

C3 Sowing Time x Plant Population, H-MRZ, Wagga Wagga, NSW

Aim

To test the yield response of six chickpea varieties across 2 different sowing times (TOS) and three targeted plant populations in southern NSW. The information from this trial will be used to improve current grower sowing time recommendations, variety selections and targeted plant population at each sowing time.

Treatments

Varieties:	Kabuli – Genesis 090. Desi – Genesis 509, PBA Slasher, PBA Hattrick, PBA Boundary, CICA0603 (PBA Striker).
Sowing dates:	10 th May and 14 th June 2011.
Plant populations:	Targeted 15, 30 & 45 plants/m ² .
Row Spacing/Stubble:	30 cm into standing light stubble.
Fertiliser:	Legume Starter @ 115 kg/ha at sowing.
Fungicide:	Seed dressed with P-Pickle T.

Results and Interpretation

The results for grain yield show that effects of variety, plant population, variety x TOS, variety x plant population were all significantly different ($P<0.05$). All other effects and interactions were not statistical different.

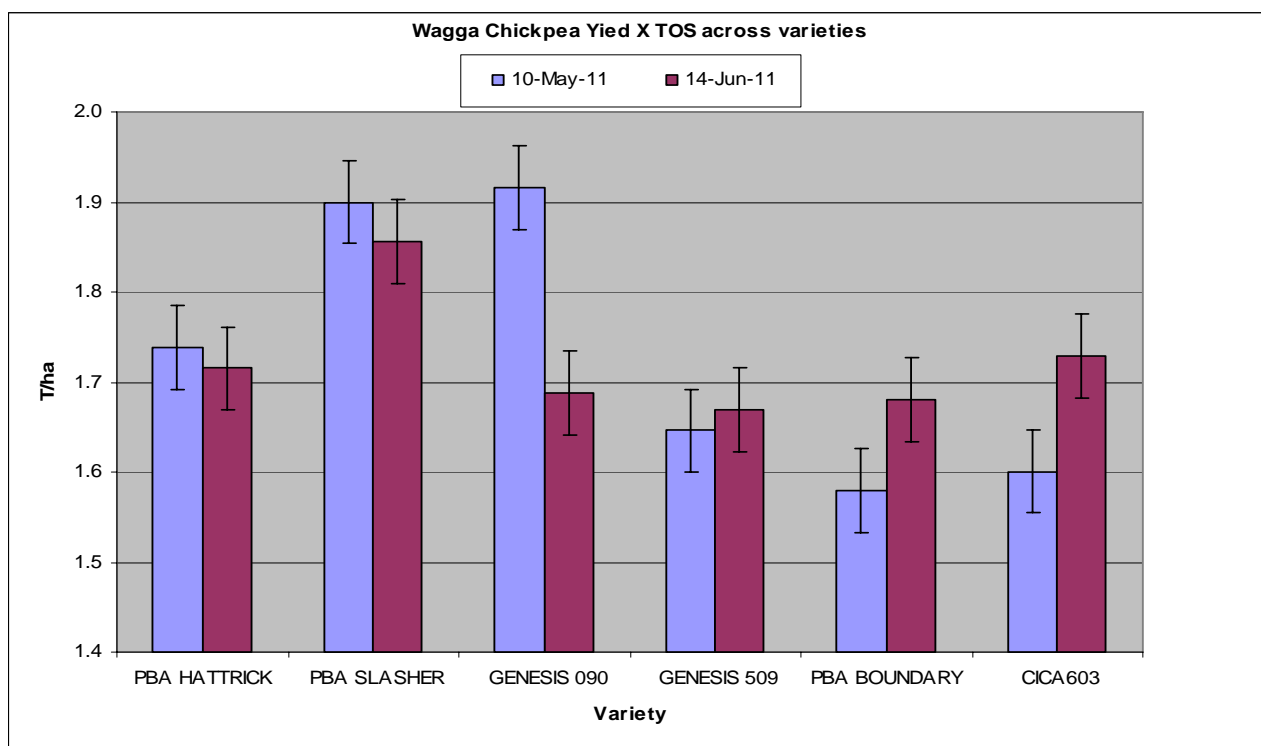


Figure C3.1. Effect of variety on grain yield (t/ha) across time of sowings.

