Added value
Disease resilience

POLY4
An Anglo American Product

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

KEY FINDINGS

POLY4 reduced Clubroot incidence by up to 34%

Cabbages fertilized with POLY4 had larger heads

A case for POLY4

- Clubroot can reduce yield of *Brassica* crops (cabbage, oilseed rape) on average by 10 – 15% with economic losses of 28 – 49%.
- Clubroot thrives in acidic, poorly structured, waterlogged soil with a low calcium content.
- POLY4, as a source of potassium and calcium, lowered clubroot infection over the two-year study.

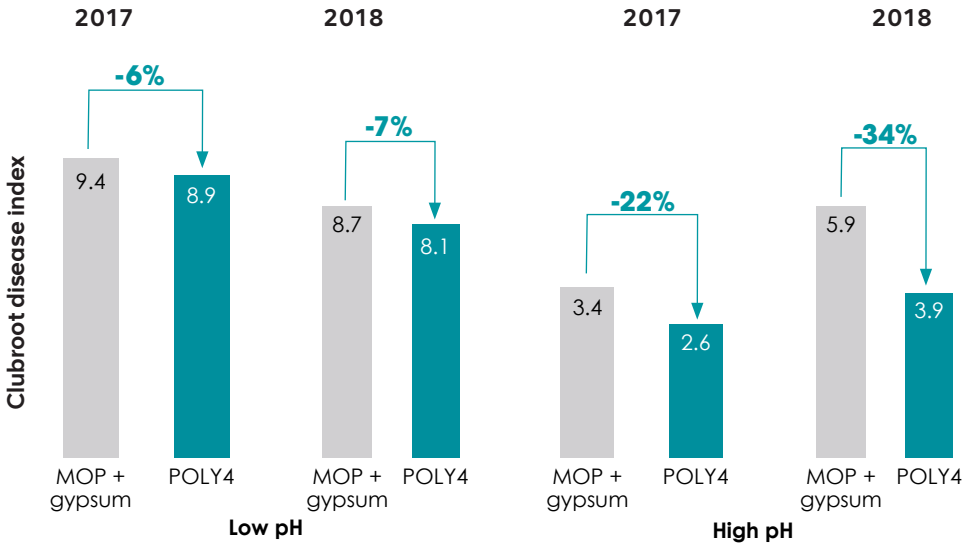
POLY4 benefits

- Source of macro and micro nutrients
- Calcium supports soil and plant health
- Extended nutrient delivery profile
- Suitable for organic farming
- Low CO_2 footprint

Treatments	Average application rate (kg ha^{-1})				
	K_2O	CaO	MgO	S	Cl
MOP + gypsum	350	425	0	336	268
POLY4	350	425	150	475	50

Decreased disease incidence

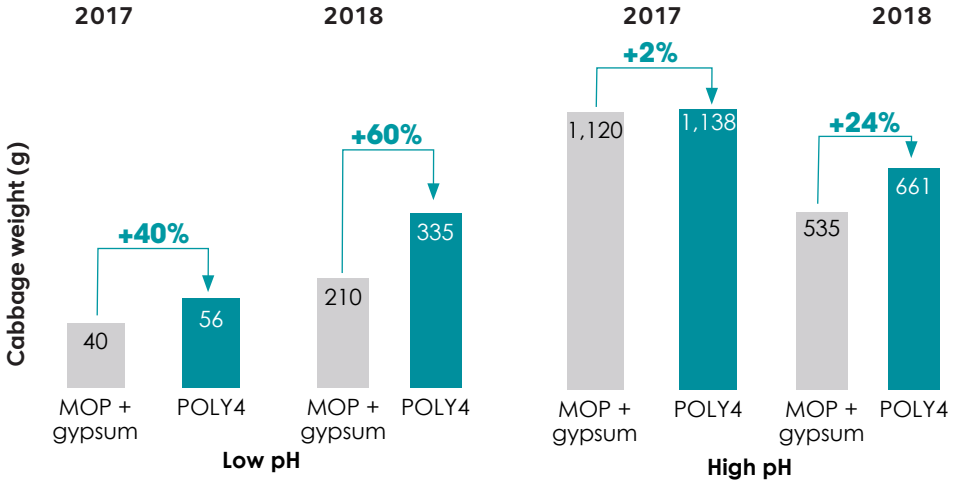
POLY4 fertilized cabbages had consistently less clubroot than when MOP + gypsum was applied over both years of study and under both soil pH levels. Clubroot infection was more severe when cabbages were grown in a low soil pH.



* Warwick Crop Centre clubroot disease index (0-10).

Improved crop quality

Cabbages with more Clubroot tended to have smaller heads. POLY4 fertilized cabbages had larger heads.



Notes: 1) Dixon (2009), (2014); 2) Cabbages (cv Drago) were transplanted into an infected field divided into high and low pH sections; POLY4 and MOP + gypsum were applied pre-planting to provide recommended K input and balance the Ca inputs; the same treatments were applied for two years; 3) 2017 initial soil analysis of low pH site: pH 5.8, 3% SOM, 51 mg P kg^{-1}, 261 mg K kg^{-1}, 137 mg Mg kg^{-1}, 1614 mg Ca kg^{-1}; 2017 high pH site: pH 7.6; 3.1% SOM, 89 mg P kg^{-1}, 222 mg K kg^{-1}, 56 mg Mg kg^{-1}, 2251 mg Ca kg^{-1}; 2018 initial soil analysis of low pH site: pH 6.1, 58 mg P kg^{-1}, 228 mg K kg^{-1}, 117 mg Mg kg^{-1}, 1298 mg Ca kg^{-1}; 2018 high pH site: pH 7.5, 101 mg P kg^{-1}, 273 mg K kg^{-1}, 62.9 mg Mg kg^{-1}, 1896 mg Ca kg^{-1}; 4) N applied as urea at 302 kg N ha^{-1}, P_2O_5 applied as DAP at 50 kg ha^{-1} in 2018; 5) Disease index 0 = none, 10 = severe.
Sources: Warwick University 8000-WCC-8017-17; 8000-WCC-8018-18

*Anglo American recommends that growers utilise local good phytosanitary practices in disease management.

Trial focus

To evaluate the effect of POLY4 on Clubroot infection in a *Brassica* vegetable across two years.

Partner

Warwick University

Location

Wellesbourne, UK

Date

2017-2018

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