

### **C3. Chickpea Ascochyta Blight Susceptibility, Mid North (Turretfield), South Australia**

Co-authored by Jenny Davidson, South Australian Research & Development Institute

#### **Aim**

To evaluate ascochyta blight response of new varieties by comparing their susceptibility to known cultivars.

#### **Treatments**

Varieties: Table 1

Sowing date: 31 May

Treatments: Inoculated with ascochyta blight infected chickpea straw on July 15<sup>th</sup>.  
No foliar or seed fungicide treatments were applied.

Fertiliser: MAP + Zn @ 100kg/ha

Table 1: Ascochyta blight ratings of kabuli and desi chickpea varieties, Turretfield 2012.

Variety	Ascochyta Rating
Ambar	R **
Genesis079	R
Genesis090	R
Genesis114	MS-MR
Genesis Kalkee	MS-MR
Howzat	S
Neelam	R **
PBA Slasher	R
PBA Striker	MR
Sonali	MS
CICA0717	MR **
CICA0857	MR **

\*\* = limited evaluation

#### **Results and Interpretation**

- The average grain yield for the trial (including several varieties rated as S and MS) was 1.75t/ha. Yields varied between 0.4t/ha in the most susceptible variety Howzat to 2.45t/ha in the resistant PBA Slasher (Figure 1).
- This trial had a high initial level of ascochyta blight infection due to the inoculation with infected chickpea straw. Individual plots showed up to 50% plot infection during winter. Dry seasonal conditions during spring reduced late season disease spread and some level of plant regrowth (recovery) was observed in the susceptible varieties.
- There was a direct relationship between ascochyta blight infection and grain yield where resistant varieties showed less infection and higher grain yield compared to more sensitive varieties (Figure 1).
- PBA Slasher outyielded all other varieties, while there was no significant difference in yield between Genesis079, CICA0857, Ambar, PBA Striker, Genesis090, CICA0717 and Neelam.
- The kabuli varieties with MS-MR AB resistance, Genesis Kalkee and Genesis114 were lower yielding than all varieties except Howzat (S) and Sonali (MS). They also showed similar ascochyta blight infection to varieties with improved resistance in this trial, including PBA Striker (MR), CICA0717 (MR), Neelam (R) and PBA Slasher (R).
- Genesis090 showed the lowest ascochyta blight infection, but similar to Ambar and Genesis079.
- PBA Slasher, Neelam, CICA0717, PBA Striker, CICA0857, Genesis114 and Genesis Kalkee all showed higher ascochyta infection than Genesis090 but significantly less than Howzat and Sonali.

- Howzat (S) and Sonali (MS) showed the highest and second highest levels of ascochyta blight infection, respectively.

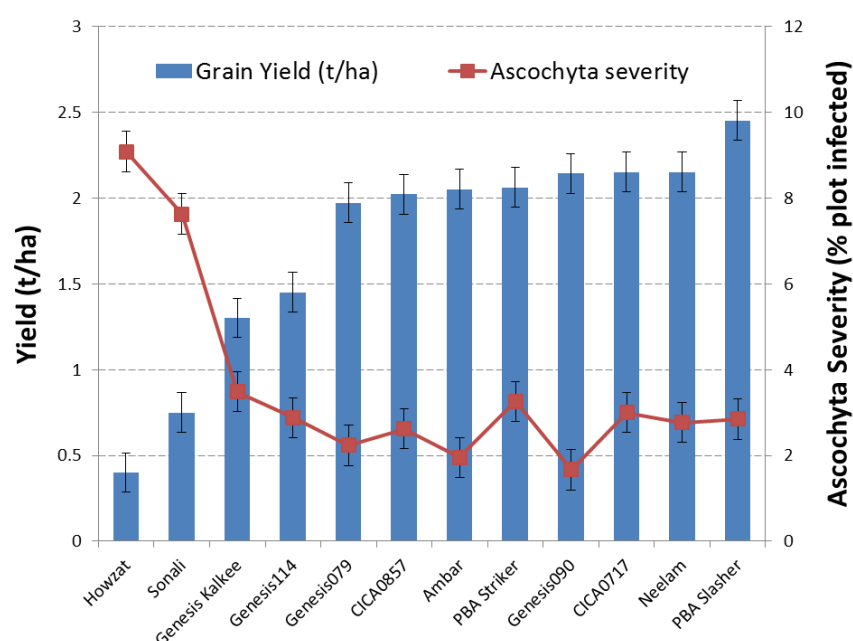


Figure 1: Grain yield (t/ha) and ascochyta severity (% plot infected) of chickpea varieties at Turretfield, 2012.

### Key Findings and Comments

- A direct relationship between grain yield and ascochyta blight infection, and grain yields varying from 0.4t/ha (Howzat) to 2.45t/ha (PBA Slasher), highlight the achievements of the chickpea breeding program in developing varieties with improved ascochyta blight resistance.
- The kabuli variety Genesis090 (rated as R) has the highest level of ascochyta blight resistance of all the varieties tested in this trial, supporting previous findings.
- Despite higher levels of ascochyta blight infection, some desi varieties, including PBA Slasher, may have higher yield potential due to better general adaptation to South Australian growing environments eg earlier maturity and better tolerance to variable soil types.
- This trial showed no difference between some varieties currently rated as MS-MR, MR and R for either grain yield or ascochyta blight infection severity. Further testing is required to validate these results, and to update current ascochyta blight resistance ratings.
- All current chickpea varieties are susceptible to seed staining from ascochyta blight, and require foliar fungicides at the onset of podding. Varieties rated as MR and MS-MR will also benefit from strategic fungicide applications during the growing season to control disease.