Sowing time affected varieties differently; yield of Gen 090 fell away rapidly with delayed sowing, yield of PBA Boundary & CICA0603 increased with delayed sowing while the remaining varieties behaved indifferent for reasons that are unclear.

PBA Slasher was the highest and most stable yielder overall. Genesis 090 followed, particularly at the earliest sowing. Yield of other varieties were around 10% behind ($P<0.005$).

Previous years studies demonstrate the highest and most stable yields of chickpea in most seasons across southern NSW result from early May sowing.

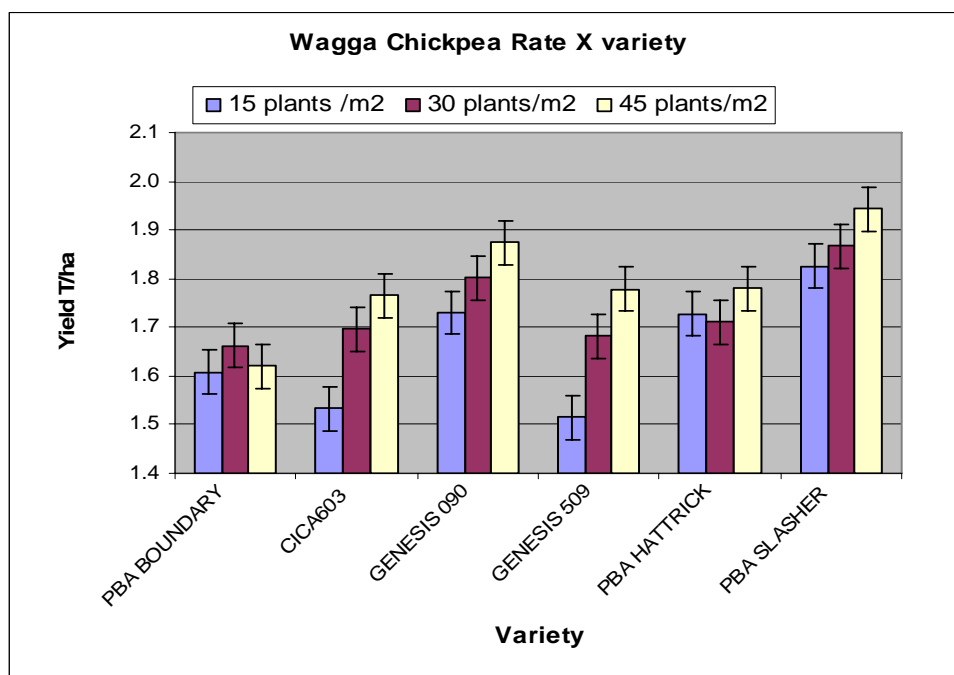


Figure C3.2. The effects of plant density and variety on grain yield (t/ha).

A positive and significant response was detected with increasing plant populations averaged across TOS and varieties. On closer inspection, whilst the difference was significant, there was only small differences at the higher rates of 30 & 45 plants/m². From previous work and across a range of seasons, a population of between 30 & 45 plants would be considered optimum.

In milder winter seasons, higher populations lead to increase disease pressure, and potentially lodging issues. This situation leads to ineffective penetration of fungicides into the canopy.

At the other end, low densities (irrespective of TOS) result in low grain yields. Therefore growers need to ensure that plant populations of >30plant/m².

Lodging

Delayed sowing and increasing density increases plant lodging in chickpea (see Figure C3.3).

Lodging scored: 1 = erect; 5 = flat on the ground.



