

C8. Row Spacing, LRZ (Yenda), New South Wales

Aim

To investigate the effects of row spacing and plant populations across a range of advanced varieties on yields of chickpea at Yenda in south western NSW.

Treatments

4 Chickpea varieties x 2 targeted plant populations x 4 rows spacing configurations

Varieties:	Kabuli – Genesis 090. Desi – Genesis 509, PBA Slasher, PBA Hatrick.
Sowing dates:	19 th May.
Plant populations:	Targeted 25 & 40 plants/m ² .
Row Spacing/Stubble:	20 cm, 30 cm, 40 cm & 50 cm.
Fertiliser:	Legume Starter @ 115 kg/ha at sowing banded with seed.

Results and Interpretation

- Grain Yield - Yields at the widest row spacing (50cm) were significantly less than the yields at 20, 30 and 40 cm row spacings (which did not differ from each other). These means are averaged over varieties and plant populations. Similar results have been observed in previous years. PBA Slasher and Genesis 509 were significantly higher yielding, while PBA Hatrick and Genesis 090 significantly lower. Chickpea yield peaked at around 30 plants/m², similar to the adjoining chickpea plant density trial. At both lower and higher plant populations, grain yields declined.

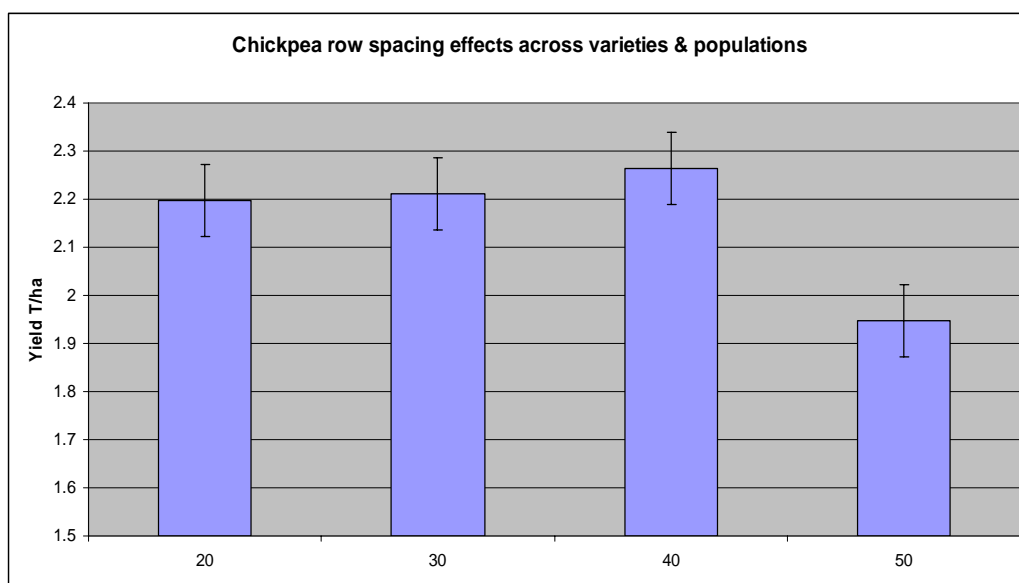


Figure C8.1. The main effect of row spacing on grain yield (t/ha) of chickpeas at Yenda in 2010.

