

C9 Disease Management, MRZ Wimmera (Rupanyup), Victoria

Aim

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

Experimental Treatments

Varieties: Genesis 090, Genesis 114, Kalkee, PBA Slasher, PBA Stiker, Almaz, CICA0717, CICA0857, CICA1016, CICA1122.

Variety/mixes:

Fungicide Regimes:

Regime	Chemical & Application Rate ¹	Timing
Fortnightly	chlorothalonil 500 @ 2 L/ha	Fortnightly starting 6 weeks after emergence. Total = 8 applications.
Strategically	chlorothalonil 500 @ 2 L/ha	Strategically from vegetatively through to podding. Total = 3 applications.
Podding	chlorothalonil 500 @ 2 L/ha	Podding. Total = 1 application.
Nil	Nil	Nil

1. Refers to application rate of the product
Ascochyta Blight inoculant applied 26th July

Other Details

Sowing date: 11 May.
Row Spacings/Stubble: 30 cm row spacing, standing stubble
Fertiliser: MAP + Zn @ 80 kg/ha at sowing.
Plant Density: 35 plants/m².

Results and Interpretation

- Key Message: The kabuli chickpeas, both smaller and larger seed types were much more profitable than desi's at Rupanyup in 2012. Disease had no significant effect on yield, although symptom scores highlighted potential risks with a new line CICA0717
- Ascochyta Blight Damage – Ascochyta blight was present at relatively low levels in the trial in 2012, however there were significant differences in the varieties compared (Table 1). Across all management treatments CICA0717 and PBA Striker generally showed the most symptoms, while Genesis090, Kalkee and PBA Slasher showed the least symptoms. Overall there was little difference between the Nil, Podding and Strategic fungicide management regimes, however there was a trend that the more susceptible varieties like CICA0717 and PBA Striker, had a significant reduction in damage scores as the number of fungicide sprays was increased.

Table 1. The interaction effect of fungicide regime and variety on ascochyta blight damage score (1 – no symptoms present, 9 – complete plot death) and the average of grain yield (t/ha) across fungicide regimes for each variety of chickpeas at Rupanyup in 2012 (as there was no significant interaction with fungicide regime).

Variety	Ascochyta Blight Damage Score					Grain Yield
	Fortnightly	Strategically	Podding	Nil	Ave	
Genesis090	1.0	1.8	2.0	2.0	1.7	1.79
Kalkee	1.0	2.0	2.3	2.0	1.8	1.63
PBA Slasher	1.0	2.0	2.3	2.0	1.8	1.63
Genesis090 + PBA Slasher 50:50	1.0	2.0	2.0	2.3	1.8	1.62
CICA1122	1.0	2.0	2.8	2.5	2.1	1.55
Genesis090 + PBA Striker 50:50	1.0	2.0	2.3	2.5	1.9	1.67
Genesis114	1.0	2.0	3.0	2.5	2.1	1.69
Almaz	1.0	3.0	2.8	2.8	2.4	1.54
CICA1016	1.0	2.0	2.8	2.8	2.1	1.68
CICA0857	1.0	2.3	2.8	3.0	2.3	1.53
PBA Striker	1.0	2.5	3.5	3.3	2.6	1.58
CICA0717	1.0	2.3	3.8	4.0	2.8	1.45
<i>Average</i>	<i>1.0</i>	<i>2.1</i>	<i>2.7</i>	<i>2.6</i>	<i>2.1</i>	<i>1.61</i>

LSD(P<0.05) Disease Score – regimexvariety=0.7, regime = 0.4, variety = 0.3; Grain yield - regimexvariety=ns regime = ns, variety = 0.14

- Grain Yield – The fungicide management regime had no significant impact on grain yields in 2012. Across varieties yields ranged between 1.4 to 1.8 t/ha, with Genesis090 have the highest yield and CICA0717 lowest (Table 1).

