

# POTATO DEMONSTRATION DAY

WESTMAAS, NETHERLANDS (2018)



## HIGHLIGHTS

POLY4 increased potato yield by 29% compared to the industry standard.

POLY4 maintained the quality of tubers including dry matter.

In this demonstration, under drought stress conditions, the POLY4 fertilizer plan supported higher yield.



Eurostat estimates that in 2017, the total potato production in the European Union has grown from 56.9 to 62.0 Mmt, up by 9%. This was largely due to an increase in Poland's potato production (by about 1 Mmt) amounting to about 9.8 Mmt.

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 in the previous year. The total potato

production by the EU-5, including seed potatoes and potatoes for starch production, increased in 2017. Germany harvested 11.3 Mmt and was 5% higher than the year before. France increased harvest by 15% to 8 Mmt. In the Netherlands, it grew by 14% to 7.4 Mmt, and in Belgium it increased by 15% to 5 Mmt. In the UK, potato production stood at 5.5 Mmt and was about 3% greater than a year earlier.

## TRIAL OBJECTIVE

To demonstrate the response of potato yield and quality to the POLY4 fertilizer treatments compared to other industry standard fertilizer products.

## OVERVIEW

**PARTNER:** WAGENINGEN UNIVERSITY AND RESEARCH  
**LOCATION:** WESTMAAS, NETHERLANDS  
**YEAR:** 2018

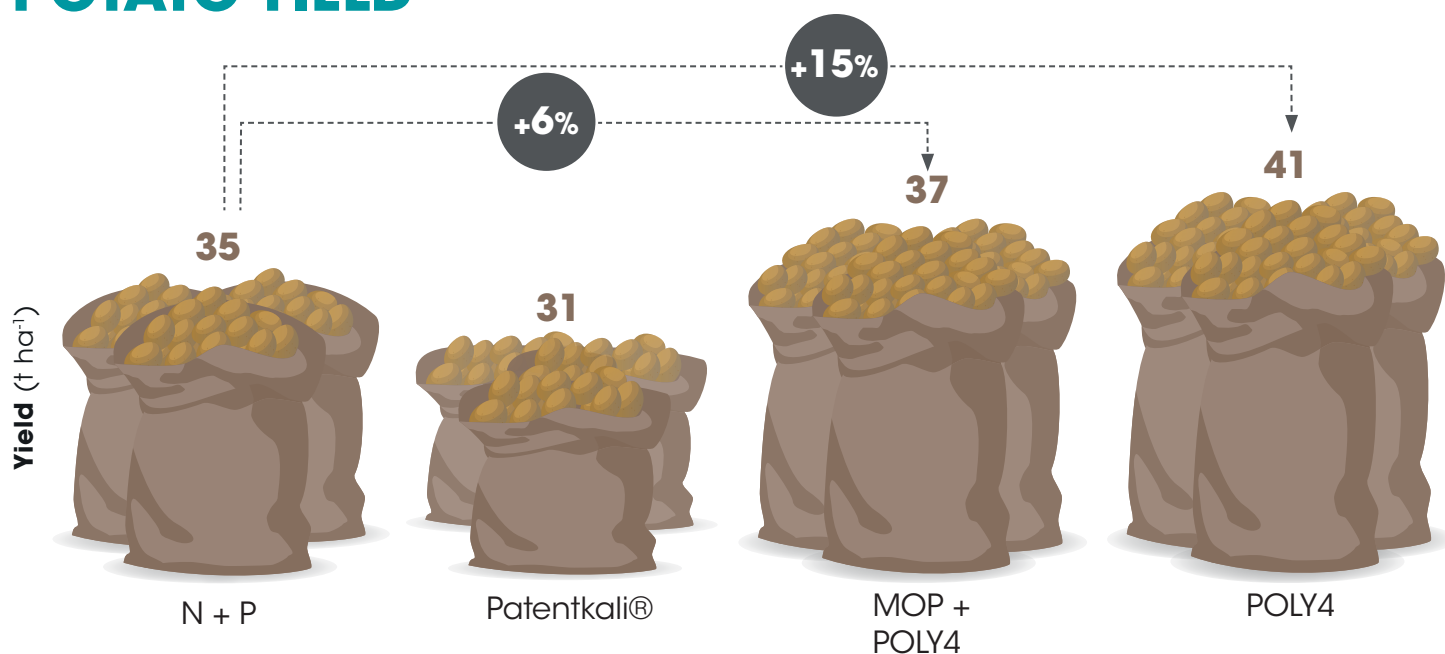
- Total production of potatoes for consumption in the 2017 potato harvest in Netherlands exceeded 4 million metric tonnes (Mmt). An increase of 27% compared to 2016.<sup>1</sup>
- The increased production is the result of a combined increase of acreage and an increase in yield/hectare. The planted acreage increased 4.0% from 73,321 to 76,243 hectares. The yield per hectare increased 18%, from 45.7 t ha<sup>-1</sup> to 52.6 t ha<sup>-1</sup>.<sup>1</sup>
- This demonstration was conducted in Westmaas, Netherlands for the 2018 Aardappel (Potato) Demonstration Day.
- The potato variety used was Innovator – a variety suitable for frying.
- The crop experienced a water deficit throughout the summer months.
- The performance of the crop grown with POLY4, MOP+POLY4 or Patentkali® was compared.



