



**POLY4**  
A SIRIUS MINERALS PRODUCT

TRIAL RESULTS

# OILSEED RAPE

**NANJING, CHINA (2015)**



**[poly4.com](http://poly4.com)**

# TRIAL OBJECTIVE

To compare the use of MOP  
against POLY4 on oilseed rape.

## HIGHLIGHTS

7% INCREASE IN YIELD

UP TO 25% IMPROVEMENT IN  
MACRO-NUTRIENT UPTAKE

UP TO 19% INCREASE IN  
SEED NUTRIENT UPTAKE

MAINTAINS QUALITY  
PARAMETERS

# TRIAL DESIGN

**PARTNER:** NANJING INSTITUTE OF  
SOIL SCIENCE

**LOCATION:** NANJING, CHINA

**YEAR:** 2014

- The global oilseed rape market is worth US\$ 40.76 billion.<sup>1</sup>
- China delivers 30% of the market by value.<sup>1</sup>
- Oilseed rape can be processed for rape oil, dairy or pig feed and honey.<sup>2</sup>
- Field trial used a target seed rate of 260,000 seeds ha<sup>-1</sup>.
- In this trial, three rates of K<sub>2</sub>O application (40, 80 and 120 kg K<sub>2</sub>O ha<sup>-1</sup>) were used to compare MOP and POLY4.
- 36 plots measuring 24m<sup>2</sup> each were used for all treatment and rate combinations.

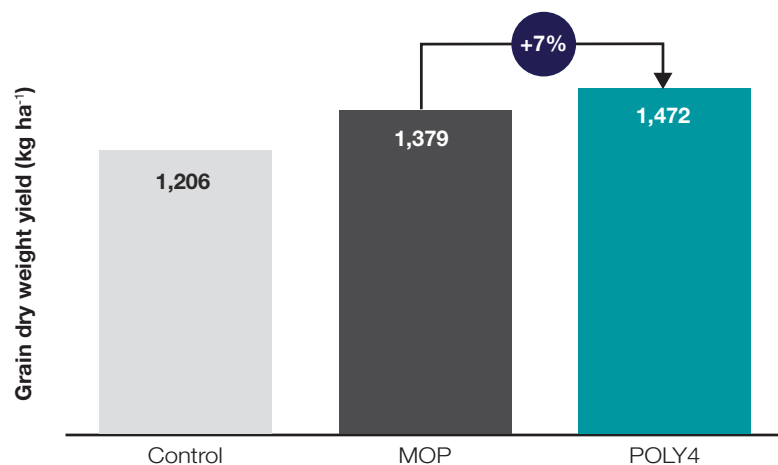
## TREATMENT TABLE

FERTILIZER	NUTRIENT APPLICATION (kg ha <sup>-1</sup> ) <sup>3,4</sup>						
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	MgO	CaO	S	Cl
Control	180	120	0	0	0	0	0
MOP	180	120	80	0	0	0	64
POLY4	180	120	80	34	97	108	17



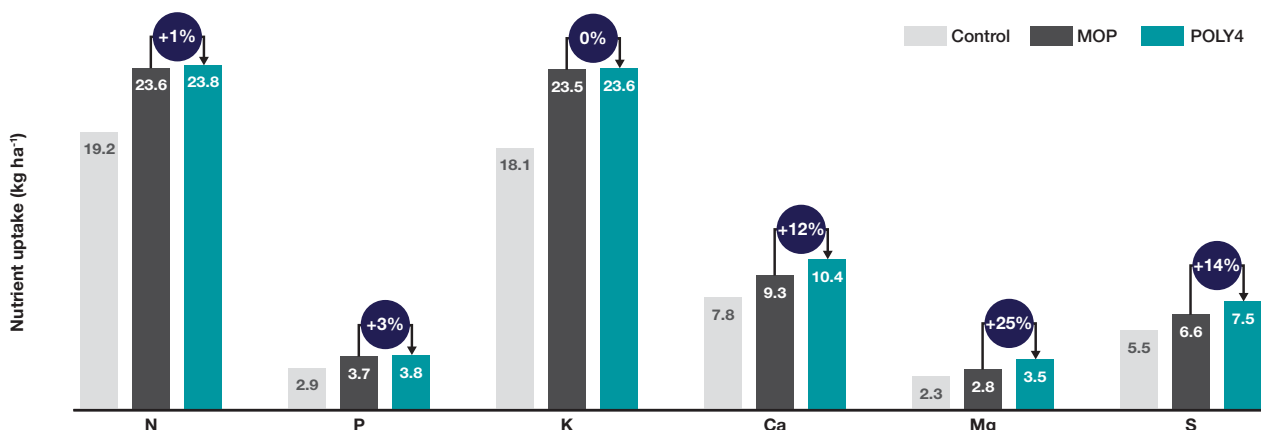
## YIELD RESULT (kg ha<sup>-1</sup>)

- Potassium improves tolerance to pest attacks, disease, frost damage and improves plant-water relations.
- POLY4 delivered improved macro nutrient grain uptake, driving yield improvement.
- The POLY4-fertilized crop had an oil content of 45% oil whilst outperforming the MOP option, in terms of yield, by 7%.
- The improvement is a result of the natural balanced fertilization offered by POLY4.