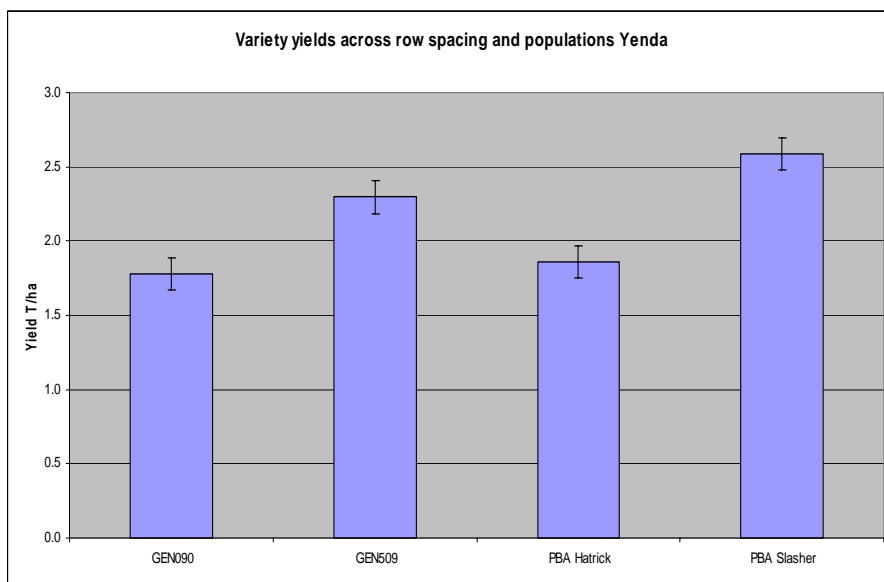


Figure C8.2. The main effect of genotype on grain yield (t/ha) of chickpeas at Yenda in 2010.

- **Grain Weight** - The main effect of variety and the interaction of variety and row spacing were found to be significant ($P < 0.05$). All other treatments and interactions were not significant. Row spacing had the major effect on grain weight of Genesis090 with 15% higher grain weight at 40cm row spacing than at 20cm row spacing. Other varieties (desi) showed little variation with the exception of Genesis509 having significantly larger seed size at 30cm than at other row spacings. The significance of seed size response is of higher importance with Kabuli varieties as a premium is paid for larger seed size. Further work with other Kabuli varieties is important to determine optimum plant population and row spacing to maximise seed size and grain yields.

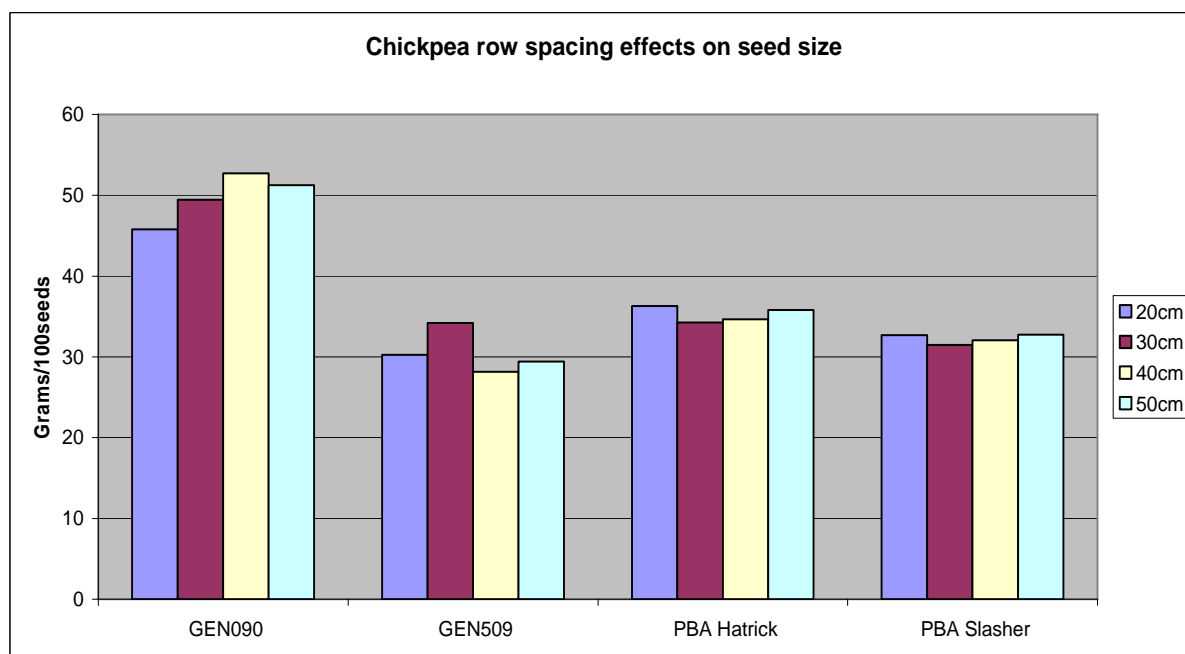


Figure C8.3. The interaction effect between genotype and row spacing on grain yield (t/ha) of chickpeas at Yenda in 2010.

Key Findings

- Yields at the widest row spacing (50cm) were significantly less
- Seed size in desi varieties showed reasonable stability across row spacing
- Seed size in Genesis 090 (kabuli) increased with row spacing