# Growing POTATOES IN INDIA





### **KEY FINDINGS**

16% marketable yield improvement

Higher tuber dry matter

**Increased revenue** 



#### **POLY4 BENEFITS**



Source of macro and micro nutrients



Sustained nutrient delivery profile



Low chloride content



Plant available sulphate-S

## A CASE FOR POLY4

- Uttar Pradesh produced 15.3 million tonnes of potatoes in 2017 2018, which amounts to 30% of India's total potato production.
- 45% of Indian soils are sulphur deficient.
- Excess chloride in fertilizers can reduce the dry matter content and quality of potatoes.
- Low-chloride POLY4 contributes to balanced crop nutrition and is a good source of sulphate-sulphur at the same time delivering potassium, magnesium and calcium in one product.

Treatments	Nutrients applied (kg ha <sup>-1</sup> )				
	K <sub>2</sub> O	S	CaO	MgO	CI
N + P (control)	0	0	0	0	0
MOP + S	75	101	0	0	57
	150	204	0	0	115
	225	305	0	0	172
POLY4	75	101	91	32	16
	150	204	182	64	32
	225	305	273	96	48

\*All treatments received 270 kg N ha<sup>-1</sup> and 80 kg  $\rm P_2O_5$  ha<sup>-1</sup> from urea and DAP.

#### **HIGHER PLANT EMERGENCE**



Improved crop emergence and establishment can support subsequent potato yield. Higher plant emergence was observed 30 days after planting when POLY4 replaced MOP + S. The potato emergence continued to increase as more POLY4 was added, while adding more MOP + S tended to lower it.



#### **INCREASED MARKETABLE YIELD**



Good K supply at tuber bulking is important for developing larger tubers. POLY4-fertilized crops had significantly higher marketable yield than MOP + S. At the recommended  $K_2O$  rate (150 kg ha<sup>-1</sup>), POLY4 had 16% higher marketable yield. POLY4 also gave a greater number of tubers and a higher proportion of marketable tubers.

The income from the POLY4 treatment was US\$362/ha more than when the standard MOP + S was used (at 150 kg  $K_2O$  ha<sup>-1</sup>).





#### **TRIAL FOCUS**

To compare the performance of processing potatoes to POLY4 against MOP + elemental sulphur.

#### PARTNER

Sardar Vallabh Bhai Patel University of Agriculture and Technology (SVPUA&T)

#### LOCATION

Meerut Uttar Pradesh India

> DATE 2019

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#### **IMPROVED TUBER QUALITY**



Tuber dry matter is important for potato frying quality. Dry matter content increased from 20.1% with MOP + S to 21.8% with POLY4 at the recommended  $K_2O$  rate.



Notes: 1) Background statistics from Indian Department of Agriculture, Cooperation and Farmers Welfare. Available at http://agricoop.gov.in/sites/ default/files/Monthly%20Report%20on%20Potato%20for%20June%2C%202019%20.pdf. Accessed on 6-Aug-19; 2) Status of Indian Soils. The Sulphur Institute. Available at https://www.sulphurinstitute.org/india/status.cfm. Accessed on 6-Aug-19; 3) Pre-trial soil levels: pH: 7.9, 9 mg P kg<sup>-1</sup>, 108 mg K kg<sup>-1</sup>, 9 mg S kg<sup>-1</sup>; 4) Non-line graph values are at the recommended K<sub>2</sub>O rate of 150 kg ha<sup>-1</sup>; 270 kg of N and 80 kg of P<sub>2</sub>O<sub>5</sub> were applied via urea and DAP. S applied as elemental sulphur with bentonite as binder. Treatments applied at planting; 5) Cultivar used was Kufri Chipsona<sup>-1</sup>; 6) Significance tested at 5% level with Genstat ANOVA; 7) Crop price of US\$93/t.

Source: Sardar Vallabh Bhai Patel University of Agriculture and Technology (2019), 76000-SVPU-76011-18 (Meerut potato).



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