Growing WHEAT IN POLAND

POLY4
A SIRIUS MINERALS PRODUCT

K_2O	S	MgO	CaO
14	19	6	17

KEY FINDINGS

POLY4 fertilizer plan increased the yield by 3%

MOP + POLY4 was a profitable alternative to a current commercial practice of MOP + AS

A CASE FOR POLY4

- Wheat is the largest crop by area in Poland with an average yield of 4.5 t ha^{-1}.
- S deficiency is an increasing problem for European farmers.
- POLY4 supplies K, S, Mg and Ca in one product.

POLY4 BENEFITS

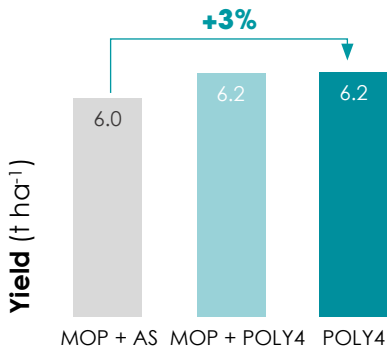
- Source of macro and micro nutrients
- Sustained dissolution rate
- Suitable for organic farming
- No requirement for chemical processing
- Low CO_2 emissions

poly4.com

Treatment	Average nutrients applied in trial (kg ha^{-1})						
	N	P_2O_5	K_2O	CaO	MgO	S	Cl
MOP + AS	190	50	75	0	0	30	60
MOP + POLY4 (70:30)	190	50	75	27	9	30	47
POLY4	190	50	75	91	32	102	16

IMPROVED YIELD

POLY4 or MOP + POLY4 fertilized crops had the greatest yield at all four sites.

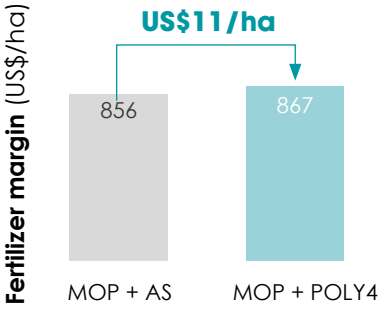


OPTIMAL GRAIN WEIGHT

Balanced nutrition and K supply are important for optimal grain fill and ripening. Across the four sites POLY4 fertilized crops had the highest thousand grain weight.

INCREASED FERTILIZER MARGIN

MOP + POLY4 treatment increased fertilizer margin by US$11/ha compared to MOP + AS.



IMPROVED QUALITY

Hagberg falling number (HFN) of POLY4 treated wheat was 300 and was 8.5% higher than MOP + AS. HFN reflects starch digestion and is an important parameter for determining premium payments for bread-making wheat. Bakers typically target an HFN value above 250.

Notes: 1) Pulawy (2016) Trial report; 2) FAOSTAT (2018); 3) Trials were conducted at four locations with the following initial soil analysis: Pulki I: pH (H_2O) 6.6, pH (KCl) 5.5, 116 mg P kg^{-1}, 180 mg K kg^{-1}, 29 mg Mg kg^{-1}, 4.6 mg S kg^{-1}; Pulki II: pH (H_2O) 6.8, pH (KCl) 5.9, 301 mg P kg^{-1}, 150 mg K kg^{-1}, 59 mg Mg kg^{-1}, 2.8 mg S kg^{-1}, Baborówko I: pH (H_2O) 6.3, pH (KCl) 6.1, 170 mg P kg^{-1}, 104 mg K kg^{-1}, 39 mg Mg kg^{-1}, 3.8 mg S kg^{-1}, Baborówko II: pH (H_2O) 6.0, pH (KCl) 4.7, 87 mg P kg^{-1}, 112 mg K kg^{-1}, 25 mg Mg kg^{-1}, 4.6 mg S kg^{-1}; 4) Results presented are based on data from GENSTAT ANOVA at K_2O rate of 75 kg ha^{-1}; Fertilizer CRU prices: urea US$290/t, DAP US$532/t, AS US$168/t, MOP US$333/t; POLY4 US$200/t; spreading cost; wheat price: US$176/t; spreading cost US$20.11/t; Fertilizer margin is the value of the crop output minus the cost of fertilizer product and spreading.

Source: Institute of Soil Science & Plant Cultivation 49000-PUL-49010-16.

TRIAL FOCUS

The study compared the effect of POLY4 with standard K and S fertilizer on winter wheat yield and quality at four sites across Poland.

PARTNER

Institute of Soil Science & Plant Cultivation

LOCATION

Szamotuły and Puławy, Poland

DATE

2017

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