# TREATMENT TABLE<sup>2-6</sup>

Nutrient	Total product spread (kg ha <sup>-1</sup> )	Nutrient applied (kg ha <sup>-1</sup> )						
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	CaO	MgO	Cl <sup>-</sup>
N + P	525	182	98	0	0	0	0	0
Patentkali® (Industry standard)	1525	182	98	300	425	0	100	<30
MOP + POLY4 (75:25)	1436	182	98	300	102	91	32	166
POLY4	2668	182	98	300	407	364	129	<64

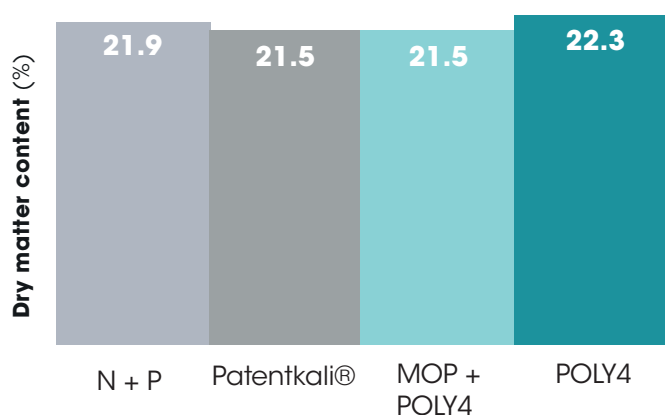
## POTATO YIELD<sup>2-7</sup>



- MOP + POLY4 increased yield by 19% compared to Patentkali® and by 6% compared to the N + P.

- POLY4 increased yield by 29% compared to Patentkali® and by 15% compared to the N + P.

## POTATO QUALITY



- Tuber dry matter is important for frying potatoes. Higher dry matter content (DM%) is the most important characteristic that helps to attract a price premium from the potato frying industry. For processing, high tuber dry matter content influences the oil absorption rate to achieve a good fry colour.

- The quality of tubers was maintained under all treatments with tuber dry matter content ranging from 21.5 to 22.3%.<sup>8</sup>

# VALUE ASSESSMENT

- POLY4 fertilizer plans delivered appropriate magnesium, calcium and crop-available sulphate-sulphur, supplementary to the crop potash demands.
- From the same weight of fertilizer per hectare, a POLY4 fertilizer plan delivered a high-quality tuber.
- In this trial, under drought stress conditions, the POLY4 fertilizer plan supported higher yield than a common high quality, low-chloride alternative.



1) Statistics Netherlands (Centraal Bureau voor de Statistiek, CBS) (2017); 2) Initial soil analysis (0 – 30cm): soil texture: silty loam, organic matter 3.3%, pH 7.4, 25 mg P kg<sup>-1</sup>, 218 mg K kg<sup>-1</sup>, 6 mg S kg<sup>-1</sup>, 140 mg Mg kg<sup>-1</sup>, 4093 mg Ca kg<sup>-1</sup>; 3) All treatments were broadcast by hand at the time of planting on 16 May 2018; 4) Industry standard and POLY4 chloride contents less than 3%; MOP chloride content of 40%; 5) Ratio of K<sub>2</sub>O supplied by MOP and POLY4; 6) Nutrient sources: N — urea, P — diammonium phosphate (DAP); 7) Measurements conducted on 21 August 2018; 8) DM content calculated from underwater weights using the method described in “Evaluation of the Weltech PW-2050 dry matter assessment system”, British Potato Council (2006).

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