

## **C7. Fertiliser Rate x Fertiliser Placement, LRZ Wagga Wagga, NSW**

### **Aim**

Investigate the effects of fertiliser rates and its placement on the germination & establishment of desi and kabuli type chickpeas. Secondly to measure the grain yield responses to fertiliser rates. The information from this trial plus others is used to validate and improve grower recommendations.

### **Treatments**

Varieties (2): Desi - PBA Slasher.  
Kabuli – Genesis 090.

Fertiliser rate (6): Single super at Nil, 10, 20 & 30kg/ha of Phosphorus and 20 kg/ha of P as MAP and tri phos.

Sowing dates: 31st May

Row Spacing/Stubble: 30 cm / burnt stubble.

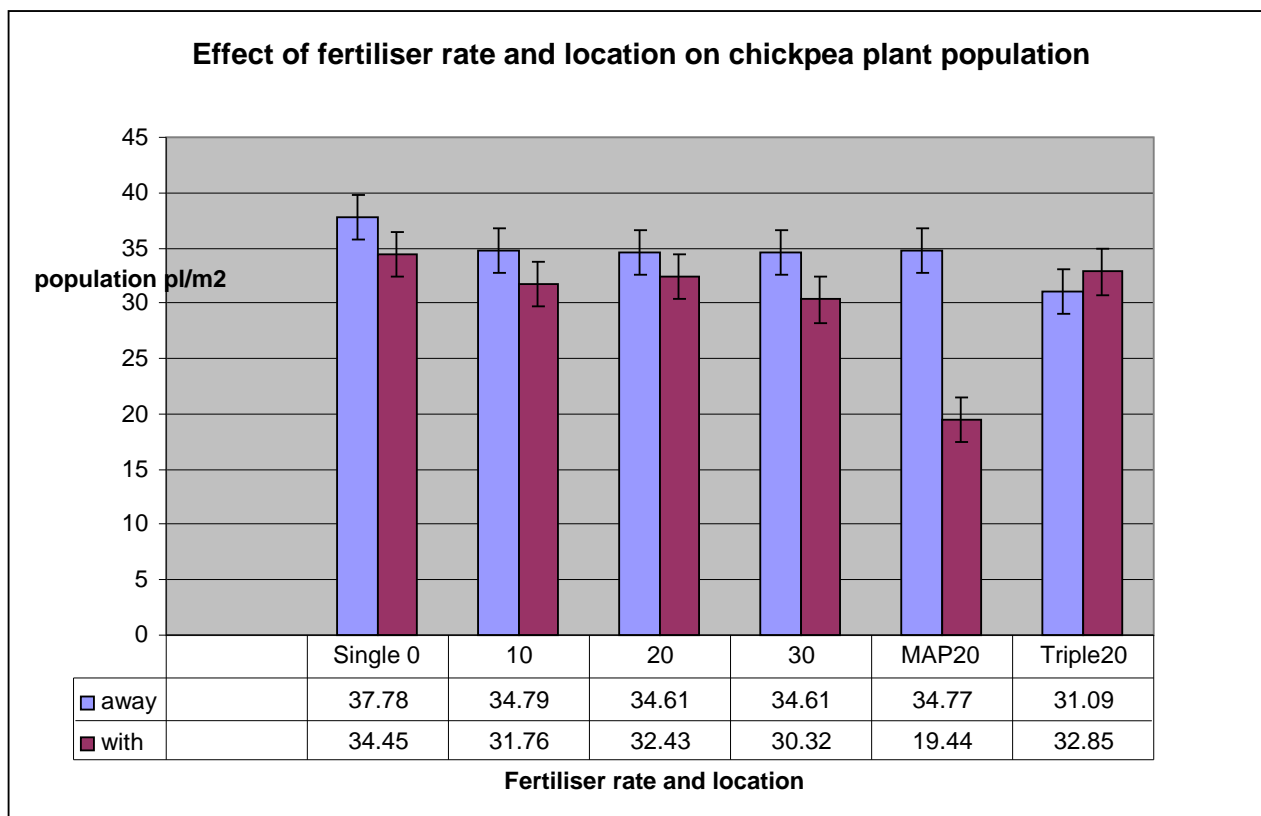
Fertiliser placements: Sown with seed in same sowing boot (WITH)  
Sown separately to seed (AWAY)

