



# Polysulphate<sup>®</sup>

Trial



## Barley

(*Hordeum vulgare*)

### Nutrient uptake trial across six sites

Polysulphate fertilizer is a soluble, easily-absorbed, cost-effective answer to crop nutrition, containing four key plant nutrients: sulphur, potassium, magnesium and calcium.

**S** 48% SO<sub>3</sub>  
(19.2% S)

**K** 14% K<sub>2</sub>O  
(11.6% K)

**Mg** 6% MgO  
(3.6% Mg)

**Ca** 17% CaO  
(12.2% Ca)





### When

- Planting: October 2020
- Harvest: September 2021



### Where

North East England, UK



### Crop

Barley for malting



### Soil type

Different soil types



### Measurements

- Nutrient uptake before the first nitrogen application in the spring
- Carbon content

Mined in the UK, ICL is the first – and only – producer in the world to mine polyhalite, marketed as Polysulphate.



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## Objective

To evaluate the performance of Polysulphate on an autumn planted barley crop.

Sulphur levels in UK soils are very low which can affect the NUE of barley. This trial examined NUE (nutrient use efficiency), exploring whether sulphur application improves nitrogen uptake over the winter period, potentially reducing field losses.

## Treatments

Each field at the six different locations was split into two 6 ha plots, the control and the Polysulphate treatment. Phosphate starter fertilizer (ICL TSP) was applied to all plots. All fertilizers were applied before drilling the crop.

	Polysulphate	SO <sub>3</sub>	K <sub>2</sub> O	MgO	CaO
	(kg/ha)				
Control	0	0	0	0	0
+Polysulphate	100	48	14	6	17

## Results

The barley crops treated with Polysulphate showed the following responses:

- Nitrogen uptake increased by 27.9%
- Phosphorus uptake increased by 41%
- 21% improvement in potassium uptake, and 21% in sulphur uptake, two of the nutrients provided by Polysulphate
- An increase in carbon content of 15.5% over the control

