



POLY4
A SIRIUS MINERALS PRODUCT

TRIAL RESULTS

TOMATOES

BRAZIL (2014)



poly4.com

TRIAL OBJECTIVE

Evaluate POLY4 fertilizer options in comparison to other K sources.

HIGHLIGHTS

HIGHEST YIELD AND FRUIT NUMBERS WHEN USING POLY4 AS A K SOURCE

POLY4 BLENDS REMOVE EXCESS CALCIUM IN FAVOUR OF MAGNESIUM

POLY4 BLENDS INCREASE YIELD BY 3% AND FRUIT NUMBERS BY 7 %

BRIX, FIRMNESS, pH AND TITRATABLE ACIDITY IMPROVED WITH POLY4 BLENDS



TRIAL DESIGN

PARTNER: UNIVERSITY OF SÃO PAULO
LOCATION: BRAZIL
YEAR: 2014

- Brazil is the seventh largest tomato market in the world¹.
- South American tomato market is worth US\$4.79 billion of which Brazil accounts for 66%¹.
- Tomatoes are a chloride sensitive crop that should respond to calcium.
- This trial was conducted in silty soils with in São Paulo state.

TREATMENT TABLES

| STRAIGHT TRIAL | | | | | | | |
|----------------|---|-------------------------------|------------------|-----|-----|----|-----|
| TREATMENTS | AVERAGE NUTRIENTS APPLIED IN TRIAL (kg ha ⁻¹) | | | | | | |
| | N | P ₂ O ₅ | K ₂ O | CaO | MgO | S | Cl |
| Control | 281 | 275 | 0 | 0 | 0 | 0 | 0 |
| MOP | 281 | 275 | 500 | 0 | 0 | 0 | 400 |
| SOP | 281 | 275 | 500 | 0 | 0 | 18 | 30 |
| SOP-M | 281 | 275 | 500 | 0 | 405 | 51 | 0 |
| POLY4 | 281 | 275 | 500 | 604 | 213 | 68 | 107 |

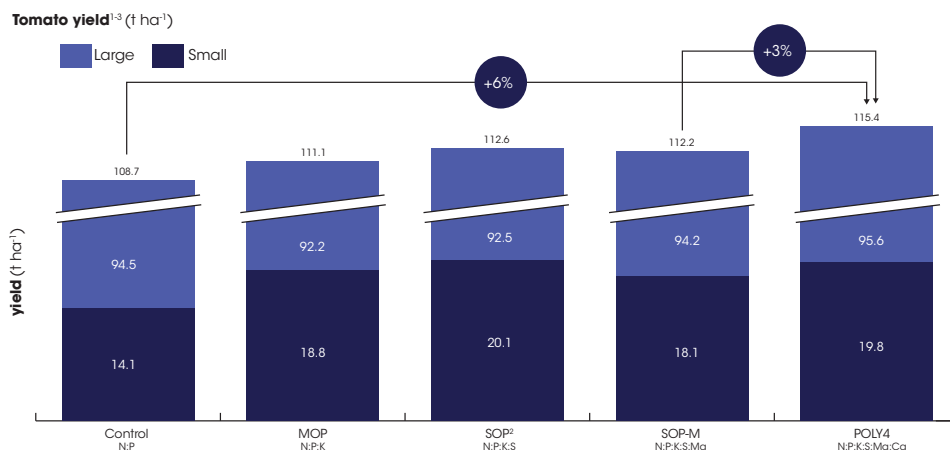
| BLEND TRIAL | | | | | | | |
|-------------|---|-------------------------------|------------------|------|-----|-----|-----|
| TREATMENTS | AVERAGE NUTRIENTS APPLIED IN TRIAL (kg ha ⁻¹) | | | | | | |
| | N | P ₂ O ₅ | K ₂ O | CaO | MgO | S | Cl |
| MOP | 250 | 875 | 500 | 1328 | 0 | 540 | 400 |
| POLY4 | 250 | 875 | 500 | 595 | 214 | 681 | 107 |
| | | | | | | | |



STRAIGHT STUDY

YIELD

- In an NPK balanced trial, contribution of sulphur magnesium and calcium improves yield potential.
- Crop responses to calcium from POLY4 is seen to be supportive of a meaningful yield increase.
- Overall, POLY4 improved yields by 6% over the control and 3% over.

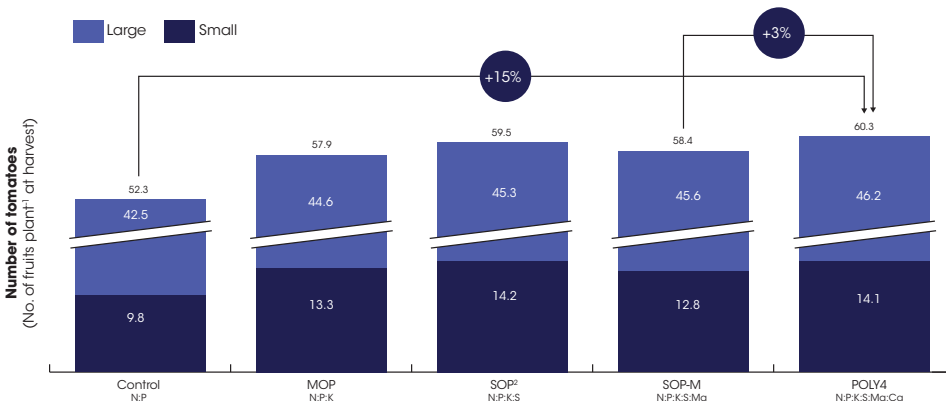


NUMBER OF TOMATOES

(No. of fruit plant⁻¹)^{2,4}

- Increasing the number of fruits in the desired size category is essential for the salad market.
- POLY4 improved tomato numbers by 15% over the control and 3% over SOP-M which lacks calcium.
- The tomato crop clearly benefits from the additional nutrients supplied by POLY4.

