Growing CORN INDIA





KEY FINDINGS

7% yield improvement

Enhanced agronomic efficiency

Improved threshing percent



POLY4 BENEFITS



Source of macro and micro nutrients



Sustained nutrient delivery



pH neutral



Compatible in NPK blends

A CASE FOR POLY4

- Corn is India's third most important staple crop after rice and wheat.
- Sulphur deficiency is becoming a major issue. 45% of Indian soils show S deficiencies.
- POLY4 contains plant-available sulphate-S, as well as K, Ca and Mg. It's sustained nutrient delivery makes it ideal for meeting the demands of corn throughout the growing season.
- Local recommendations are to apply N, P, K and S.
 However, the typical local farming practice is to apply N and P only.

Treatments	Nutrients Applied (kg ha ⁻¹)			
	K₂O	S	CaO	MgO
N + P (Control)	0	0	0	0
POLY4	38	51	46	16
	75	102	91	32
	113	153	137	48
MOP+S	38	51	0	0
	75	102	0	0
	113	153	0	0

* All treatments received 150 kg N and 75 kg P_2O_5 from urea and DAP.

GREATER YIELD



Yield was responsive to K and S fertilizer.

POLY4 had a consistently greater yield (+7%) than the commercial alternative (MOP+S). The yield after 38 kg K_2O ha⁻¹ from POLY4 was very close to the yield at recommended practice (75 kg K_2O ha⁻¹ and S). This implies a more efficient fertilizer practice.



IMPROVED THRESHING



is the proportion of grain removed from the cob during processing. A higher threshing percent is likely to follow factors like better cob maturity.

Threshing percentage

Higher threshing percentage at harvesting is key to overall grain yield increase.





TRIAL FOCUS

To compare POLY4 with MOP + S at different application rates.

PARTNER
ICAR-IARI, New Delhi
LOCATION
New Delhi, Indi

DATE 2019





HIGHER REVENUE



At the recommended K₂O rate, the POLY4 treatment increased income by US\$123/ha over the MOP + S treatment. Compared to the N + P (control), the income increase reached US\$525/ha with POLY4.

ENHANCED POTASSIUM AND SULPHUR EFFICIENCY



Nutrient agronomic efficiency is defined as the yield increase per kilogram of fertilizer nutrient applied.

POLY4 outperformed MOP + S gaining more yield per applied kg of K₂O and S at all application rates. This implies POLY4 was a more efficient fertilizer than MOP + S.



K₂O agronomic efficiency

S agronomic efficiency



Notes: 1) Farmers portal. Ministry of Agriculture and Farmers Welfare. Government of India. Available at https://farmer.gov. in/M_cropstaticsmaize.aspx. Accessed on 25 June 2019; 2) Status of Indian Soils. The Sulphur Institute. Available at https:// www.sulphurinstitute.org/india/status.cfm. Accessed on 28 June 2019; 3) Recommended K₂O rate of 75 kg ha⁻¹. All treatments received 150 kg N and 75 kg P₂O₅ from urea and DAP. Pre-trial soil levels: pH: 8.1, 3% organic carbon, 113 mg N kg⁻¹, 9 mg P₂O₅ kg⁻¹, 101 mg K₂O kg⁻¹, 1.4 mg S kg⁻¹; 4) Genstat means of three replicates; 5) Revenue is crop price multiplied by yield at the recommended K2O rate. Corn price US\$251/t; 6) Agronomic efficiency is defined as: (treated yield– yield untreated control)/ kg ha⁻¹ of nutrient applied. Agronomic efficiency of K₂O is determined with NPS control (NP + 30 kg S), whereas S agronomic efficiency is determined with NPK control (NP + 75 kg K,O).

K₂O rate (kg ha⁻¹)

TRIAL FOCUS To compare POLY4 with

MOP + S at different application rates.



ICAR-IARI, **New Delhi**

LOCATION New Delhi, India

> DATE 2019

Follow us on social media

in

Source: ICAR-IARI. Indian Council of Agricultural Research, New Delhi (2019) 67000-ICAR-67011-17 (corn).