



AGROMASTER®

Trial results

Potato (*Solanum tuberosum*)

Higher yields – up by 12%

Steered by soil temperatures, nitrogen is released according to plant needs and improves yields by extra 6.8 mt.

Higher NUE – up by 65%

Agromaster is more efficient than conventional N-fertilizers due to its controlled release technology. Every kg of nitrogen applied with Agromaster provided extra 53 kg of potatoes.

High yields with 20% less N

Reduction of N rate by 20% while maintaining high yields is possible when using controlled release fertilizers.

Positive ROI – up to 1,000€/ha extra

Yield increase brings extra turnover per ha and makes Controlled Release Fertilizers (CRFs) a reliable solution to fertilize open field soil grown crops.





When

Seeding:
May 5, 2023
Harvest:
September 11, 2023



Where

Tarnawa, Poland



Crop

Potato, Soraya



Soil type

Loamy
P – 32.9 mg/100 g
K – 27 mg/100g
Mg – 7.4 mg/100g
pH = 6.2

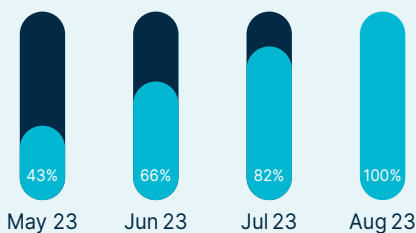


Measurements

- Marketable yield
- NUE

Cumulative monthly release of N during crop cycle

Controlled release of nitrogen reduces losses by leaching, volatilization and denitrification thereby increasing its effectiveness to plants.



ICL's app – CRF Timer simulates the release of nitrogen, based on local weather conditions.

Try it yourself!



www.icl-growingsolutions.com

Objective

To evaluate the possibility of reducing fertilizer rates in potato production by using Controlled Release Nitrogen fertilizers, like Agromaster. Agromaster consists of 60% coated nitrogen by using ICL's fully biodegradable release technology – **eqo.x**[®].

Trial station and set-up

Experimental station - Słupia

Randomized block design with 3 repetitions

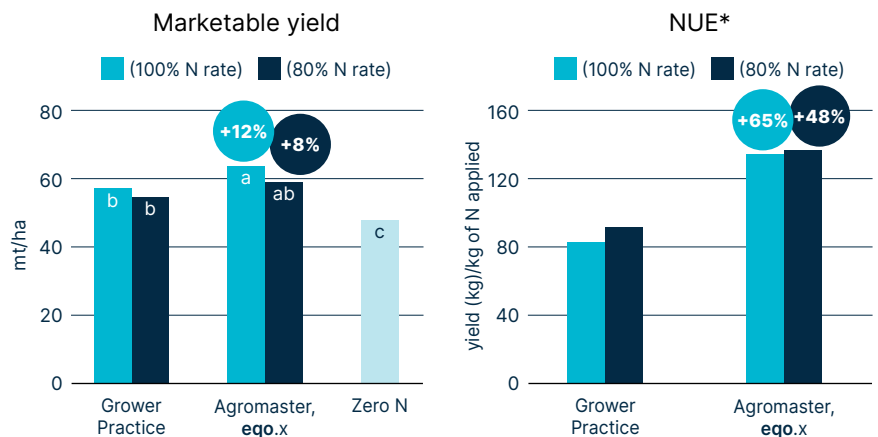
Treatments

Treatment	Product	Application type	N	P ₂ O ₅	K ₂ O
Grower Practice 100% N rate	Conventional NPK 6-20-30+7SO ₃ = 500 kg/ha MOP = 100 kg/ha Urea = 200 kg/ha	A	122	100	210
		A			
		B			
Grower Practice 80% N rate	Conventional NPK 6-20-30+7SO ₃ = 500 kg/ha MOP = 100 kg/ha Urea = 150 kg/ha	A	99	100	210
		A			
		B			
Agromaster 9-11-24+TE eqo.x [®] - full N rate	Agromaster 9-11-24+TE, eqo.x 900 kg/ha Urea = 90kg/ha	A	122	100	213
		B			
Agromaster 9-11-24+TE eqo.x [®] - 80% N rate	Agromaster 9-11-24+TE, eqo.x = 900 kg/ha Urea = 40kg/ha	A	99	100	213
		B			

Application type: A – before seeding, B – before preparing final ridges.

Results

When compared to conventional fertilizers, by using Agromaster and reducing N rate by 20% statistically similar or even higher yields can be achieved.



Statistically significant differences, $P < 0.5$

*Nitrogen Use Efficiency (NUE), calculated as Agronomic Efficiency = $(YF - Y0) / N$ applied, kg

Economical evaluation

Treatments	Yield (mt/ha)	Gross income minus fertilizers cost (€/ha)	Gross profit vs Grower Practice (€/ha)
Grower Practice (100% N rate)	55.9	10,340	
Grower Practice (80% N rate)	55.0	10,185	- 155
Agromaster, eqo.x (100% N rate)	62.8	11,345	1,005
Agromaster, eqo.x (80% N rate)	59.5	10,748	408

Economical evaluation was done based on actual market price for fertilizers used and the whole-sale price of potatoes.