.4	a	66.2	b	18.8	c
3.	45Y95 CL	43.1	c	66.3	b	20.3	a
4.	Hyola Solstice CL	44.3	b	66.5	ab	19.4	bc
	LSD = 0.05	0.64		0.57		0.70	
	Cultivar p-Value	<0.001		0.042		0.006	
	Disease Management						
1.	Nil	44.4	-	66.4	b	19.4	-
2.	Flowering	44.4	-	66.4	b	19.5	-
3.	Complete	44.1	-	66.8	a	19.9	-
	LSD = 0.05	ns		0.34		ns	
	Disease Management p-Value	0.258		0.043		0.226	

Table 3. Details of the management levels.

Sowing date:		**10 May**		
Plant population:		60 plants/m²		
Fungicide Management:		**Nil**	**Flowering**	**Complete**
	Seed trt:	Maxim XL	Maxim XL	Saltro Duo
	6 - Leaf	---	---	Aviator Xpro 800mL/ha
	20% Bloom	---	Aviator Xpro 800mL/ha	Prosaro 450mL/ha
Fertiliser:	Basal	145 kg MAP		
	2-Leaf	84 kg Gran-am		
	6-Leaf	226 kg Urea		
	Green Bud Visible	226 kg Urea		

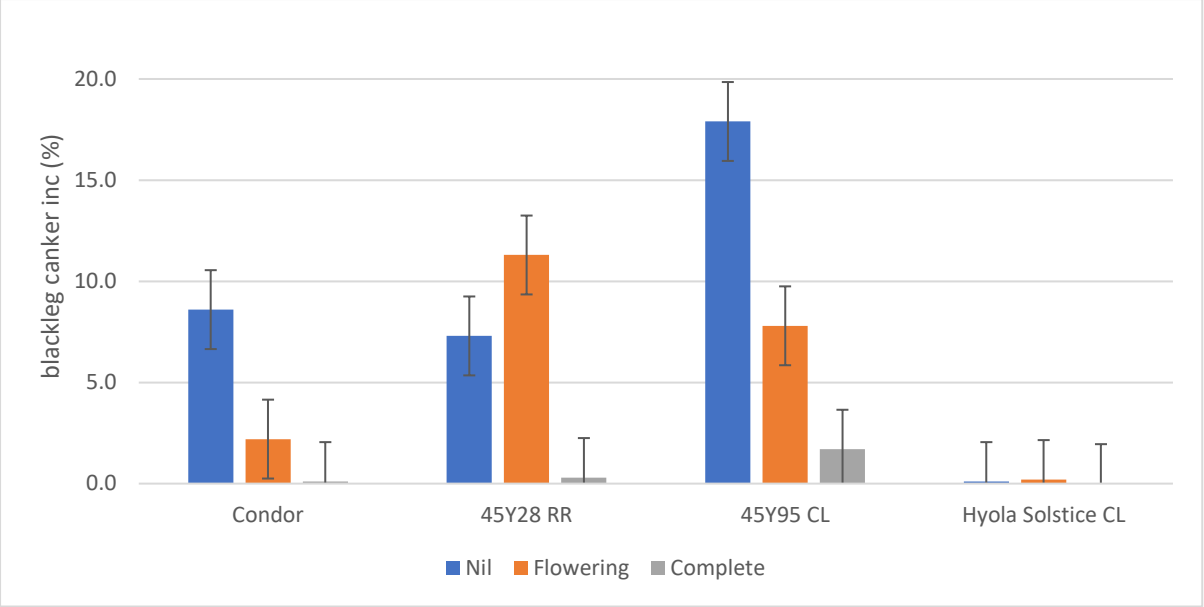

Figure 1. Incidence of blackleg canker in 4 varieties with 3 fungicide management techniques (± LSD = 0.05).