



POTATO FERTIGATION

GENERAL

The density for planting potatoes varies from 30 to 60.000 tubers / ha.
The ideal pH for the potato varies from 6.8 to 7.2 for slimy soils. It is from 5.8 to 6.2 for sandy soils.

A slightly acid pH (6 on loamy) reduces the incidence of scab, but diminishes the effectiveness of nitrogen (91 %) and phosphorus (52%).

Scab also occurs in soils with a coarse structure, and frequent draw-off of organic matter.

The nitrogen fertiliser will depend on the late or early character of the potato, the variety, and the end-use of the crop (consumption, industry, chips...). Irregular nitrogen feed causes internal and external deformation of the potato (crevices, deformation of the heart...)

Nitrogen also diminishes the sensitivity to blue stain (less production of tyrosine; also varieties incidence), increases the firmness, and diminishes the colour (paler in the event of strong nitrogen fertilisers) and the content in dry matter and starch. Too much nitrogen harms conservation.

Potash permits the plant to better support variations in osmotic shocks (which improve conservation).

Strong potash fertilisers improve the calibre, but lower the rate of dry matter and starch (too much sugar). Potash also diminishes the sensitivity to blue stain.

Potash requirements are high for early potatoes, consumption potatoes, and firm flesh potatoes.

They are average for chips and fries and are weak for starch and the plant.

One always prefers chloride sulphate (danger of toxicity on dry soils and high dosage).

Magnesium stimulates photosynthesis, the potato is sensitive to any deficiency of this element. This induces a too-early maturation and a drop in yield.

Influence of potash and magnesium fertilisation on the yield in tubers/ha.

Fertilisation	0 MgO	75 MgO	150 MgO
0 K ₂ O	100*	104.6	101.2
240 K ₂ O	109.2	113.3	109.6

*100 = 48.721 Kg/ha

The potato is sensitive to phosphorus fertiliser: phosphorus improves the formation of roots, flowering and fecundity, early maturity and tuberisation (as well as the number of tubers).

According to the vegetation period, one classifies potatoes as early (90 to 100 days), semi-early (100 to 110 days), semi-late (110 to 120 days) and late (120 days and over).

Water requirements are, on average, 340 L per kg of dry matter (5.8 Mio for 150 days of growth or 39.000 L/day).

The potato is sensitive to deficiencies in manganese, zinc, iron and molybdenum, and reasonably sensitive to salinity.



NUTRIENT UPTAKE/REMOVAL (in normal growth conditions)

		Dry matter	N	P ₂ O ₅	K ₂ O	CaO	MgO
Leaves	30 T	4320	102	20	117	123	28
Tubers	60 T	12900	203	63	334	20	10
	Total		305	82	511	48	133

FERTIGATION ADVICE

Expected yield:

60T/ha (late variety) – fertilisation advice N: 212.5 kg/ha- P₂O₅: 115 kg/ha- K₂O: 300 kg/ha- MgO: 30

Irrigation	Phenologic stage	10 days after plantation till beginning tuberisation			From beginning of tuberisation till 10 days before defoliation		
	Number of days		20			105	
Fertilising elements		N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O
Requirements in fertilising elements		22.5	67.5	15	190	47.5	285
NPK ratio		1	3	0.7	1.9	1	3.2
Formulation		15*45*10			17*09*29 + 1MgO		
Number of kg/ha		150			950		
Number of kg/ha/day		7.5			9		

Foliar treatment: see SUPREMO L program

Yield deviation: By 10T/ha of deviation, fertilisation advice will be reduced or added of 250 kg of 17*9*29 + T.E at stage 2.

Notice: Formulae and recommended doses correspond to the plant average needs, cropped on well-balanced soils. They must be adapted to the soil, the climate, the cropping conditions, the variety, the water management and the yield target. Fertigation schedule indicate daily fertilizer requirements per ha. In case of irrigation in time intervals other than daily, the amount of fertilizer to be given has to be increased proportionally. The base dressing (organic and/or mineral) should be deducted from advised recommendations.

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