

Growing CHICKPEA IN INDIA



POLY4

A SIRIUS MINERALS PRODUCT



KEY FINDINGS

12% yield increase

Greater seed weight

Enhanced root nodulation



POLY4 BENEFITS



Source of macro and micro nutrients



Sustained nutrient delivery



A sulphate source that is readily available to the crop



Easy to spread and store

A CASE FOR POLY4

- India produces 65% of the world's chickpeas with 9.1 million tonnes per annum.
- The standard farmer practice is to apply N and P from DAP. However, it is recommended to also apply potassium and sulphur.
- In India the typical S fertilizer is elemental sulphur mixed with bentonite. Elemental sulphur is not immediately plant-available and must be converted by microorganisms to sulphate. Typical K fertilizer is MOP.
- POLY4 contains plant-available sulphate, as well as potassium, calcium and magnesium in one product.

Treatments*	Nutrients applied (kg ha ⁻¹)			
	K ₂ O	S	MgO	CaO
N + P (control)	0	0	0	0
MOP + S	20	40	0	0
POLY4	30	40	13	36

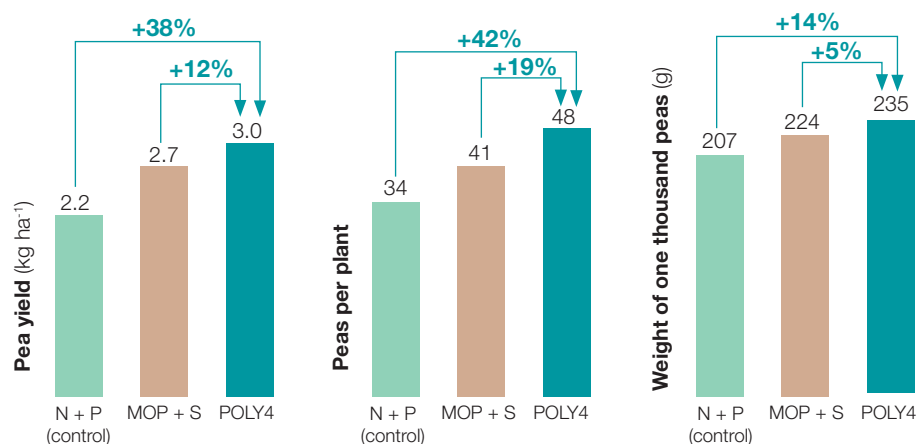
*All treatments received 20 kg N ha⁻¹ and 60 kg P₂O₅ ha⁻¹ from DAP.
Recommended inputs are 40kg S ha⁻¹ and 20 kg K₂O ha⁻¹.



IMPROVED YIELD



POLY4 had 38% greater chickpea yield than the standard farmer practice (N + P) and a 12% greater yield than the recommended practice (MOP + S). This yield improvement was driven by a greater number of peas per plant and greater seed weight.



TRIAL FOCUS

To compare the yield of chickpea with POLY4 to standard fertilizer practices.

PARTNER

Banda University of Agriculture & Technology

LOCATION

New Delhi, India

DATE

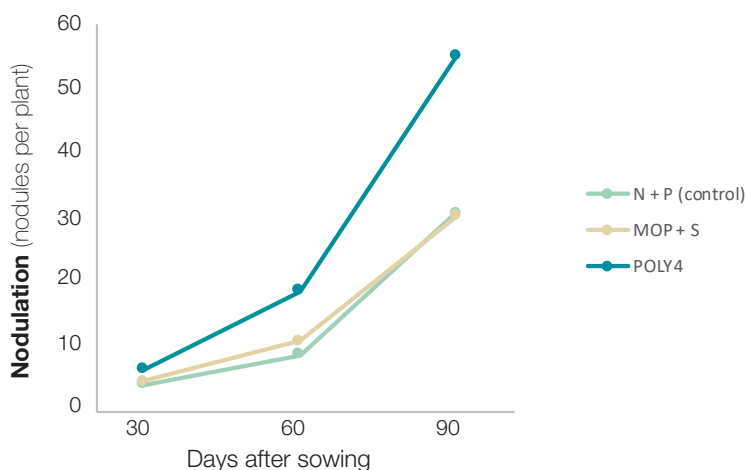
2019

ENHANCED ROOT NODULATION



Leguminous plants, such as chickpeas, have a symbiotic relationship with nitrogen fixing bacteria. These bacteria live in nodules on the crop's roots and provide the plant with nitrogen. Proper root nodulation is key for the legumes to obtain nitrogen and deliver increased yield.

There were significantly more nodules per plant when POLY4 was added instead of alternative fertilizers.



Notes: 1) FAOSTAT (2017); 2) Pre-trial soil analysis: pH 7.4, 3 mg P kg⁻¹, 168 mg K kg⁻¹, 1 mg S kg⁻¹; 3) Genstat means of three replicates separated by Fisher's LSD test at 5% significance level.

Source: BANDA University of Agriculture & Technology (2019) 121000-BUAT-121010-18.

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