

C4 Sowing Date x Plant Population, LRZ (Yenda), 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.
Sowing dates:	19 th May and 22 nd June.
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.

Results and Interpretation

There was significant effects ($P<0.05$) of variety, plant population and plant population x time of sowing detected in this trial. All other effects and interactions were not statistically different. There was a small time of sowing effect detected at the $P<0.08$ level.

Table C4.1. The effect of variety on grain yield (t/ha) across time of sowings and plant populations.

Variety	Grain yield T/ha
PBA Boundary	1.64
CICA0603	1.85
Genesis 090	1.90
Genesis 509	1.78
PBA Hattrick	1.81
PBA Slasher	1.92
LSD ($P<0.05$)	0.27

As can be seen in the above Table, there were small yield differences across varieties. As with previous studies, PBA Slasher has shown to be the highest yielding; this is consistent with all other trials in this region.

When looking further into the data, the interactions of TOS and plant populations show interesting but predictable results. This result shows a general yield decline with the lower plant population treatments across both TOS. However the difference is greater with late TOS.

With both planting dates in 2011, there is no yield advantage with increasing plant population beyond 30plants/m². There is however a significant yield advantage by sowing earlier in the sowing window. With previous year's studies, it has been suggested that early May is the optimum sowing window.

Results over the past few seasons (2008-2011) indicates that late April-early May is the optimal time to plant in this region. Sowing earlier than this can be predisposed to disease, particularly ascocyta, and can lead to excessive vegetative growth resulting in poor pod set and lodging.

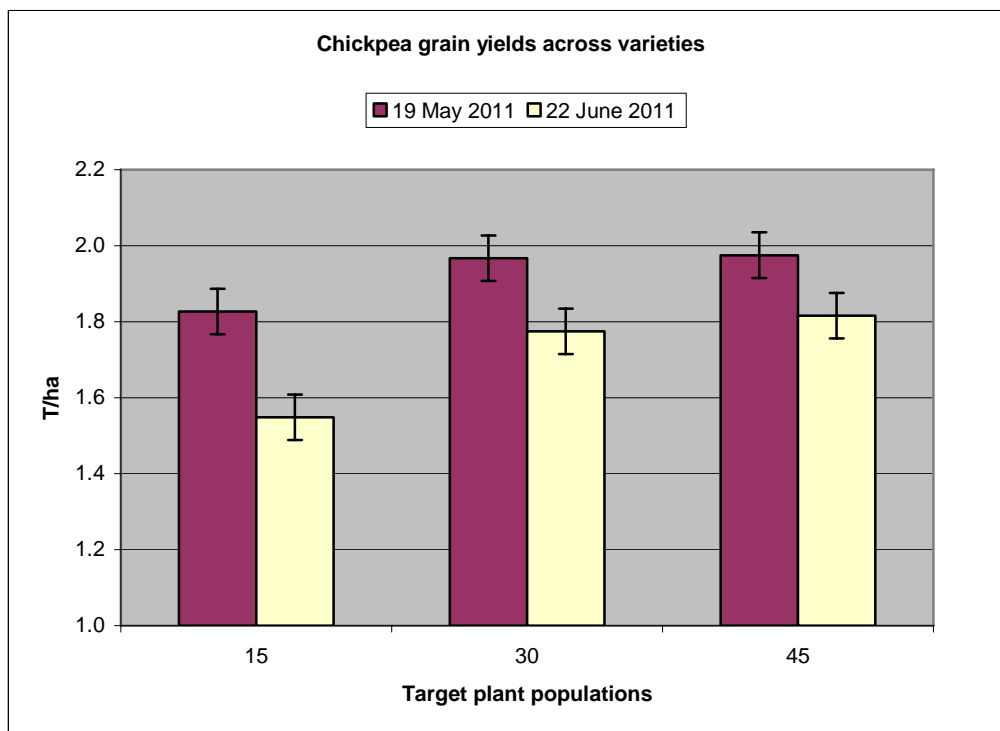


Figure C4.1. The effect of TOS and plant populations on grain yield (t/ha) across varieties.

Seedsize

Variety x TOS x target plant population were significantly different ($P < 0.005$). The kabuli line, Genesis 090 had a larger seed size (as expected) than the Desi lines which varied between 13-17g/100 seeds. Genesis 509 had the smallest seeds (13g/110seeds). Sowing time effects were quite marked especially in the Kabuli variety where the late sowing had larger seeds which were also the case for PBA Boundary. The early sown CICA0603 and Hattrick had significantly larger seed sizes in the early sowing, however Genesis 509 and Slasher were very similar across sowing dates.

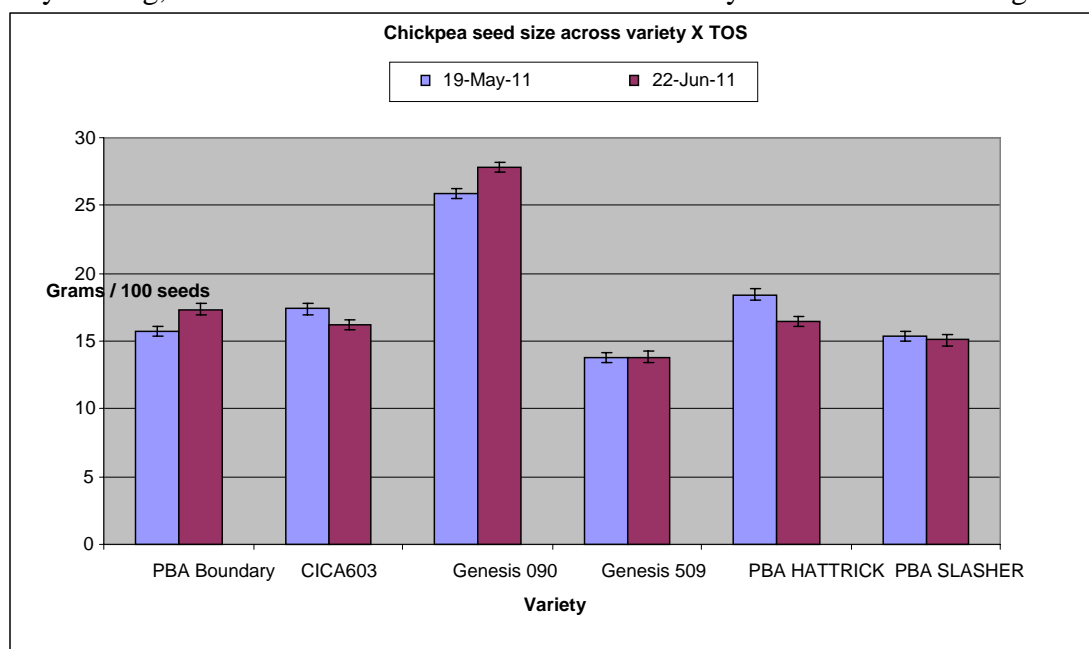


Figure C4.2. The effect of TOS on grain yield (t/ha) across varieties and plant populations.

Key Findings and Comments

- Early sown chickpea in a LRZ were generally higher yielding than the mid June sowing date.
- PBA Slasher again topping the grain yields across sowing dates and plant populations.
- Plant populations of 30 plants/m² show significant advantage over 15plants/m². There was not yield advantage in sowing heavier and achieving 45 plants/m².