Growing TEA IN CHINA

POLY4
A SIRIUS MINERALS PRODUCT

K_2O 14 | S 19 | MgO 6 | CaO 17

KEY FINDINGS

POLY4 increased average yield by 5% over the three-year trial

Improved fertilizer margin by US$328/ha

Improved quality of spring tea

Enhanced soil nutrient status

POLY4 BENEFITS

Good performance in acidic, low nutrient soils common in tea gardens

A low Cl^- balanced source of K and Mg with sulphate S, Ca and additional micro nutrients

Sustained dissolution rate

Suitable for organic farming

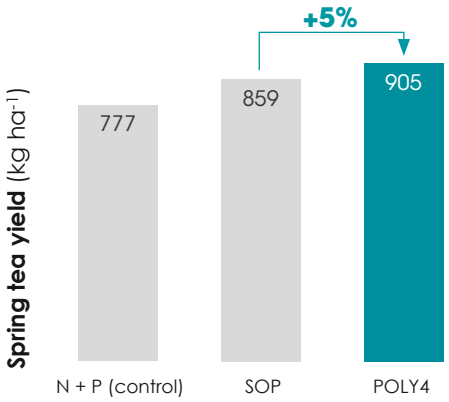
A CASE FOR POLY4

- China produced 28-29% of the worlds tea in 2014-2016.
- Southwest China is an important tea-producing area.
- Soils in this region are low in nutrients such as K and Mg.
- Low chloride K sources can be commonly applied by China tea producers.

Treatment	Average nutrients applied in trial (kg ha^{-1})						
	N	P_2O_5	K_2O	CaO	MgO	S	Cl
N + P (control)	240	120	0	0	0	0	0
SOP	240	120	169	0	0	61	10
POLY4	240	120	169	201	72	230	36

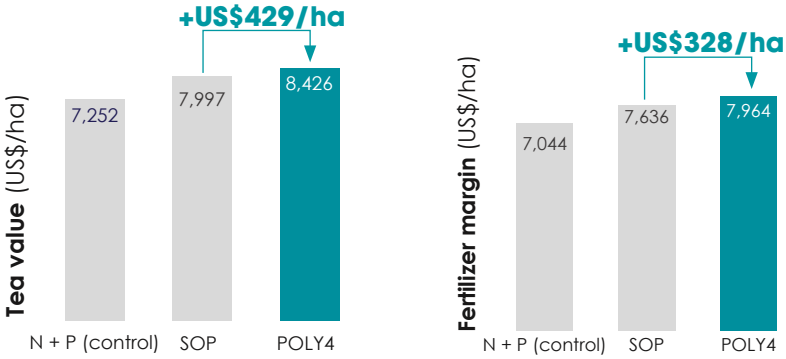
HIGHER SPRING TEA YIELD

On average, POLY4 increased spring tea yield by 5% (+6% in 2015, +4% in 2016 and +7% in 2017) compared to SOP. Spring leaves are typically of highest value, and a higher yield ensures farmer profitability.



INCREASED FINANCIAL RETURN

POLY4 increased the value of tea by US$570/ha in 2015, US$257/ha in 2016 and US$460/ha in 2017. Fertilizer margin was also increased (US$480/ha, US$144/ha and US$360/ha in 2015-17).



IMPROVED QUALITY PARAMETERS

Tea fertilized with POLY4 had higher concentrations of protein, amino acids and water extractable solids.

ENHANCED SOIL NUTRIENTS

POLY4 application increased soil Mg by 46% and Ca by 20% over the three-year trial. Soil S was increased by 18%. The increase in post-harvest soil nutrient status benefits future cropping.

Notes: 1) http://www.fao.org/faostat/en/#data/QC, tea crop from 2014 to 2016; 2) K management in tea plantations: its uptake by field plants, status in soils, and efficacy on yields and quality of teas in China. J. Ruan et al, Journal of Plant Nutrition and Soil Science, 176, 450-459; 3) GENSTAT mean results of three years (2015, 2016 and 2017) ; 4) GENSTAT mean results of two years (2016 and 2017); 5) Initial soil analysis: pH 4.6, EC 1380 µS cm^{-1}, 102 mg N kg^{-1}, 7 mg P kg^{-1}, 57 mg K kg^{-1}, 1602 mg Ca kg^{-1}, 88 mg Mg kg^{-1}, 127 mg S kg^{-1}; 6) Drinnan, J.E. (2008). Fertiliser strategies for mechanical tea production. Australian Government, Rural Industries Research and Development Corporation (38 pages); 7) Tea Research Institute of Sri Lanka. Fertiliser Recommendations for Mature Tea (2000); 8) Tea value: in 2015 US$9,375/ha; in 2016 US$10,165/ha; in 2017 US$8,465/ha; 9) Fertilizer costs (2015, 2016, 2017): spreading cost US$10.78/t; urea US$231/t, US$240/t, US$275/t; MAP US$344/t, US$308/t, US$340/t; SOP US$477/t, US$407/t, US$446/t; POLY4 US$200/t; 10) Fertilizer margin is the value of the crop minus the cost of fertilizer and spreading.
Sources: Soil and Fertiliser Institute, Sichuan Academy of Agricultural Science, 19000-SAAS-19011-14 (2015), 19000-SAAS-19014-15 (2016) and 19000-SAAS-19016-16 (2017).

TRIAL FOCUS

To compare POLY4's effect as K fertilizer to SOP on tea yield and quality over the three-year trial.

PARTNER

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LOCATION

Sichuan Province, China

DATE

2015 - 2017

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