C3. Disease Management x Row Space, MRZ Wimmera (Vectis), Victoria

Aim

To investigate if optimum disease management strategies change in different row spacings across a range of chickpea varieties, differing in ascochyta blight susceptibility.

Experimental Treatments

Varieties: Genesis 090, Genesis 079, Genesis 114, CICA0603, CICA0604, PBA Slasher, Almaz and Howzat.

Fungicide Regimes:

Regime	Chemical & Application Rate[1]	Timing
Fortnightly	chlorothalonil 500 @ 2 L/ha	Fortnightly starting 6 weeks after emergence.
Strategically	chlorothalonil 500 @ 2 L/ha	Strategically from vegetatively through to podding
Podding	chlorothalonil 500 @ 2 L/ha	Podding
Nil	Nil	Nil

1. Refers to application rate of the product

Ascochyta Blight inoculant applied 23rd July

Row Spacings/Stubble: 17.2 cm row spacing, slashed stubble (sl17),
60 cm row spacing, inter-row, standing stubble (ST60).

Other Details

Sowing date: 15 May.
Fertiliser: MAP + Zn @ 60 kg/ha at sowing.
Plant Density: 35 plants/m^2.

Results and Interpretation

- Key Message: Wider row spacings resulted in less visual symptoms of ascochyta blight and higher grain yields. This was particularly notable in the susceptible genoptype, Howzat.

- Ascochyta Blight Damage – Ascochyta blight was present at low to moderate levels in this trial in 2010. Ascochyta blight symptoms where generally less in the wider row spacing treatments (ST60) and in the fortnightly fungicide treatment (Table C3.1). This was particularly notable in the susceptible genotype, Howzat, which had a score of 3.0 in the Nil fungicide treatment in wide rows (ST60) compared with 5.3 in the narrow rows (sl17)

Table C3.1. The interaction effect of row space treatment, fungicide regime and genotype on ascochyta blight damage score (1 – no symptoms present, 9 – complete plot death) at Vectis in 2010.

Regime	Howzat	Almaz	CICA0603	Genesis 114	Genesis 079	Genesis 090	CICA0604	PBA Slasher	*Average*
					Row Spacing – sl17				
Fortnightly	2.3	1.0	1.0	1.0	1.5	1.3	1.0	1.0	*1.3*
Strategically	3.5	2.3	1.8	1.3	1.0	1.0	1.5	1.0	*1.7*
Podding	4.8	2.3	1.8	1.5	1.3	1.3	1.3	1.0	*1.9*
Nil	5.3	3.0	2.3	2.3	1.8	1.8	1.0	1.0	*2.3*
Average	*3.9*	*2.1*	*1.7*	*1.5*	*1.4*	*1.3*	*1.2*	*1.0*	*1.8*
					Row Spacing – ST60				
Fortnightly	1.3	1.3	1.0	1.3	1.0	1.0	1.0	1.0	*1.1*
Strategically	3.0	1.3	1.0	1.0	1.0	1.0	1.3	1.0	*1.3*
Podding	2.3	1.5	1.5	1.5	1.3	1.0	1.0	1.0	*1.4*
Nil	3.0	2.0	1.3	1.3	1.0	1.0	1.0	1.0	*1.4*
Average	*2.4*	*1.5*	*1.2*	*1.3*	*1.1*	*1.0*	*1.1*	*1.0*	*1.3*

lsd(P<0.05)RSxregimexgen = 0.7

- Grain Yield – Grain yields showed a similar trend to ascochyta scores. Wider row spacings (ST60) were higher yielding than narrow row spacings (sl17) and the fortnightly fungicide treatment had significantly higher yield than other treatments (Table C3.2). However, there were differences in the way genotypes responded to the treatment. For example, in the susceptible genotype, Howzat, the yield loss in the sl,17 treatment between the 'Fortnightly' and 'Nil' fungicide regimes was 85%, whilst in the ST60 treatment yield loss was 40%. In comparison, the resistant genotype, Genesis 090, the yield loss was 5% and 10%, respectively (Table C3.2, highlighted).

Table C3.2. The interaction effect of row space treatment, fungicide regime and genotype on grain yield (t/ha) at Vectis in 2010.

Regime	Howzat	Almaz	CICA0603	Genesis 114	Genesis 079	Genesis 090	CICA0604	PBA Slasher	*Average*
					Row Spacing – sl17				
Fortnightly	1.34	2.20	2.41	2.28	2.34	2.23	2.37	2.49	*2.21*
Strategically	0.53	1.47	2.00	2.24	1.99	1.93	2.48	2.33	*1.87*
Podding	0.24	1.54	1.89	1.73	1.73	2.14	2.18	2.01	*1.68*
Nil	0.28	1.55	1.83	2.00	1.89	2.09	2.22	1.91	*1.72*
Average	*0.60*	*1.69*	*2.03*	*2.06*	*1.99*	*2.10*	*2.31*	*2.19*	*1.87*
					Row Spacing – ST60				
Fortnightly	1.59	2.70	2.72	2.20	2.56	3.09	2.48	2.50	*2.48*
Strategically	1.04	1.73	2.35	2.38	1.96	2.71	2.33	2.30	*2.10*
Podding	1.11	1.56	2.38	2.15	1.95	2.20	2.48	2.49	*2.04*
Nil	0.93	1.78	2.17	2.39	2.44	2.67	2.63	2.45	*2.18*
Average	*1.17*	*1.94*	*2.41*	*2.28*	*2.23*	*2.67*	*2.48*	*2.43*	*2.20*

lsd(P<0.1)RSxregimexgen = 0.5

Key Findings and Comments

Wider row spacings resulted in less visual symptoms of ascochyta blight and higher grain yields. This was particularly notable in the susceptible genoptype, Howzat. It is likely that in this treatment there was slower spread of ascochyta blight from rain splash due to the distance between rows and the standing stubbles. Further work will occur in 2011 to confirm these findings.