Growing CARROTS IN BRAZIL





KEY FINDINGS

22% higher marketable yield than MOP and 16% higher than SOP-M

Greater production of high-grade carrots

Increased revenue

A CASE FOR POLY4

- Carrots are cultivated across 25,000 ha in Brazil, with a total production of 780,000 tonnes.
- This region typically has soils with limited K and S availability.
- High K fertilizer applications to carrots and other vegetable crops in the rotation can limit Ca and Mg availability. Carrots deficient in Ca can have reduced root size.
- POLY4 contains K, Ca, Mg and sulphate-S to better meet crop demand.
- POLY4 increased marketable carrot yield in the prior carrot trial in Campinas, São Paulo. This trial was in Andradas, Minas Gerais.

POLY4 BENEFITS



Balanced source of four macro nutrients



Low chloride fertilizer



Extended nutrient delivery profile



Supplies calcium in support of crop and soil health



Blends, stores and spreads well with conventional equipment

Treatments	Nutrients applied (kg ha ⁻¹)					
	N	P ₂ O ₅	K₂O	CaO	MgO	S
N + P (control)	0	0	0	0	0	0
MOP	140	360	180	0	0	0
SOP	140	360	180	0	0	61
SOP-M	140	360	180	0	154	189
POLY4	140	360	180	218	77	244

*All treatments received standard applications of N and P fertilizer.

ELEVATED COMMERCIAL NUMBER OF ROOTS AND SIZE

POLY4-fertilized crops had more carrots per hectare than MOP or SOP. SOP-M had the greatest number of carrots per hectare, but on average roots were 19% smaller in size compared to POLY4.



ENHANCED YIELD AND QUALITY



POLY4-fertilized crop had the highest marketable yield as well as a greater production of higher-grade carrots: class 2 and 3, with 3 being the most valuable. Higher grade could have been achieved due to POLY4's balanced nutrition. POLY4 and SOP-M were the only fertilizers to supply Mg while POLY4 also supplied Ca.



INCREASED FINANCIAL REVENUE



Revenue is based on the value of each grade of carrot. POLY4-fertilized carrots had a greater revenue than the other fertilizer sources.



Notes: 1) Prior carrot trial 4000-USP-4020-16; N and P applied with urea and MAP at 140 kg N ha⁻¹ and 300 kg P₂O₅ ha⁻¹. 2) Initial soil analysis: pH 4.7, 4.4% SOM, 5 mg P I⁻¹, 91 mg K I⁻¹, 276 mg Ca I⁻¹, 84 mg Mg I⁻¹; 3) Carrot prices were US\$339/t for Class 1, US\$428/t for Class 2, US\$501/t for Class 3; Reference price for carrots from July 2018: http://www.ceagesp.gov.br/ entrepostos/servicos/cotacoes/#cotacao.



TRIAL FOCUS

To compare carrot yield and quality after application of POLY4 with alternative K fertilizers.

PARTNER

University of São Paulo

LOCATION Minas Gerais, Brazil

DATE 2018

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Source: University of São Paulo (2018), 4000-USP-4027-17 (carrot).