Growing RICE IN CHINA

POLY4
A SIRIUS MINERALS PRODUCT

K_2O 14% | S 19% | MgO 6% | CaO 17%

KEY FINDINGS

Up to 17% yield increase

Improved tillering

Reduced toxic elements uptake

A CASE FOR POLY4

- China is the world's leading rice producer with Guangdong being one of the most important rice-producing provinces.
- Low fertility red soils deficient of potassium, sulphur, magnesium and calcium are common in Guangdong.
- Potentially toxic elements (PTEs) can also be a problem in polluted, red, paddy soils including cadmium. The consumption of food contaminated with cadmium over a long period of time can cause kidney disease.
- POLY4 supplies potassium, sulphur, magnesium and calcium in one product.

POLY4 BENEFITS

Source of macro and micro nutrients

Extended nutrient delivery profile

Calcium supports soil and plant health

Potassium reduces toxic heavy metal uptake

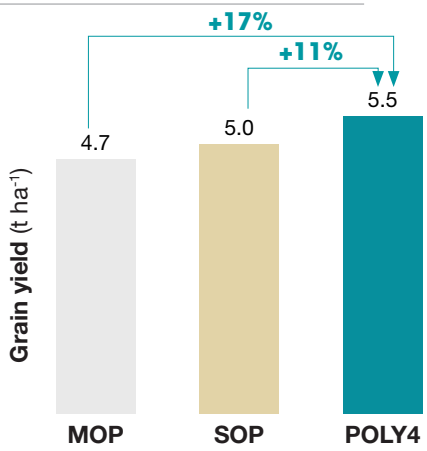
poly4.com

Treatments	Nutrients applied (kg ha-1)				
	K_2O	CaO	MgO	S	Cl
MOP	140	0	0	0	107
SOP	140	0	0	48	0
POLY4	140	170	60	190	30

*All treatments received 176 kg N ha^{-1} and 76 kg P_2O_5 ha^{-1} from urea and DAP.

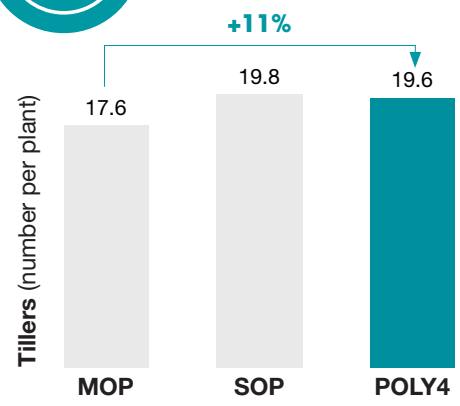
SIGNIFICANT YIELD INCREASE

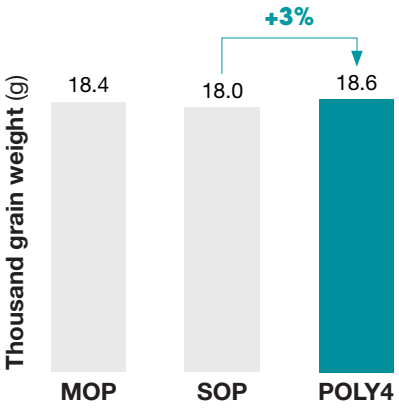
There was a yield increase in response to the S in SOP and POLY4. Rice fertilized with POLY4 had the greatest yield, implying a benefit of POLY4 beyond K and S.



IMPROVEMENT IN YIELD COMPONENTS

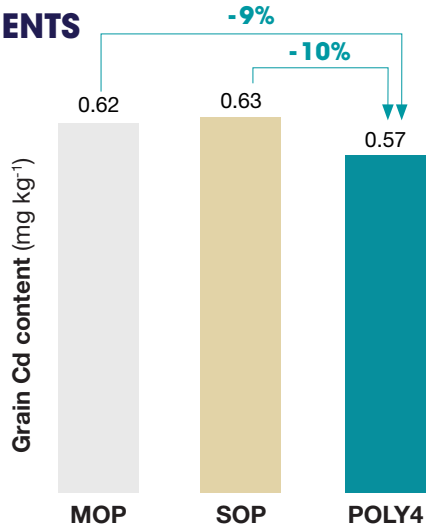
POLY4 and SOP fertilized crops had more tillers than MOP. POLY4 also had a greater thousand grain weight than SOP. Together these components contribute to POLY4 having the highest yield.





REDUCED UPTAKE OF TOXIC ELEMENTS

The trial site had a high soil cadmium (Cd) contamination with content of 1.6 mg Cd kg^{-1}, which exceeded the limit in China (0.3 mg Cd kg^{-1} at pH ≤ 7.5). However, Cd content of POLY4-fertilized rice was lower than MOP and SOP, making this of interest for future research on other contaminated sites.



Notes: 1) Commercial treatment would be NPK with MOP. The SOP treatment was used to check additional S effect on PTE uptake and yield, but is not a commercial option; 2) Initial soil test: pH 4.9; 3% SOM; 5 mg P kg^{-1}; 69 mg K kg^{-1}; 35 mg Mg kg^{-1}; 644 mg Ca kg^{-1}; 47 mg S kg^{-1}; 3) Total Cd 1.6 mg kg^{-1}; available Cd 0.8 mg kg^{-1}; 4) Cultivar: Meixiangzhan.

Source: Guangdong Institute of Eco-Environmental & Soil Sciences (2018), 72000-GIESS-72010-17 (rice).

TRIAL FOCUS

To test the response of rice yield and heavy metals uptake to POLY4 and alternative K fertilizers.

PARTNER

Guangdong Institute of Eco-Environmental & Soil Sciences

LOCATION

Renhua County Guangdong China

DATE

2018

Follow us on social media