Number of tomatoes¹⁻³ (No. of fruits/ plant at harvest)

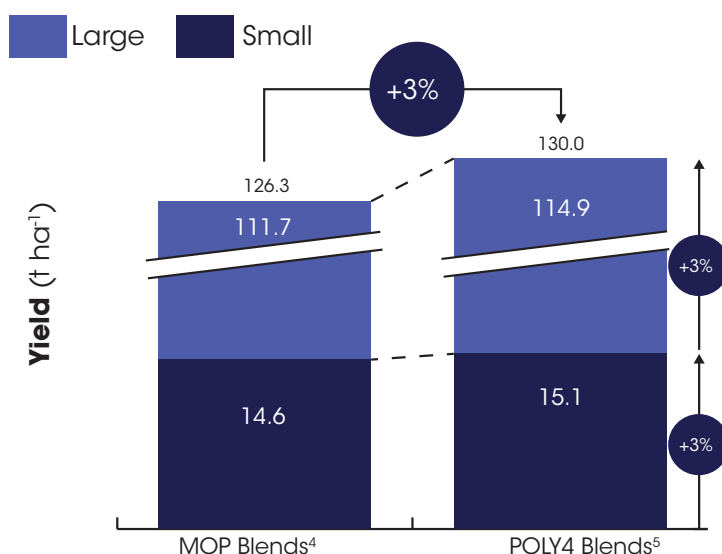


BLEND STUDY

YIELD^{2,3,5-7}

- In this NPK, calcium and sulphur balanced trial we compared the POLY4 option to the commercial MOP blend.
- POLY4 blends outperformed its commercial MOP equivalent by 3%.
- Using POLY4 in blends led to a 3% increase in desirable large tomatoes over that achieved with commercial MOP blends.
- The multi-nutrient supply from POLY4 enhances the nutrient spectrum beyond the commercial option.

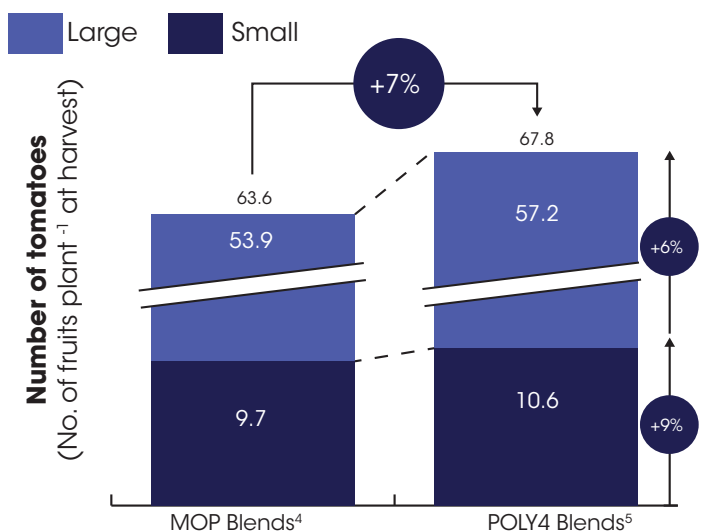
Tomato yield¹⁻³



NUMBER OF TOMATOES^{(No. of fruit plant⁻¹)^{2,3,5-7}}

- Increasing the number of fruits is a prerequisite for meeting the fruit size category demanded by the market.
- POLY4 blends outperformed the commercial MOP equivalent by 7%.
- POLY4 blends increased fruit numbers in the desirable large size category by 6%.

Number of tomatoes¹⁻³ (No. of fruits plant⁻¹ at harvest)



Notes: 1) FAOSTAT 2017; 2) GENSTAT means; 3) Small = 50 – 60 mm diameter; Large = 60 – 80 mm diameter; 4) All treatments received 250 kg N ha⁻¹ and 275 kg P₂O₅ ha⁻¹; 5) All treatments received 250 kg N ha⁻¹ and 875 kg P₂O₅ ha⁻¹; 6) Made with MOP, Urea, TSP and SSP for 4:14:08 and 10:5:20; 7) Made with POLY4, Urea and MAP for 4:14:8 and additional MOP for 5:2.5:10. Initial soil analysis pH 5.8, P 76 mg kg⁻¹, K 101 mg kg⁻¹, Ca 380 mg kg⁻¹, Mg 96 mg kg⁻¹, S 6 mg kg⁻¹, CEC 4.28 meq 100g⁻¹.

Sources: Sirius Minerals, University of São Paulo (2014) 4000-USP-4011-14.

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