Target chickpea pop.n: 35 plants/m<sup>2</sup>

### **Results.**

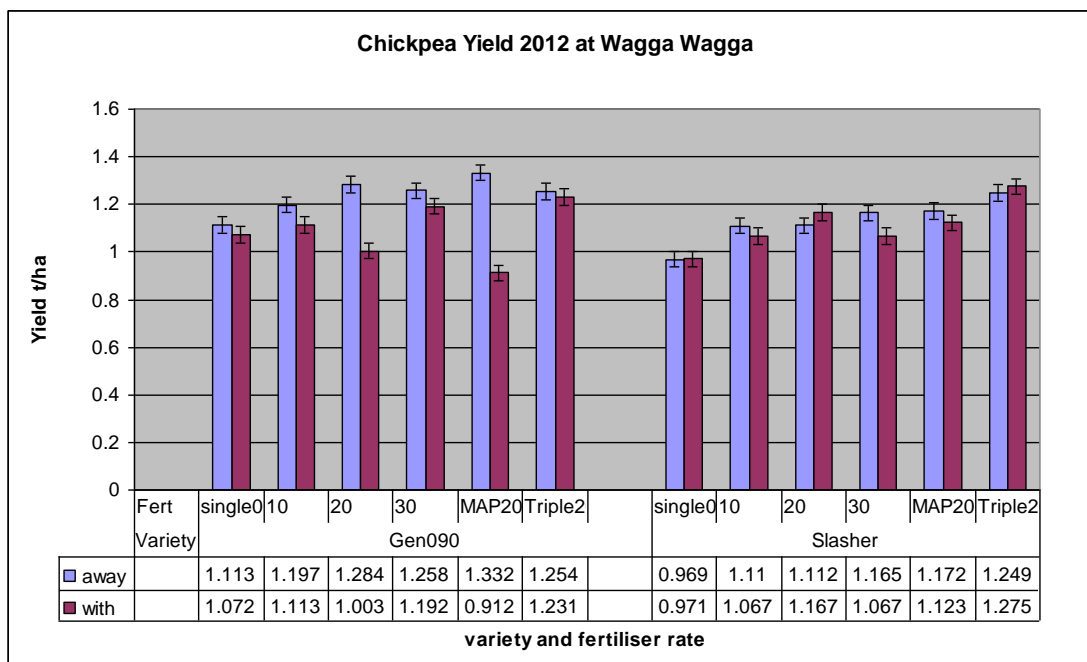
#### **Plant establishment**

Plant establishment of Gen090 was below target population at 27 plants per square meter. Desi and Kabuli types responded similarly to fertiliser treatments. In this experiment plant populations trended downward with increasing Phosphorus fertiliser rates. MAP at 20 P kg/ha reduced plant population by 42%.



**Figure 1.** The effects of fertiliser rate and placement on chickpea emergence averaged across varieties.

## Yield results



**Figure 2.** The effects of fertiliser rate and placement on chickpea yield.

As can be seen in the above emergence table, the high rate of fertiliser impacted on plant emergence and this possibly can be attributed as the main factor to this yield decline.

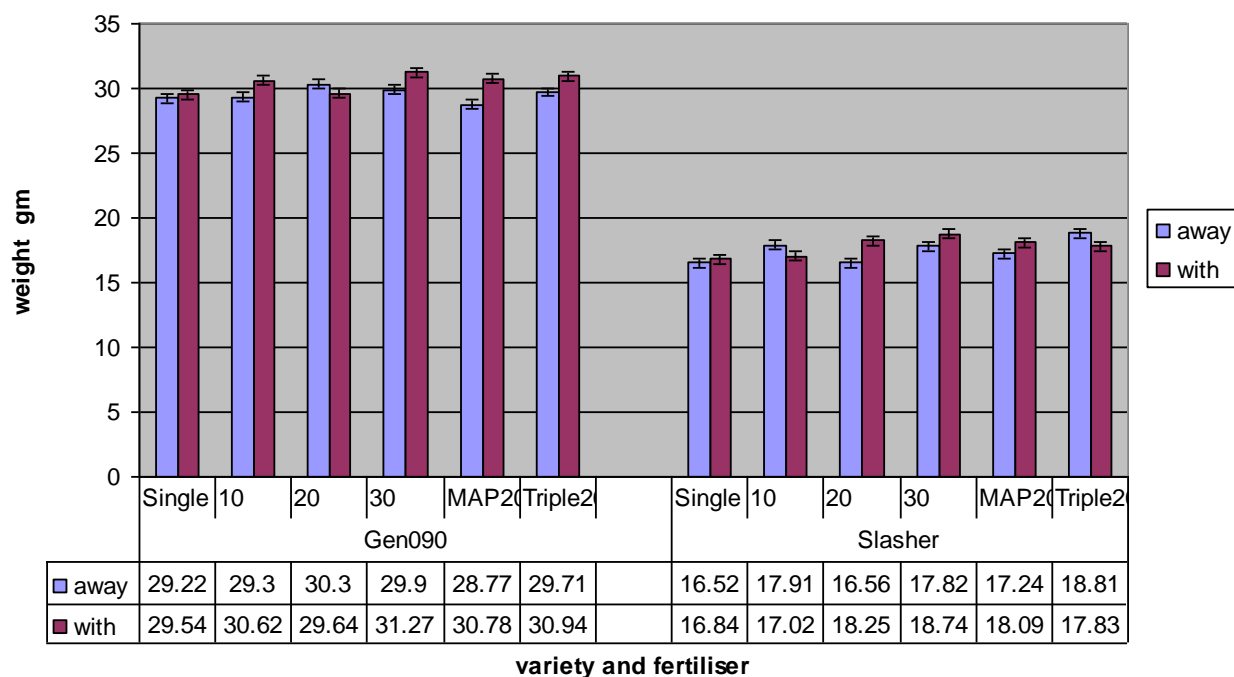
At the 20 & 30kg/ha fertiliser rates, there was significant yield decline detected with both PBA Slasher and Genesis090 when the fertiliser was placed with the seed.

This research for a second season provides an explanation of why some southern NSW growers have had difficulty getting the crop established successfully.

Further work is required to validate this research over different soil types, pulse species and seasons.

The choice of fertiliser type has impacted on emergence and warrants further investigation to determine seasonal and species dynamics of this effect. Irrespective of this, there is merit from this trial that shows the effects of fertiliser damage on plant emergence and associated grain yields.

**100 seed weights of chickpea at Wagga Wagga 2012**



### Summary

- Both desi and kabuli chickpea varieties suffered severe plant establishment reductions from fertiliser placement with the seed and with increasing fertiliser rates.
- Fertiliser rates of 20 kg P/ha and above placed with the seed had a significant negative effect on grain yields.
- The dry spring conditions have compressed achieved yields to that possible from the limited water supply. Differences in plant population still negatively influenced achieved yields. Yields increased with fertiliser rate up to about 20kg/ha of P in this particular season.

Over two seasons fertiliser placement has been shown to influence plant establishment and yield of chickpea.