

Potassium nitrate: A dual solution

Potassium (K) is an essential nutrient for potato crops, as it affects various aspects of yield and quality throughout the growth period. There are three main potassium fertiliser sources namely potassium nitrate (KNO_3), potassium sulphate (K_2SO_4) and potassium chloride (KCl). The major difference between these potassium sources is the counter-ion that comes with the potassium nutrient. KNO_3 contains 38% potassium and 13% nitrate nitrogen (N-NO_3^-). Both potassium and nitrogen (N) are used in large quantities for potato production.

Potassium sulphate contains 40% potassium and 18% sulphur (S). Potassium is needed in large amounts. Sulphur, although important in plant nutrition, is needed in much lower quantities and excess application can create unwanted salinity in the root zone. Potassium chloride contains 50% potassium and chloride (Cl^-). It is a common fertiliser and provides only potassium as a nutrient and no additional N or S.

Work smart

Potatoes are among several high-value crops that are particularly sensitive to Cl and salt. Continued application of potassium sources with a high Cl content or salt index can have a toxic effect, building up in the soil and contributing to lower yields, lower quality and lost income.

When producers replace KNO_3 with K_2SO_4 and KCl in their fertiliser recommendation programme, an extra 13% N must be applied to compensate for the N they lose when not applying KNO_3 (Table 1).



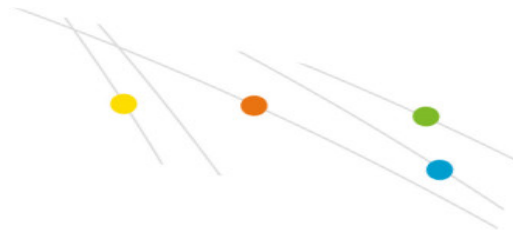
Bester and Maree (1990) conducted a two-year trial to compare the number and weight of tubers between KNO₃, K₂SO₄, and KCl potassium treatments. They found that the application of KNO₃ significantly increased the number and weight of tubers compared to K₂SO₄ and KCl.

Higher yield with KNO₃

SQM is a global market leader in producing KNO₃ of natural origin. Their product is chlorine-free, 100% water-soluble, and has the lowest carbon footprint, providing the producer with high-quality KNO₃ products such as Ultrasol® K Plus**, Ultrasol®ine K Plus*** and Qrop® K****.

Ultrasol® K Plus is a crystalline water-soluble KNO₃ source for producing outstanding crops. The additional N-NO₃⁻ ensures rapid absorption by the plant. It has very low levels of Cl, sodium, and heavy metals. It is a free-flowing, fine crystalline powder that dissolves quickly in water. It can be mixed with all water-soluble fertilisers, and it is also compatible with most pesticides in foliar application. N-NO₃⁻ is non-volatile and enhances the uptake of other cations (K⁺, Ca₂⁺, Mg₂⁺). Due

to its low N/K ratio, Ultrasol® K Plus is suitable for all crops and growth stages, including flowering and ripening stages. Ultrasol®ine K Plus is SQM's brand of crystalline water-soluble KNO₃ that contains the plant nutrient, iodine. Ultrasol®ine makes it easy for producers to ensure the right amount of iodine in the nutrient solution and prevents excess uptake in leaves or fruits. Iodine is a structural component of plant proteins.



A versatile product

Qrop® K**** is a prilled KNO₃ source that is rapidly absorbed by the plant and provides N-NO₃⁻, the plants' preferred N source.

This product can be mixed with virtually any straight fertiliser applied in agriculture. Due to the elements it provides and its low salinity,

Qrop® K can be applied to a wide range of crops and during each growth stage. More than 80% of the N consumed by plants is nitrate, the preferred nitrogen source of plants. Using KNO₃, producers can maximise the application of potassium and nitrate that cannot be obtained by using either KCL or K₂SO₄. Therefore, with Ultrasol K Plus, the potato is being supplied with two of its main nutritional elements in one product.

Table 1: Potassium fertilisers with their nutrient content

Potassium product		Nutrient content			
		N	K	S	Cl
Potassium nitrate	KNO ₃	13	38	-	-
Potassium sulphate	K ₂ SO ₄	-	42	17	-
Potassium chloride	KCl	-	50	-	50

For more information, visit SQM's website at www.sqm.com/en/sqm-en-el-mundo/?r=sur-de-africa.



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