Growing CHICKPEA IN INDIA

KEY FINDINGS

12% yield increase
Greater seed weight
Enhanced root nodulation

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.

poly4.com
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.

**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.

### IMPROVED YIELD

<table>
<thead>
<tr>
<th>Pea yield (kg ha⁻¹)</th>
<th>Peas per plant</th>
<th>Weight of one thousand peas (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N + P (control)</td>
<td>2.2</td>
<td>34</td>
</tr>
<tr>
<td>MOP + S</td>
<td>2.7</td>
<td>41</td>
</tr>
<tr>
<td>POLY4</td>
<td>3.0</td>
<td>48</td>
</tr>
</tbody>
</table>

**Notes:**
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.