Chickpea, Management of constrained soils, MRZ Mid North (Pinery), South Australia

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Aim
To understand the yield limitation in pulse crops grown in high intensity production zones of the Mid North.

Treatments
Factor 1: Three chickpea varieties
: Genesis 079 (kabuli), Genesis 090 (kabuli) and PBA Striker (desi)
Factor 2: Four treatments

Treatments	Details
Nil	No products were applied
Balance	Balance® applied at 100g/ha post-sowing pre-emergent and P-Pickle T seed dressing
Double inoculant	100 kg/ha MAP
Full nutrition	100 kg/ha MAP, 5 units of sulphur and 20 units of potassium and P-Pickle T seed dressing

Table 1. Trial site details

Details	Pinery, 2019
Sowing date	30 May
Sowing density (plants/m²)	50 (desi) 35 (kabuli)
Row spacing	23 cm
Fertiliser (kg/ha)[1]	50
Inoculant	Group N

[1]MAP (9.2, 20.2, 0, 2.7) + Zn (2.5)

Results and Interpretation

- Key Messages: Improved nutrition and inoculants improved biomass but not grain yields Desi chickpea, PBA Striker produced more biomass at flowering than kabuli varieties (Genesis 090 and Genesis 079).

- Biomass production: Chickpea that received the full nutrition produced 22% (400 kg/ha) more biomass than the nil treatment (Figure 1). However, the full nutrition treatment did not promote more biomass production than the Balance® herbicide or the double inoculant treatments. Double inoculating chickpea did increase biomass production over the nil treatment. However, double inoculating chickpea did not increase biomass production over the Balance® herbicide treatment, where a standard rate of inoculant was applied at sowing.
  The desi chickpea variety, PBA Striker produced 20% (373 kg/ha) more dried biomass at flowering than mean biomass produced by kabuli varieties (Genesis 090 and Genesis 079). However, the differences between varieties were not evident in the mature crop.

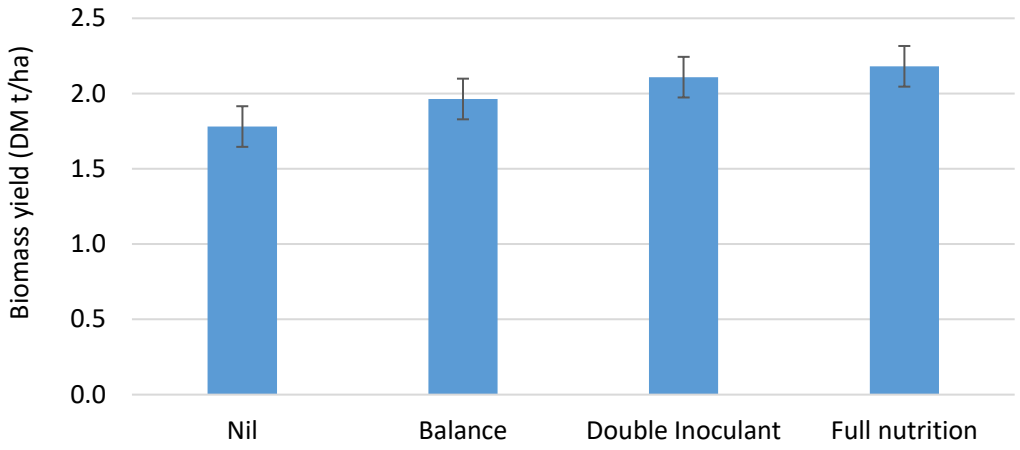

Figure 1. Effects of treatments on biomass yield of chickpea at flowering, at Pinery 2019. Error bars represent least significant difference (P<0.05).

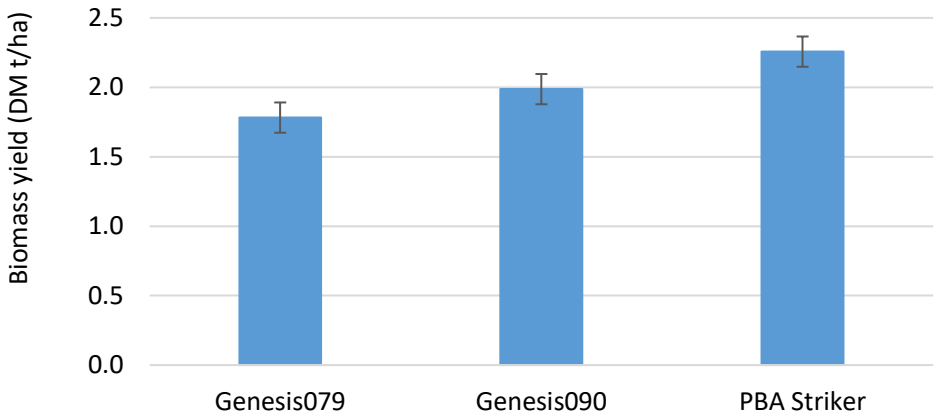

Figure 2. Biomass yield of chickpea varieties at flowering, at Pinery 2019. Error bars represent least significant difference (P<0.05).

- Grain yield: There were no differences between whole plot treatments or varieties for grain yield at Pinery, 2019. Average grain yield of chickpea was 0.73 t/ha.

- Harvest index: There were no differences between whole plot treatments or varieties for harvest index. Mean harvest index of chickpea was 31% at Pinery, 2019.

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