Chickpea, Inoculation, LRZ Northern Mallee (Werrimull), Victoria

Aim

To evaluate effectiveness of commercially available inoculant products to increase nodulation in chickpea.

Treatments

Five commercially available products for the inoculation of pulses were compared in the chickpea variety Genesis 090 (

Table **6**). The trial also compared recommended and twice the recommended rates for the peat slurry and in furrow granule treatments. In furrow liquid approaches to delivering inoculant products were also compared.

Table 6. Inoculant products applied to chickpeas at Werrimull in 2018.

Inoculant product	Application strategy	Application Rate
Nil		
Nodulaid Peat	Peat slurry on seed	250 g/ha
Nodulaid Peat (Rate x 2)	Peat slurry on seed	500 g/ha
Nodulaid Peat (Liquid)	Peat suspension – in furrow liquid stream	250 g/ha
TagTeam Granular	Granule in seed furrow	3.8 kg/ha
Nodulator Granular	Granule in seed furrow	3.8 kg/ha
Alosca	Granule in seed furrow	10 kg/ha
EasyRhiz	In furrow liquid stream	0.5 g/ha
Nodulator Granular (Rate x 2)	Granule in seed furrow	7.6 kg/ha
TagTeam Granular (Rate x 2)	Granule in seed furrow	7.6 kg/ha
Alosca (Rate x 2)	Granule in seed furrow	10 kg/ha

Table 2. Other Site Details

Sowing Date	15 May 2018
Plant Density (plant/m^2)	35
Stubble (height cm)	5
Row Spacing (cm)	28
Fertiliser	50 kg/ha Granulock Z

Results and Interpretation

- Treatments which included Nodulaid peat and Nodulator or TagTeam granular at twice the recommended rate produced the greater number and highest weight of nodules. Nodulator and TagTeam granular applied at recommended rates and the EasyRhiz liquid treatment produced similar outcomes for both variables. The application of Alosca at both label and twice label rate produced very few nodules and therefore total nodule weight was the lowest of all commercial products evaluated. There were no nodules produced in the nil treatments which confirms there was not a background population of chickpea rhizobia in the soil and highlights the importance of inoculating pulses such as chickpea.
- While the treatments resulted in significant differences in nodulation of chickpea roots (**Figure**), this did not result in significant differences in productivity measures of above ground dry matter production and grain yield. The absence of significant differences in crop production was potentially an outcome of the relatively high mineral nitrogen levels at the site (approximately 100 kg/ha). It is possible that the nitrogen demand of the poorly nodulated chickpea treatments was met by the high soil nitrogen reserves in a season with very low rainfall.

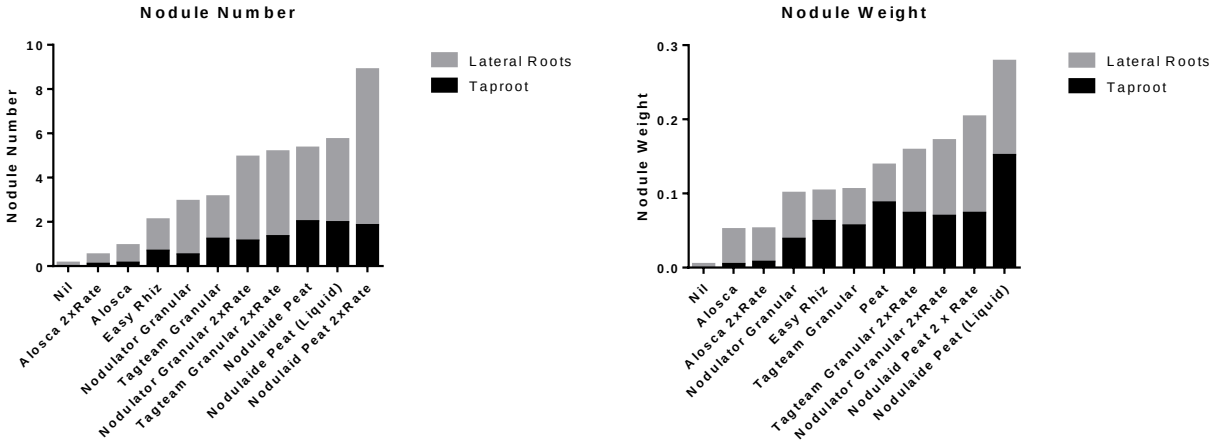

Figure 1. Effect of inoculation products on the number and weight of nodules on the lateral roots and taproot of chickpea (*cv.* Genesis 090).