

Chickpeas

C1. Chickpea Sowing Date, Yorke Peninsula (Arthurton), South Australia

Aim

To maximise yield, quality and agronomic performance of new chickpea varieties through the identification of optimum sowing dates.

Treatments

Varieties: Kabuli: Genesis079, Genesis090, Genesis114, Genesis Kalkee and CICA0857

Desi: PBA Slasher, PBA Striker and CICA0717

Sowing dates: 15 May (Early), 15 June (Mid)

Fungicides: P-Pickel T (thiram + thiabendazole) seed treatment, chlorothalonil at 8 weeks, early flower and early podding

Fertiliser: MAP + Zn @ 90kg/ha

Results and Interpretation

- Foliar disease – A “best practice” strategic fungicide regime was implemented in this trial, and there was little foliar disease observed in this trial in 2012 due to the drier than average season finish.
- Lodging – a significant sowing date x variety response was generated for lodging (Figure 1), despite only low levels of lodging in chickpea crops in 2012 compared with previous seasons. All desi chickpea varieties showed increased lodging from earlier sowing, while Genesis079 was the only kabuli variety to show increased plant lodging at the early sowing date. PBA Striker and CICA0717 also showed significantly greater lodging than all other varieties at the early sowing date. PBA Striker, CICA0717 and CICA0857, were the only varieties to show lodging at the late sowing date.
- Grain Yield – grain yield averaged 2.4 t/ha across the trial, less than in previous seasons due to the drier than average finish. Individual sowing date and variety responses were generated for grain yield in 2012.

There was a 9% yield penalty from one month sowing delay from May 15th to June 15th (Table 1). All varieties responded similarly due to low disease pressure and dry seasonal conditions. The earlier maturing varieties Genesis079, PBA Striker and CICA0717 were the highest yielding varieties in the trial. CICA0857, a larger seeded and earlier maturing line, was lower yielding than other earlier maturing varieties, but yielded higher than other larger seeded, later maturing lines Genesis114 and Genesis Kalkee, which were the lowest yielding cultivars in this trial.

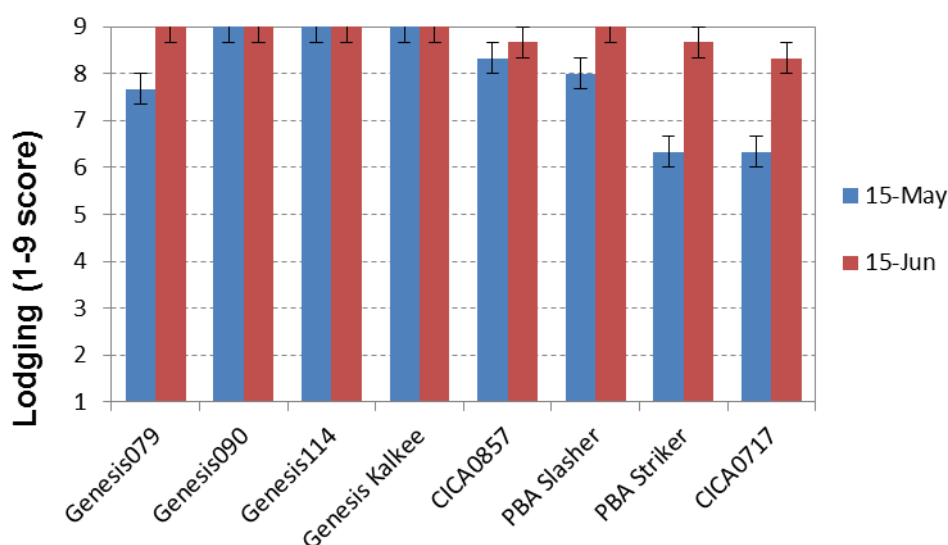


Figure 1: Effect of sowing date on lodging of five kabuli (left) and three desi (right) chickpea varieties, Arthurton 2012. Lodging score: 1= prostrate, 9 = erect

Table 1: Effect of sowing date on grain yield of chickpeas, Arthurton 2012.

Sowing Date	15-May	15-Jun	LSD (P<0.05)
Grain Yield (t/ha)	2.45	2.24	0.067

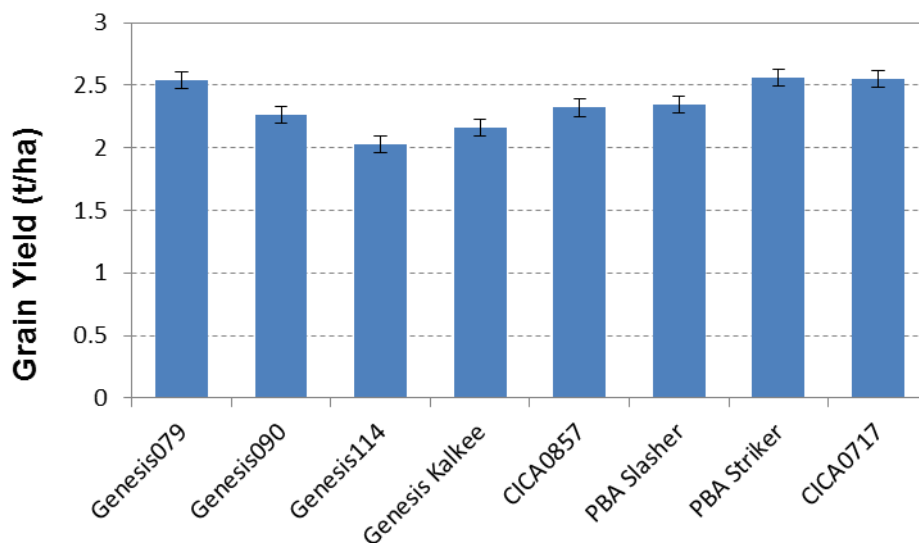


Figure 2: Grain yield of five kabuli (left) and three desi (right) chickpea varieties, Arthurton 2012.

Key Findings and Comments

- A dry (but mild) finish to the season meant that yields were less than the previous seasons but still above average, and there was less biomass production and disease pressure, resulting in low amounts of plant lodging.
- As expected, lodging was greater at the earlier sowing date, but was generally only minimal.
- Earlier maturing varieties PBA Striker and CICA0717 showed greater lodging than other varieties, but also showed equal highest grain yield with Genesis079 (also early maturing). This result supports previous findings potentially showing a link between lodging and plant maturity. The large seeded, later maturing lines Genesis114 and Genesis Kalkee were the lowest yielding varieties in the trial. However these varieties are likely to attract price premiums due to their larger and more consistent seed size than other kabuli varieties. Genesis Kalkee has the largest seed size of the two varieties, and is more likely to achieve requirements associated with this premium grade market.
- The kabuli line CICA0857 showed similar grain yield to Genesis090, and has a larger and more consistent seed size than Genesis090. Its earlier maturity compared to Genesis090 may also provide improved yield stability across variable seasons and in lower rainfall chickpea growing areas.
- PBA Striker and CICA0717 showed higher yield than the other desi variety, PBA Slasher. These earlier maturing varieties have higher ascochyta blight susceptibility than PBA Slasher, but may show higher yield stability in seasons with a drier than average finish, or in lower rainfall chickpea growing areas where the risk of ascochyta blight is low.