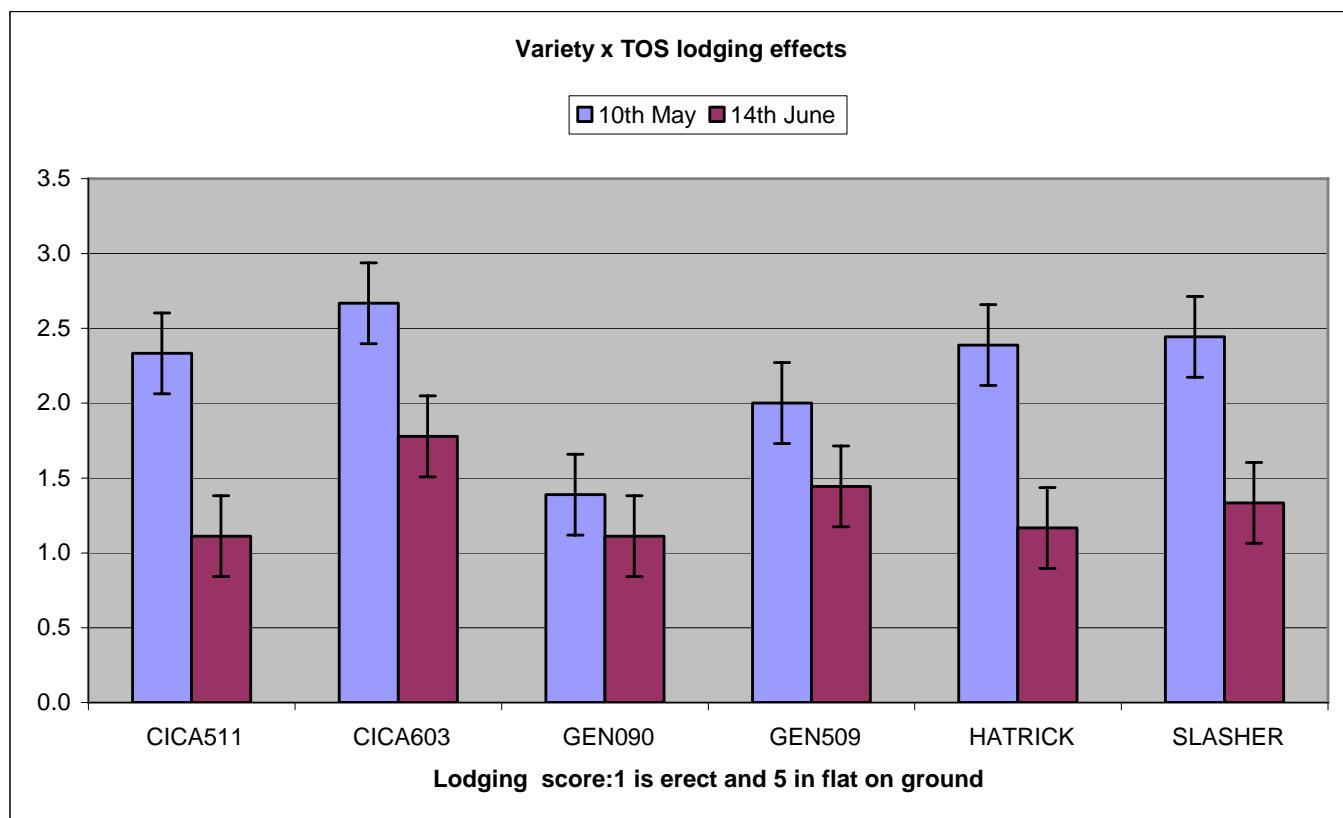


Figure C3.3. The effect of variety & TOS on lodging in chickpea.

Key Findings and Comments

- PBA Slasher is consistent the highest & most stable yielding variety across different sowing dates on acidic red brown soils in southern NSW.
- Target early May sowing in southern NSW to maximise grain yield.
- Low plant populations (<30plant/m²) decrease grain yields. Excessively high populations, particularly in favourable seasons, increase lodging and disease risks.