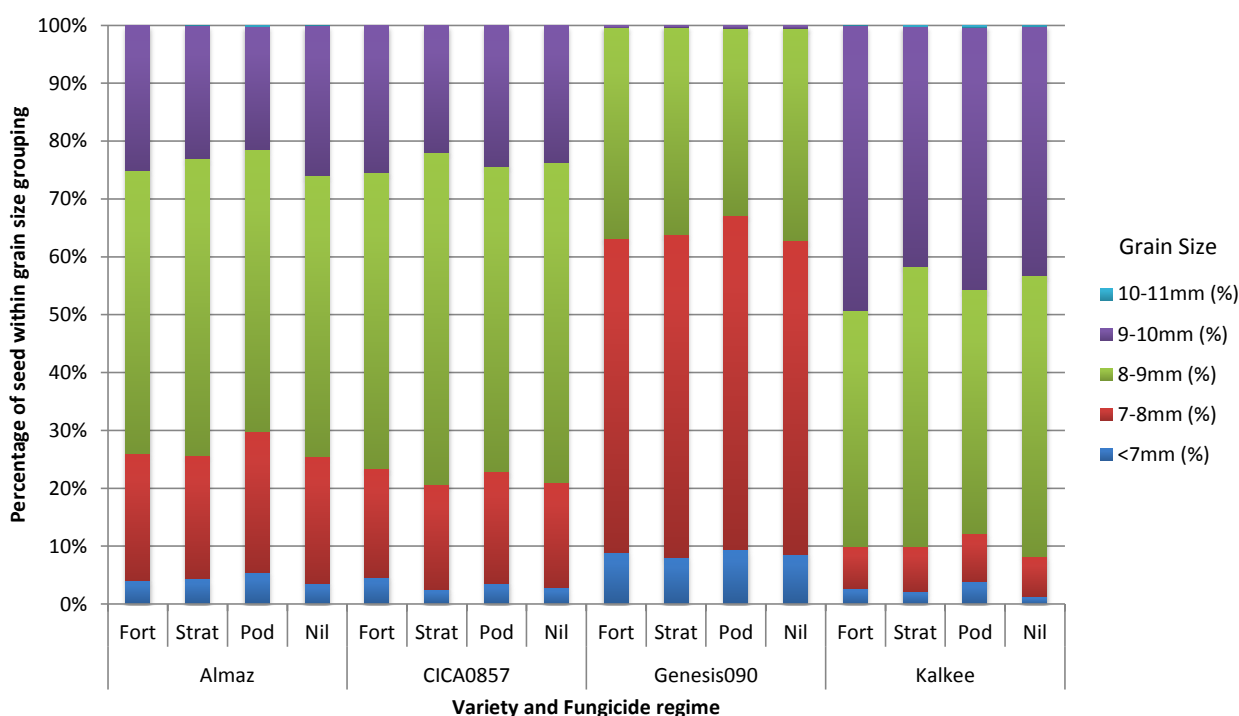


Figure 1. The effect of the interaction between sowing date and kabuli chickpea variety on the proportion of grain within each grain size category at Curyo in 2012.

- Kabuli Seed Size Distribution – There were no significant interactions between variety and fungicide regime within each of the grain size groupings (Fig. 1). However there was the main effect of variety, with Kalkee producing the largest seed (90% greater than 9mm) and Genesis090 the smallest. Almaz and CICA0857 had a similar seed size distribution profile.

