Polysulphate®

Trial

Cabbage
on grey, degraded soil

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_3 (19.2% S)
K	14% K_2O (11.6% K)
Mg	6% MgO (3.6% Mg)
Ca	17% CaO (12.2% Ca)

ICL

Fertilizerplus
Premium plant nutrition from ICL Fertilizers

When

- Planting date: August 2016
- Harvest: December 2016

Where

Me Linh district, Hanoi, Vietnam

Crop

Cabbage

Soil type

Grey degraded soil *(Plinthic Acrisols)*

Measurements

- Yield
- Canopy diameter
- Plant weight
- Head diameter and height

Objective

To evaluate the agronomic efficiency of Polysulphate on yield, quality, and economic returns of winter cabbage on degraded soils in Northern Vietnam, demonstrating the advantages of using Polysulphate as an alternative to MOP.

Treatments

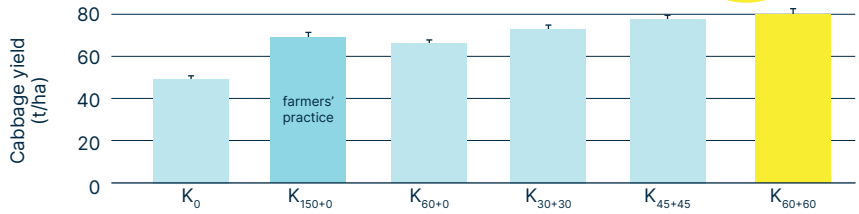
The experiment included six treatments, with four replications in a randomized complete block design. The treatments differed in K rate (from 0-120 kg K_2O/ha) and source: muriate of potash (KCl) and Polysulphate. The farmers' practice (K_{150+0}) included a high K rate, all of which was applied through MOP, and served to compare with the other treatments. The control K_0 did not include any K application. In treatments K_{60+0} and K_{30+30}, the K rate was reduced to 60 kg K_2O/ha, applied solely through MOP or through a combination of MOP and Polysulphate, respectively. In treatments K_{45+45} and K_{60+60}, K application rates rose to 90 and 120 kg K_2O/ha, respectively, while maintaining a 1:1 ratio between MOP and Polysulphate as the sources of K_2O.

All treatments received farmyard manure (FYM) at 15 t/ha, 180 kg N/ha (urea) and 80 kg P_2O_5/ha (superphosphate). Fertilizers were applied at five stages: pre-planting (100% FYM, 50% P and 20% K), and irrigated dressings at 10 (30% N), 30 (30% N, 30% P and 30% K), 40 (20% N and 25% K), and 50 days after planting (20% N and 25% K).

Results

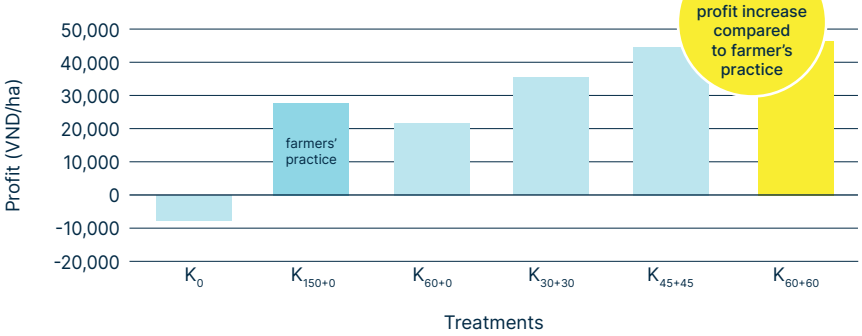
- Plants of all treatments with combined Polysulphate and MOP had significantly greater canopy diameter compared to the MOP-applied plants, and K_0 plants displayed the smallest diameter.
- The response of head dimensions, the total and marketable cabbage yields were lowest at K_0, intermediate under MOP, and significantly higher under MOP and Polysulphate combinations.
- When applying combined MOP and Polysulphate, about 20% of the currently recommended K dose can be avoided, while still producing a 15% increase in the marketable yield.
- Using a combination of Polysulphate and MOP, K application dose was reduced from 150 to 120 kg K_2O/ha, while the profit grew by 64%.

+61.5% yield increase compared to K_0



Bars indicate SE

+64% profit increase compared to farmer's practice



** From research funded by the International Potash Institute www.ipipotash.org.*

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

Polysulphate

fertilizers.sales@icl-group.com
Twitter.com/Polysulphate
YouTube.com/c/Polysulphate-fertilizer
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www.polysulphate.com

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