## TOTAL PLANT NUTRIENT UPTAKE (kg ha<sup>-1</sup>)<sup>5-6</sup>

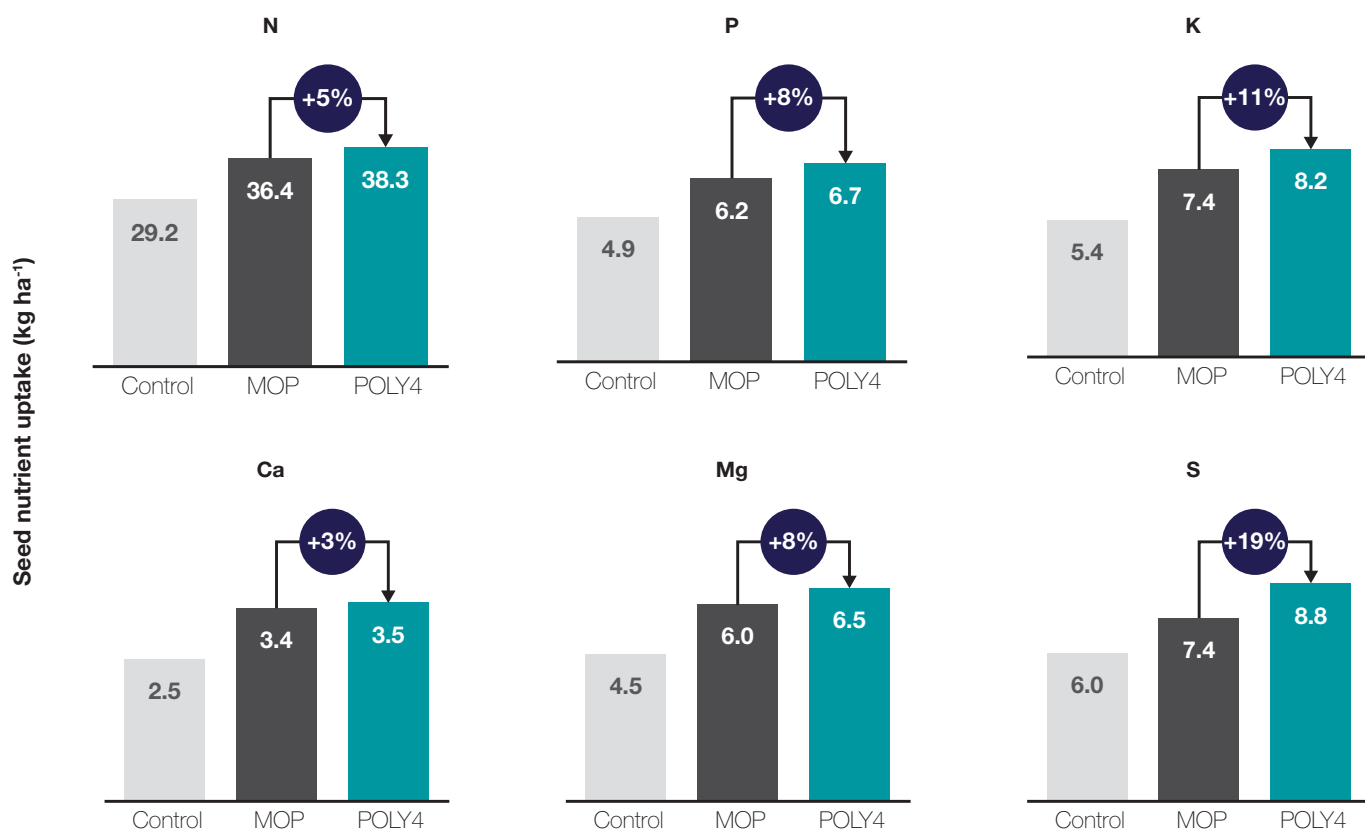
- High levels of nutrient uptake during seed development indicates satisfactory nutrient supply from POLY4.
- The addition of calcium, magnesium and sulphur from POLY4 supports nutrient uptake.





# SEED NUTRIENT UPTAKE <sup>(kg ha<sup>-1</sup>)<sup>5,6</sup></sup>

- Using POLY4 improved nitrogen, phosphorous and potassium use efficiency.
- POLY4 delivered the highest amounts of nitrogen, phosphorus and potassium into the yield component by 5%, 8% and 11% respectively.
- Delivering nutrients into the seed is important for yield and oil quality at harvest.
- POLY4 also delivered the highest amounts of calcium, magnesium and sulphur into the yield component by 3%, 8% and 19% respectively.
- POLY4 satisfied the high oilseed rape sulphur demand, which is supportive of oil production.



Notes: 1) FAOSTAT 2013; 2) IPNI 2003; 3) GENSTAT means of inputs for 40–120 kg K<sub>2</sub>O ha<sup>-1</sup> except for control where 0 kg K<sub>2</sub>O ha<sup>-1</sup> was used; 4) Urea and DAP supplied nitrogen and phosphorus; 5) GENSTAT means; 6) All plots received 180 kg N ha<sup>-1</sup> and 120 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> from urea and DAP with 80 kg K<sub>2</sub>O ha<sup>-1</sup> from MOP or POLY4. Initial soil analysis: pH 4.88, P 10 mg kg<sup>-1</sup>, K 90 mg kg<sup>-1</sup>, Mg 173 mg kg<sup>-1</sup>, S 30 mg kg<sup>-1</sup>.

Source: Nanjing Institute of Soil Science (2015). 20000-CAS-20012-14

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