



Potassium nitrate from natural resources

*Sustainably boosting profitable crop yields,
efficiently combating environmental stresses.*



Nutrition



Yield



Salinity



Quality



Efficient
water use



Sustainability

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Potassium nitrate (KNO_3): Efficient plant nutrition

Stronger and healthier crops

Apply KNO_3 to improve crop development and to increase tolerance to adverse abiotic or biotic stress



Composed of N and K, two essential plant macronutrients



Efficient K^+ and NO_3^- uptake by the crop throughout the growth season



Available in crystalline form and as prill



Crystalline potassium nitrate is ideal for application by fertigation and foliar sprays



Prills are suitable for split soil applications (basal and side or topdressing)

Enhances drought tolerance



Improves frost tolerance



Increases the plant's tolerance to pests and diseases



Nitrate nitrogen is non toxic for the roots



Nitrate combats harmful accumulation of chloride





Potassium nitrate (KNO_3): Increases crop yield

KNO_3 increases the profitability of the farmer's investment in optimal plant nutrition

Deliver high quality products while increasing profitability and harvest security



Promotes photosynthesis

Potassium nitrate increases efficiency of CO_2 assimilation by optimal function of stomata, resulting in elevated sugar production.



Increases photosynthetic capacity

Larger leaf surface, higher chlorophyll density and increased lifespan of leaves, contribute to higher fruit quality.



Intensifies the transport and storage of assimilates

Potassium is essential to direct the flow of sugars from the leaf to the fruit or grain.



Promotes the production of proteins

Efficient conversion of inorganic N from nitrate to proteins.

Supports tolerance to pests and diseases

Potassium nitrate strengthens the cell wall barrier and stimulates cell metabolism, with fast turnover of intermediate metabolites, reducing available substrate for pathogens.



Improves water use efficiency

Less water is needed per kilogram by crop production.



Improves fertilizer use efficiency

Potassium nitrate is indispensable for any sustainable fertilizer program. Balanced nutrient management reduces the amount of fertilizer applied per unit surface and per unit of yield, increasing the farmer's revenue.



Potassium nitrate (KNO_3): Prevents soil salinization

K^+ and NO_3^- are fully absorbed by the plant,
following crop demand

Prevent excessive supply of K_2SO_4 or KCl as the main K-source to avoid sulphate and chloride accumulation in the soil and to prevent soil salinity

Completely absorbed by the plant

The synergistic relation between potassium and nitrate promotes rapid absorption of both ions by the roots from the soil. Dominant presence of N as NO_3^- in the root zone stimulates K uptake by the roots, and in turn, K stimulates NO_3^- absorption.



Reduces need for additional irrigation

Reduced salinity build-up eliminates the need for additional irrigation to remove salts from the soil.



Counteracts negative effects of sodium

Therefore, potassium nitrate is highly recommended for salt-sensitive crops, and when growing crops under saline soil and irrigation water conditions.



Minimizes chloride uptake

Increasing levels of NO_3^- in the root zone limit uptake of Cl^- .



Improves the availability of phosphorus and micronutrients

The nitrate in potassium nitrate enhances the formation of organic acids (carboxylates) and their exudation into the growing media. This facilitates the release of phosphate and micronutrients from soil particles to the soil solution.



Potassium nitrate (KNO_3): The element Q stands for Quality

KNO_3 increases the quality of the harvested produce

Increase profitability by delivering higher priced quality class produce



Increases fruit size

Numerous trials have shown that potassium nitrate is instrumental to enhance fruit diameter and increase uniformity.



Improves visual appearance

Uniform colouring and reduction of blemishes make fruits and vegetables more attractive to receive a better market price.



Increases nutritional value

Potassium nitrate increases the content of nutrients beneficial to human health like potassium or antioxidants like vitamin C.

Improves organoleptic features

Potassium nitrate stimulates the ripening process, improving the taste of fruits based on aromatic compounds and soluble sugar contents.



Crop loss reduction

Well balanced specialty plant nutrition programmes which include KNO_3 , increase tolerance to biotic and abiotic stresses during the crop cycle, resulting in reduced crop losses.



Reduces loss and waste in the product value chain

Enhanced content of antioxidants, disease tolerance, and optimal dry matter content and moisture control improve storage quality of produce, lengthening its shelf life.



Potassium nitrate (KNO_3): **Saves water**

Improved water use efficiency

Decrease water requirement of the crop through better water management

Improves the plant's water management

Nitrate-fed plants utilize water twice as efficient as ammonium-fed plants.



Prevents water loss

Potassium is responsible for opening and closing of stomata. Adequate potassium supply optimizes plant transpiration and reduces its water requirement.



Increases water uptake efficiency

Adequate potassium nutrition of the plant enhances its water sourcing efficiency from the soil.



Prevents undesirable salinization of the root zone

Application of potassium nitrate as main K-source eliminates the need for additional irrigation to remove undesirable salts from the root zone.





Potassium nitrate (KNO_3): Sustainable production processes

SQM is strongly committed to sustainable development
*SQM carries out its operations in harmony with the environment,
minimizing the impact of its KNO_3 production processes*



Efficient water management in the production processes

SQM re-utilizes in its production processes all water, after purification in SQM's own waste-water treatment plants.



The potassium nitrate with the lowest CO_2 footprint

40% less greenhouse gas (GHG) emissions which would be equivalent to removing up to 155.000 mid-size vehicles from the highways each year compared to synthetic ammonia-derived KNO_3 .*

SQM's energy requirement is supplied by the sun

SQM owns over 3.000 hectares of solar evaporation ponds, saving fossil sourced energy equivalent to 91% of all company's energy requirements.



Solid knowledge to protect ecosystems

SQM invests in the development of solid know-how of ecosystems surrounding the production facilities. This helps to protect the environment by implementation of programs for prevention, mitigation, monitoring and control.



*Source: Arthur D. Little BENELUX, 2014



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Naturally Better

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