

TRIAL RESULTS

POTATO

SCOTLAND, UK (2017)

HIGHLIGHTS

- Increased tuber sizes.
- Improved marketable yield.
- Increased fertilizer margin by US\$199/ha.

OVERVIEW

- Eurostat reported that in 2017, in the EU-5 (Germany, Belgium, France, the Netherlands and the United Kingdom) the potato production amounted to 37.2 Mmt and was 10.5% higher than 2016. In the UK, potato production stood at 5.5 Mmt and was about 3% greater than a year earlier.
- Potassium fertilizer is a very important input for potato yield, quality and profitability. It also enhances water use efficiency of the crop.
- Potato is a chloride-sensitive, high-value crop and can require Mg as part of an NPK fertilizer plan.

TRIAL OBJECTIVE

To demonstrate to the UK potato farming industry the advantage of using an MOP + POLY4 blend compared to a standard potato fertilizer programme.

PARTNER: JAMES HUTTON INSTITUTE

LOCATION: SCOTLAND, UK

YEAR: 2017

METHODOLOGY

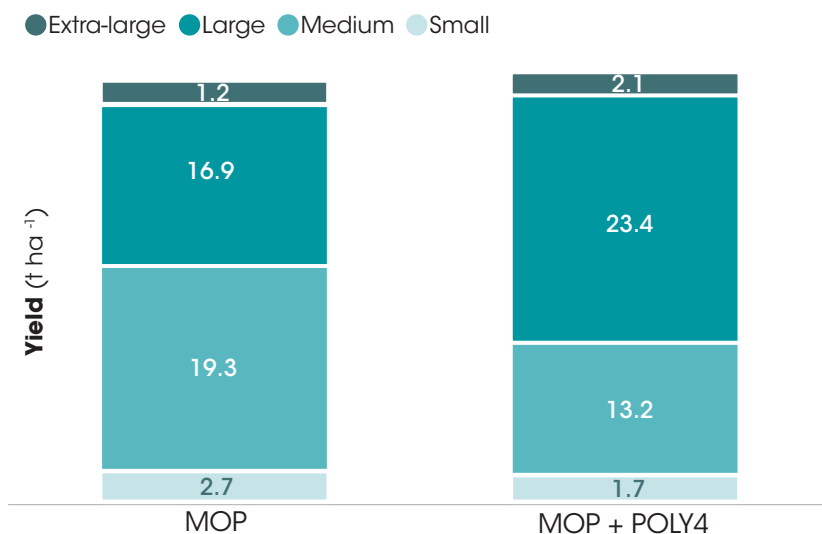
- Three demonstration plots were planted with Maris Piper potato variety.
- One plot was fertilized with N + P only (data not presented). The second with MOP as the only K source. The third plot was fertilized with MOP + POLY4 to provide the same K, plus Mg and Ca. The POLY4 supplied 35% of the K₂O input.

TREATMENT TABLE^{1,2}

Treatment	Nutrients applied at demonstration (kg ha ⁻¹)						
	N	P ₂ O ₅	K ₂ O	CaO	MgO	S	Cl ⁻
MOP	210	170	300	0	0	0	240
MOP + POLY4	210	170	300	121	43	137	181

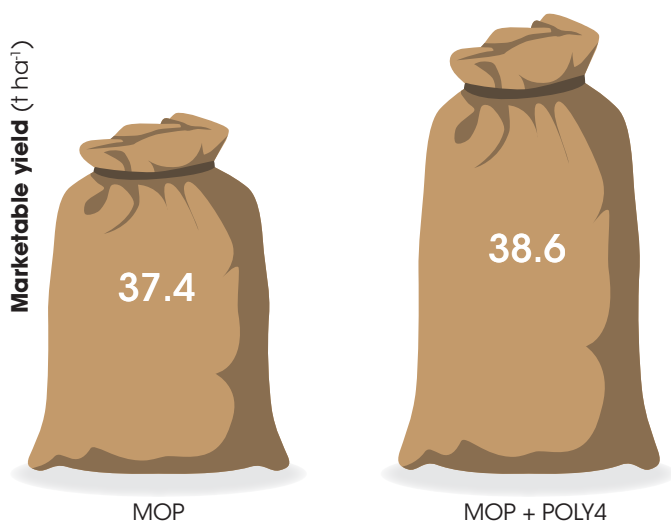
INCREASED TUBER SIZES¹⁻³

- Potato tuber size is important for marketability. The frying industry prefers standard size potatoes (typically 45 to 85mm in length: equivalent to the medium and large sizes presented).
- The MOP+POLY4 fertilized potato tubers were larger (63% total yield was from large or extra-large tubers) than the MOP only option (45%).



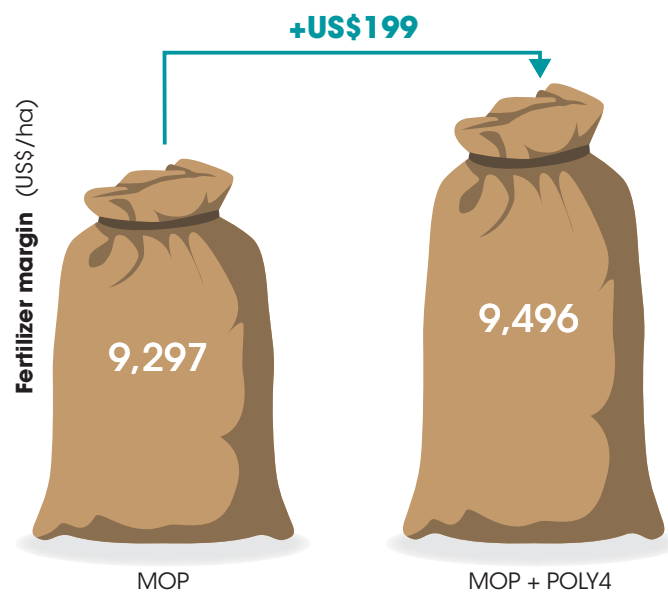
IMPROVED MARKETABLE YIELD^{1,2}

- The POLY4 fertilizer treatment improved marketable potato yield compared to the MOP-only option.



INCREASED ECONOMIC BENEFIT⁴⁻⁸

- Increased marketable potato yield improved fertilizer margin with the POLY4 fertilizer plan offering the best economic benefit.



Notes: 1) Initial soil analysis pH 6.1, 24 mg P kg⁻¹, 160 mg K kg⁻¹, 165 mg Mg kg⁻¹; 2) Genstat means; 3) Tuber sizing: extra-large >85mm diameter, large = 65-85mm diameter, medium = 45-65mm diameter, small <45mm diameter; 4) The MOP price was 2017 price for North-West Europe obtained from CRU: MOP (US\$279/t), POLY4 (US\$200/t); 5) The analysis took into consideration fertilizer spreading cost of US\$20.3/t; 6) Potato price was obtained from FAOSTAT = US\$253/t; 7) Margin = crop output minus (cost of fertilizer material + cost of fertilizer application); 8) The fertilizer margin was estimated taking into consideration only the MOP and POLY4 fertilizer costs.

Source: James Hutton Institute (2017) 69000-JHI-69010-17

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