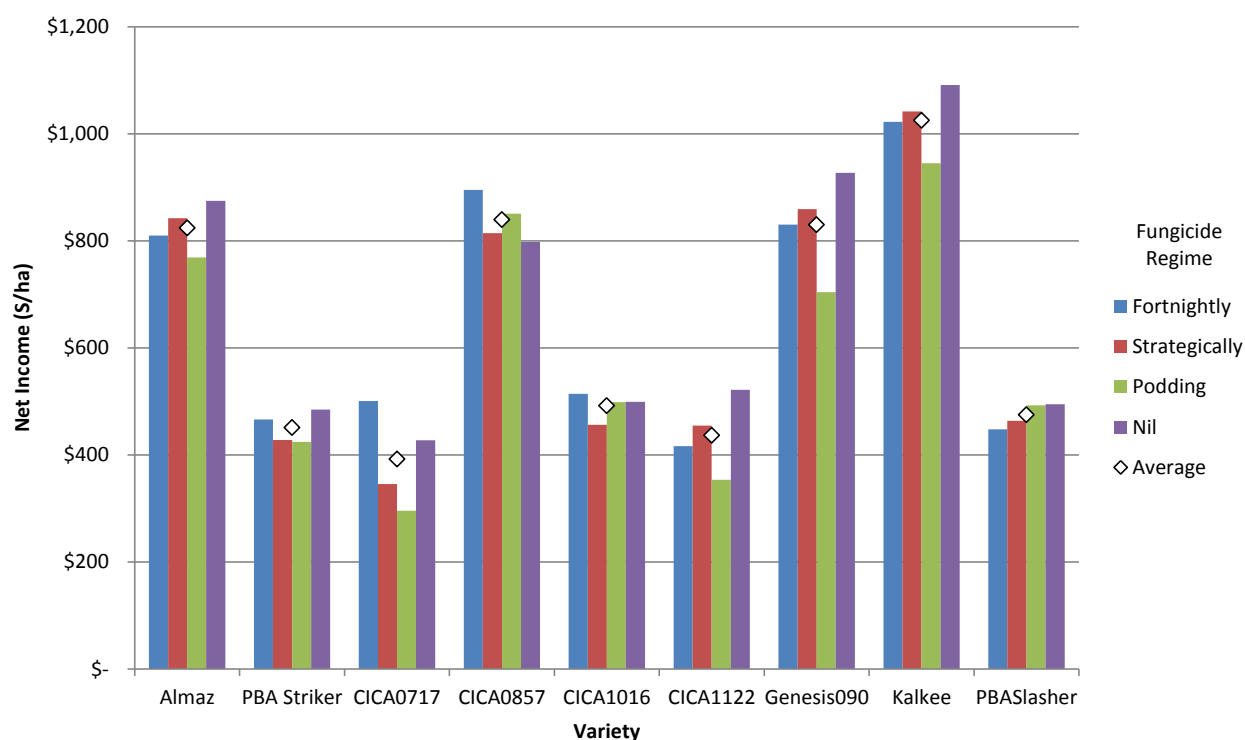


Figure 2. The effect of the interaction between fungicide regime and chickpea variety on net return (\$/ha) at Rupanyup in 2012. Mean variety return indicated by diamonds. Based on the following grain prices: Desi = \$450/t; Kabuli = <7mm-\$330, 7-8mm-\$550, 8-9mm-\$750, 9-10mm-\$850, 10-11mm-\$1000 with fixed management costs of \$220/ha and fungicides at \$15/ha per application (Fortnightly = 8, Strategically = 3, Podding = 1, Nil = 0).

- **Profitability** – The profitability of varieties generally did not vary greatly across fungicide regimes, although in 5 out of 9 of the varieties the podding regime had the lowest returns. Comparing varieties, generally the larger seeded Kabulis were most profitable, with Kalkee have a net income of \$1000/ha and Almaz, Genesis090 and CICA0857 at \$800/ha. The Desi's ranged from \$390 to \$490/ha (Fig Cxxx.2).

Key Findings and Comments

Due to the dryer than average conditions in 2012, yields and disease pressure were lower than in 2011. This also meant that disease had no major impact on the yields of the varieties grown in this trial, despite a low level of symptoms being observed during the season. The symptoms also indicated that growers will need to be cautious with growing varieties like PBA striker and the potential release CICA0717 and implement fungicide strategies that minimise risk for their environment.

Mild spring conditions meant that relative grain yield differences among varieties were small. This also meant that due to higher prices expected to be received for Kabuli chickpeas, these varieties were far more profitable than desi's in 2012. The larger variety Kalke displayed return more than double that of any desi variety. If consistent seed size and grain yields can be replicated across seasons, the larger Kabulis will prove to be profitable in the Wimmera, particularly when appropriate disease management packages are implemented.